Meeting the Grades 4 to 10 Curriculum with

Outdoor Learning Experiences: The Health and Academic Benefits of Spending

More Time Outdoors

By

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Abstract

This is an exploratory study that looks at whether practicing teachers of grades 4-10 in Toronto, Ontario, are providing their students with outdoor learning experiences (OLEs). For the purposes of this paper, OLEs are defined as instances when students and teachers go outside during their class time and work towards completing the requirements for the Ontario Curriculum for grades 4-10. It should be noted that OLEs are not the same as outdoor education; teachers are not expected to be teaching students how to survive in the wilderness. The emphasis I am placing on OLEs is a result of my personal observations as well as the research showing that when students interact and learn from their environment there is an increase in both student learning, as well as student success (Racher, personal communication, September 22, 2014).

The impetus for this research topic is that despite the fact that physicians and researchers have been highlighting the positive health impacts of spending time outdoors, children are still spending a large portion of their days indoors. This is in large part due to the structure of school systems in Ontario; how busy teachers are; and the accompanying paper work associated with taking students out of the classroom. This study will therefore look at current practices of five Ontario teachers (three teachers teaching the Ontario Junior/Intermediate curriculum, and two teachers who have become professors in teacher training programs at the University of Toronto) in order to identify the barriers and areas in need of improvement for more OLEs while incorporating curriculum requirements.

In order to provide relevant and current data on this topic, I interviewed teachers currently teaching in Ontario schools, as well as scholars who have been researching this topic. Similarly, scholarly journals and Ministry of Education documents were examined
to gain further insight on this issue. The goals of this research project is to seek answers to the following questions: Given the physical and mental health benefits, as well as the increased student learning and success rates of OLEs, why are teachers not taking their students outdoors more often? What may be preventing teachers from incorporating OLEs in their teaching strategies? Having isolated the barriers, how can we encourage more teachers to incorporate OLEs in their teaching practices?

The literature review conducted for this study highlighted the importance of getting children outdoors due to the mental and physical health impacts of outdoor experiences, as well as the increase in student learning and success. However, during my field observations during the last two years, I witnessed the extent to which students remain indoors while attending a typical public school in Toronto, Ontario. Fortunately, not only was I given the opportunity to take them outside and see the change in engagement levels that followed the time they spent outside, I was also placed at an outdoor education center (OEC) where students benefited from Teaching Games for Understanding (TGfU), a game-centred approach to teaching and learning (Light, 2003).

At the OEC, students spent approximately 6 hours of their day outdoors, interacting and learning from the outdoor space. It was evident from the student’s engagement levels and their answers to our questions, that they were grasping the ideas of the lessons, perhaps more so than when they learn in a typical classroom with four walls and a ceiling. This study will therefore use the literature review as well as the experiences the researcher had in the field as the foundation in which to build on the statement: *Students would cognitively as well as mentally and physically benefit from more OLEs during school hours.*
Key Words:

1. Outdoors

2. Learning

3. Experiences
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TABLES OF CONTENTS

ABSTRACT ........................................................................................................................................2

ACKNOWLEDGEMENTS .............................................................................................................5

CHAPTER 1: INTRODUCTION ....................................................................................................8
  INTRODUCTION TO THE RESEARCH STUDY ........................................................................8
  PURPOSE OF THE STUDY ........................................................................................................9
  RESEARCH QUESTIONS .............................................................................................................10
  WHAT IS HOLDING YOU BACK? ...............................................................................................11
  HOW CAN MY RESEARCH HELP TEACHERS INTEGRATE OLES? .......................................12
  LET’S GO OUTSIDE! ..................................................................................................................12
  LET’S GET HEALTHY! ..............................................................................................................13
  BACKGROUND OF THE RESEARCHER .................................................................................14
  OVERVIEW ................................................................................................................................15

CHAPTER 2: LITERATURE REVIEW ............................................................................................16
  BENEFITS AND DRAWBACKS OF OLES ..............................................................................16
  AUTHENTIC LEARNING AS A RESULT OF OLES .................................................................20
  OPPORTUNITIES FOR AND OBSTACLES OF OLES ..............................................................21
  BEST PRACTICES FOR TAKING STUDENTS OUTSIDE ........................................................22

CHAPTER 3: METHODOLOGY ....................................................................................................24
  PROCEDURE .............................................................................................................................24
  INSTRUMENTS OF DATA COLLECTION .................................................................................25
  PARTICIPANTS .........................................................................................................................25
  DATA COLLECTION AND ANALYSIS .....................................................................................26
  ETHICAL REVIEW PROCEDURES ..........................................................................................26
  LIMITATIONS ..........................................................................................................................27

CHAPTER 4: FINDINGS ................................................................................................................29
  THEMES ...................................................................................................................................29
  THEME 1: TEACHER’S PRIOR KNOWLEDGE .........................................................................29
  THEME 2: CONCRETE MEASUREMENTS OF SUCCESS .......................................................31
  THEME 3: BENEFITS OF OUTDOOR LEARNING EXPERIENCES .........................................34
  THEME 4: TYPES OF OUTDOOR LEARNING EXPERIENCES .................................................37
  THEME 5: BARRIERS TO OUTDOOR LEARNING EXPERIENCES ..........................................41

CHAPTER 5: DISCUSSION ............................................................................................................44
  IMPLICATIONS ..........................................................................................................................44
  RECOMMENDATIONS AND BEST PRACTICES ....................................................................45
  SAMPLE LESSON PLANS AND BEST PRACTICES ...............................................................45
  RECOMMENDATIONS FOR IMPLEMENTATION OF OLES ....................................................46
  LIMITATIONS ..........................................................................................................................48
  FURTHER STUDY ......................................................................................................................48
REFERENCES .................................................................................................................. 52

APPENDICES .................................................................................................................. 56
  APPENDIX A: INTERVIEW PROTOCOL AND QUESTIONS .............................................. 56
  APPENDIX B: PARTICIPANT REQUIREMENTS .............................................................. 59
  APPENDIX C: LETTER OF CONSENT FOR INTERVIEW .............................................. 60
  APPENDIX D – RACHEL’S LESSON PLAN ................................................................. 62
  APPENDIX E – ROGER’S LESSON PLAN .................................................................. 63
  APPENDIX F – LILA’S LESSON IDEAS ................................................................. 65
Chapter 1: INTRODUCTION

Introduction to the Research Study

The idea of taking students out of the classroom to enhance their learning is by no means a new idea. Scholars and teachers have been exploring the idea of taking students outside of the classroom and allowing them to experience learning throughout the 20th century. One may look at the Toronto Outdoor Education Schools and their long-standing mandate to “offer students curriculum based beyond the classroom learning experiences […] aimed at connecting] students to the built and natural world around them” (Toronto Outdoor Education Schools, n.d.). In addition, several Ontario history textbooks in the 1970s had chapters on place-based history, and the rich learning experience of taking students to the places in which they were learning about. However, as a former student of the modern Ontario school system, and as a current pre-service teacher, seeing a teacher take their students out of the classroom for an OLE is rare.

One may argue that this is a result of the logistics of taking students out of the classroom. The practicing teacher will immediately ask what paperwork do I have to fill out? and/or how much will this cost the students/parents/school?. Given that most teachers are already incredibly busy, the opportunity to take students out of the classroom often gets replaced for some other innovative in-the-classroom experience. Therefore, one of the goals of this paper will be to highlight the more affordable (and in some cases no cost) options for teachers to provide their students with OLEs. This paper will also aim to give practicing teachers a louder voice with regards to this topic, in order to understand what exactly is preventing them from taking students outdoors, and therefore what can be done in order to make it easier.
Purpose of the Study

The connection between OLEs, mental and physical health, as well as student learning and success has set the foundation for this research project. In the past year, the Ontario Ministry of Education released the *Achieving Education: A Renewed Vision for Education in Ontario* document, where they highlight the interconnectedness between student mental and physical health and student success and the goals and steps the Ministry will take in order to ensure their students are healthy and, therefore, successful (2014). The document states: “Children and students who have strong relationships and a positive sense of self – and who can understand and manage their own health and emotions – are in a better position to reach their full potential in the future. Their sense of well-being supports their learning because it makes them more resilient and better able to overcome challenges.” (“Achieving Education”, 2014, p. 13). This is an important concept that teachers and principals must understand and act upon if student success is truly at the heart of their school. Given this connection between success and health, it is this study’s purpose to demonstrate how OLEs can play a part in student achievement.

Another purpose of this study is to support the claims that students will experience more authentic learning experiences by going outside, when appropriate; will have increased concentration levels from being exposed to the outdoors more often; and that teachers will enjoy both the diversity of the teaching experience as well as the increased engagement of their students. Given that the idea of taking students outdoors can be daunting for some teachers, this paper will also explore the experiences of teachers of students in grades 4-10, as they discuss their experiences with integrating OLEs with the Ontario Curriculum.
Research Questions

As mentioned previously, this study will look at how much time Toronto students spend outside during school hours. Getting outside in order to improve one's health is not a new idea; indeed there are many studies that demonstrate that spending time in nature decreases depression, anxiety, stress, and anger, and increases self-esteem, positive mood, feelings of relaxation, and ability to concentrate (Fine-Meyer, 2012; Bowler, Buyung-Ali, Knight, & Pullin, 2010; and Wolf & Flora, 2010). There is less research however, focused on how classroom teachers can positively impact the health of their students by providing them with more OLEs. This is an important facet of education that is worth exploring because, as is stated in Acting Today, Shaping Tomorrow: A Policy Framework for Environmental Education in Ontario Schools (2007):

[s]chools have a vital role to play in preparing our young people to take their place as informed, engaged, and empowered citizens who will be pivotal in shaping the future of our communities, our province, our country, and our global environment” (p. 1)

If we expect our students to take on these qualities and characteristics in the future, surely they will need to be happy and healthy, as well as in tune with their community and their natural surroundings. It is therefore necessary that teachers get their students outside in order for them to become “informed, engaged and empowered by their communities, province, country and [world].”

The overarching questions of this study are: Are practicing teachers of grades 4-10 in Toronto, Ontario, providing their students with OLEs? If not, what are the barriers preventing teachers from doing so? If teachers are integrating OLEs into their practice, what expertise can they pass on to the researcher in an effort to increase the amount of
OLEs for Ontario students? Similarly, if teachers are taking their students outdoors, can they comment on whether they see positive health impacts, such as higher engagement and alertness levels?

The following sections further breakdown the overarching questions, as well as the sub-questions and how they connect to the study as a whole.

What is holding you back?

One of the aims of this study is to find out what is preventing some teachers from taking their students outdoors. Based on in-school observations, research, and interviews with five practicing teachers in Toronto, some believe is that certain subject areas do not have a place outside of the classroom (Rachel and Alfred, personal communications, September 22, 2014 and September 28, 2014). Additionally, some teachers believe they do not have the educational knowledge regarding taking students outdoors, and do not know how to even begin the process. Some teachers also state that the cost of going outside is too much, and they do not want to ask parents for money to support the field trips. Finally, some described that parents and administration do not want their children to go outside due to the neighborhood being unsafe as a result of the predominance of gun/gang violence, hate crimes, high traffic areas, etc (Lila, personal communication, September 23, 2014).

Having isolated some of the barriers, this study will also identify solutions for teachers to overcome these barriers by identifying what is needed in order to simplify the process and enact OLEs. Answers to this question during the interviews, as well as during the literature review ranged from teachers stating they needed resources such as money, transportation, equipment (Alfred, personal communication, September 28, 2014), while others noted they would benefit from sample lesson plans as well as instructions on how
to begin the process of going outside with their class (Rachel, personal communication, September 22, 2014). By identifying teachers’ needs, this study is able to suggest helpful tips and techniques that will help students gain rich outdoor experiences. Similarly, knowing what is holding teachers back, allows the researcher to address the core of the issue and will allow for solutions to take shape, a key objective that this study seeks to deliver. Solutions will come in the form of sample lesson plans, step by step strategies for teachers, as well as subjects and subject areas that lend themselves easily to OLEs.

**How can my research help teachers integrate OLEs?**

Identifying opportunities and best practices will serve as a resource for teachers looking to integrate OLEs, but will also help those who are looking to challenge themselves, and/or diversify their practice.

**Let’s Go Outside!**

This study will pinpoint subjects and/or subject areas that teachers believe provide the greatest opportunities for OLEs. This endeavor is two-fold in that by isolating a subject area that teachers believe work well in an OLE scenario, the researcher can suggest that beginning teachers start with something that is proven to be easier than another subject area. For example, one interviewee stated that social studies is a subject that lends itself well to OLEs (Rachel, personal communication, September 22, 2014) given that the curriculum requires students to “explore the experiences and perspectives of diverse communities in historical and contemporary Canada” (Ontario Ministry of Education, 2013, p. 117). Walking around the school’s community and interacting with members of the community for example, can effectively equip the students with the information and skills needed for this requirements. On the other hand, Rachel also noted that mathematics might be a difficult subject for an OLE. Not only does this allow the
researcher to notify the beginning teacher to avoid using OLEs for a math class, but it also serves as a guide for the researcher to identify best practices and resources that will aid teachers of mathematics to integrate OLEs into their practice.

**Let’s Get Healthy(ier)!**

In addition to getting students outside in an effort to increase student learning and success, it is important to note that student sedentariness is a growing problem and that OLEs can largely contribute to decreasing this problem. According to the Public Health Agency of Canada, “children aged 5-11 should accumulate at least one hour moderate to vigorous-intensity physical activity daily” (Public Health Agency of Canada, 2012). Unfortunately though, only 7% of Canadian children are meeting these guidelines (Active Healthy Kids Canada, 2014). Similarly, Tremblay et al. (2010) state that Canadian children and youth are heavier, fatter, rounder and weaker than they were a generation ago. Using surveys and performance measures, Tremblay, et al. (2010) were able to paint a picture of what a boy and a girl in 2007-2009 looked like compared to the same aged gender in 1981. They state that in 2007-2009, a 12-year-old boy compared to one in 1981, was:

- on average about 5 cm (2 inches) taller;
- 6.4 kg (14 pounds) heavier;
- his waist circumference was 1.3 cm larger;
- his hip circumference was 6.0 cm larger;
- his Body Mass Index had increased by 1.1 kg/m\(^2\);
- his grip strength declined by 5 kg; and
- his score in the sit-and-reach test decreased by 5.1 cm.
Looking at this data it is evident that our students need to get moving, and schools and teachers play an important role in helping to combat student inactivity. Given the availability of all this information related to physical and mental health, as well as increased student learning and success, this research study will seek an answer to why there are only a few teachers incorporating OLEs in Toronto, and how we can increase that overall number so that more students can benefit from OLEs.

**Background of the Researcher**

This research project is important to me because, for one, I am a former member of a Healthy By Nature Working Group whose mandate is to “take advantage of opportunities and ideas for increasing the amount of time people spend outdoors in nature” (Kallio, 2013). I am also a Master of Teaching student and a Teacher Candidate studying at the University of Toronto and have seen first hand how seldom students go outside and: feel a connection to the place in which they live; truly understand the complexities and beauties of the natural environment; and gain a true respect for their natural surroundings.

I am also a former graduate of the Restoration of Natural Systems Diploma Program at the University of Victoria. One of the main things I took away from my three years in that program is that most people do not truly understand how important our natural environment and built environment are. The research I conducted at the University of Victoria led me to publish a children’s book about Victoria’s natural history. The title of my book is *How Victoria Has Changed* (Kronick, 2013) and it tells the story, through the perspective of a Douglas fir tree, about how the City of Victoria has changed since First Nations people lived in the area, up until present day.
I spent two years researching the composition of the land; the way humans use the land, now and then; speaking with experts and First Nation elders about how Victoria’s natural and built environment has changed over time; and researching what humans can do in order to prevent further degradation to the land. I loved this experience, but I was shocked at how little the residents of Victoria knew about their city. I also had the opportunity to teach a lesson about Victoria’s natural history to a grade 7 class in a public school in Victoria, and again I was shocked and disappointed about how little the students knew.

It is the combination of all of these experiences that has led me to undertake this research project and I am excited for the adventure, the challenges, and the results and findings I will contribute to the field of education.

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 that I conducted in order to guide my focus for this study. Chapter 3 provides the methodology and procedure used in this study including information about the sample participants and data collection instruments. Chapter 4 identifies the participants in the study and describes the data as it addresses the research question. Chapter 5 includes limitations of the study, conclusions, recommendations for practice, and further reading and study. References and a list of appendices follow at the end.
**Chapter 2: LITERATURE REVIEW**

The following is a summary of common themes running throughout the literature on the topic of humans experiencing contact with nature and how this information relates to education. Researchers, scholars, and those working in the field of outdoor learning are writing articles and books in an effort to increase awareness and demonstrate the benefits and drawbacks, as well as the opportunities and obstacles surrounding OLEs. While material on the topic is not in short supply, there is a lack of information specifically about what role teachers have with regards to getting their students moving and experiencing OLEs, as well as what teachers are saying about this issue. This study aims, among other things, to address these gaps.

**Benefits and Drawbacks of OLEs**

At the beginning of most texts on this topic, the authors begin by outlining the positive impacts of outdoor learning. For example, Barrett and Greenaway (1995) note the various developmental benefits associated with outdoor adventure experiences in their piece *Why Adventure? The Role and Value of Outdoor Adventure in Young People’s Personal and Social Development*. Specifically, they cite that humour, patience, energy, optimism, emotional stability, and improved body image are among the positive personal developments that are present in young people who have increased outdoor adventure experiences. Similarly, Morris (2003), Fine-Meyer (2012), Rickinson et al. (2004), Thurber et al. (2007), Maas et al. (2006), Louv (2008), Bowler et al. (2010), and Wolf and Flora (2010), all emphasize that, in more general terms, outdoor experiences can increase general well-being in humans.

Researchers such as Eaton (2000), Morris (2003), Brymer, Cuddihy, and Sharma-
Brymer (2010), and Louv (2008) point out that outdoor experiences contribute to positive social and cognitive development, as well as physical development and health. Their research, among that of Active Healthy Kids Canada (2014), shows that many people in the developed world lack enough physical activity, which can lead to obesity and other serious health problems. They note that OLEs that integrate physical activity are solutions that can reduce this problem and that increasing opportunities that get students up and moving throughout their school day is one example of how schools can help reduce this problem.

The Nature Kindergarten, for example, that opened in Sooke, British Columbia in 2012, and the Nature Kindergarten that is set to open in Calgary in the next couple of years (Pike, 2015) highlights how some Canadian schools are working to break this trend of obesity and child sedentariness. One teacher from Sooke’s Nature Kindergarten noted in the Nature Kindergarten Year One Report (2013) that the outdoor classroom provides greater opportunity for individualized physical education, as well as individualized learning. For example,

> when a child finds a new plant they wanted to identify, some get out the nature guide books and look at the pictures until they find the right plant. Some children look at the pictures and use the first letters of a word to confirm it is a certain plant. Some children use the pictures and letter/sound relationship to sound out the words to confirm the name of the new plant and some want to read and know everything about the plant. (p. 6)

This example demonstrates that teachers and schools can simultaneously have a positive impact on students’ health and learning experiences while outdoors. Similarly, Louv (2008) notes that nature can inspire creativity as we are given opportunities to make full use of all of our senses. In our classroom, teachers tend to put up colorful posters in order to make their classrooms more inviting; but being out in nature, students can use nature
“as a blank slate upon which [they] can draw and reinterpret the culture’s fantasies” (p. 7). OLEs invite students to reimagine things that have most often already been interpreted for them, most often by an adult.

Alan Peacock, an Honorary Research Fellow, at the University of Exeter’s Innovation Centre in the United Kingdom, has taught environmental education in a wide variety of contexts and has been a teacher educator in Southern and Eastern Africa. His book, Changing Minds: The Lasting Impact of School Trips (2006), outlines in great detail the Guardianship Scheme National Trust, an out-of-classroom learning experience, that pairs schools with wardens at a National Trust site and gets students to participate in stewardship, conservation and community-based projects. This book provides valuable insight into what students and teachers thought about out-of-classroom experiences besides the common notion of enjoying the break of daily routines that field trips provide. For example, Peacock (2006) states, the benefits of the Guardianship scheme to pupils and schools is that it changes attitudes to the environment both in terms of a desire to protect the local environment and also in attitudes to issues such as recycling and avoiding waste […], [and] increases students’ resentment at visitors and tourists who did not treat ‘their’ environment with respect (p. 3)

Peacock (2006) also notes that “[h]eadteachers reported a development of 'community spirit' and valuing what was 'in their own back yard' as a result of the scheme” (p. 30).

While there are many benefits of OLEs that researchers hit on, they equally touch on the drawbacks associated and caution how to effectively incorporate OLEs. Rickinson (2001), for example, touches on the fact that not all learners will benefit from OLEs, however. While there will be some students that will have positive experiences from
going outdoors, Rickinson (2001) cautions that there will be implications and impacts for each learner. Educators should not assume that all students would appreciate and benefit from the opportunity to go outside. It is therefore particularly important for teachers to reflect on their plans to go outside and ensure the activities are always relevant and practical, and that students are consistently benefitting from the experience (Rickinson et al., 2004). Similarly, Morris (2003), Maas et al. (2006), Sugiyama et al. (2008), White et al. (2013), and Wolf and Flora (2010) discuss the significance of the quality of the environment when considering taking students outdoors in an effort to increase their general well-being and develop their socio-cognitive skills. These authors highlight that the urban (grey) environment does not lend itself to positive gains in child development as much as the rural (greener) environment. While I recognize that this assertion might hold weight when considering whether to keep students indoors if the air quality is dangerous, I do not believe that students should be kept indoors simply because the school yard is comprised of only cement and asphalt. As Louv’s (2008) interview participants noted: “…when I was a kid growing up in Detroit, we were always outdoors. […] We didn’t have huge wide-open spaces, but we were always outdoors on the streets – in the vacant lots, jumping rope, or playing baseball or hopscotch” (p. 11). Similarly, one of my interview participants noted that the quality of the outdoors should not matter since regardless, the neighborhood is the students’ neighborhood and they should be exposed to it and become aware of what is going on around them (Lila, personal communication, September 23, 2014). Individuals do not always need green environments in order to enjoy the outdoors and benefit from the experience, and I would
argue that our urban students need to get outdoors, no matter the setting, in order to prevent suffering from, as Louv (2008) says, the nature deficit disorder.

In keeping with the idea of whether there are situations when we should keep students indoors, I must note that I did not come across much information about the quality of the neighborhood and therefore if there are alternatives to OLEs. Indeed it is possible that the neighborhood in which the school is located is dangerous and perhaps known for gun violence or halfway homes, etc. Given the lack of literature on this topic, and the contradictory point of views I encountered, I suggest that this area needs further study.

**Authentic Learning as a Result of OLEs**

Authentic learning experiences were often discussed as I read through the literature. Clark (2013), Fine-Meyer (2012), Peacock (2006), Bell, Scalone and Tzou (2010), Rickinson (2001) and Rickinson et al. (2004) highlight that field trips provide students with tangible and memorable experiences that influence their lives in positive ways. Further, they note that experiences such as field trips contribute to students’ understanding of current events, how these events relate to their daily lives, as well as “how place gets constructed for and by youth” (Bell, Scalone & Tzou, 2010, p. 106).

However, Bell, Scalone and Tzou (2010) found that “prevailing narratives of oppression and privilege permeate environmental education and that these narratives are largely left unexamined and taken for granted” resulting in, at best, “exclusion of the lived experiences of many youth within environmental education”, or at worst, “oppression of those youth as dominant social hierarchies are re-created in designed activity systems” (p. 117). One example the authors referred to in support of these
findings is when during their observations, some students on an overnight nature trip felt unsafe on a night hike. The researchers argued that due to a lack of instruction on behalf of the teacher about the difference between the realities of life in the city versus hiking in a forest with people they trust (p. 111), some missed an opportunity to experience a meaningful environmental education. Like Clark (2013), Ballantyne and Packer (2003), Healey et al. (2001), and Orion and Hofstein (1994), the authors of this project note the unfortunate situation on the part of the teachers who failed to provide students with adequate prior instruction and proper follow-up activities in order for them to truly benefit from the outing. This further reinforces my need to watch out for gaps and shortcomings such as these as I conduct research; and hopefully support teachers if this is something I can identify as lacking.

Fine-Meyer (2012), Rickinson et al. (2004), and Dillon et al. (2006) add another layer to the authentic learning opportunities and discuss fieldwork opportunities. Both highlight that students who become immersed in a community project such as becoming stewards of a plot of land, benefit from hands-on experiences that have long-term implications not only on the students’ learning, but also on the community as a whole. Morris (2003) and Peacock (2006), extend this notion and note that students develop a greater sense of place and take greater pride in their community. These are very significant aspects of OLEs, ones that I will highlight for teachers in an effort to encourage them to incorporate OLEs into their teaching practices.

**Opportunities for and Obstacles of OLEs**

The literature about OLEs presents some ideas for teachers with regards to how to take their students outside while incorporating curriculum. According to the literature
review, there are various factors that teachers should consider when planning to take students outside. I have presented some of the findings here.

**Best Practices for Taking Students Outside**

With regards to the opportunities, Fine-Meyer (2012), Rickinson et al. (2004) and Peacock (2006) agree that OLEs have the potential to support the curriculum in all the subject areas. However, Rickinson et al. (2004) go one step further and caution teachers that OLEs can also be irrelevant and impractical for some strands of the curriculum. Rickinson et al. (2004) explain that teachers must be careful to not saturate their students with outdoor lessons; they must always ensure the OLEs are related to the lesson at hand. Further, Clark (2013) and Bell, Scalone, and Tzou (2010) note that while OLEs can be enriching learning opportunities, it is imperative for teachers to give students clear curricular purposes in order for students to truly gain from the experience. Without a clear understanding of the reason behind the OLE, students can easily miss an opportunity to experience a meaningful lesson enlivened by an OLE.

Barrett and Greenaway (1995), as well as Dillon et al. (2006) highlight the benefits that other researchers have attributed to “preparatory meetings, discussions, explanations and materials for creating accessible and inclusive field courses” (p. 108). Dillon et al. (2006) also discussed Emmons’ (1997) study of a Belize field course, where students’ learning was assisted by their teachers’ role modeling of their enjoyment and interest regarding the forest surrounding. This is of particular importance as it adds another layer to our examination of effective practices for OLEs. Based on these findings, it is not enough for the teacher to simply take their students outdoors. Indeed, if teachers do not want to go outdoors, and/or do not believe in the benefits of OLEs, then this will be evident to the students and will inevitably inhibit student learning. Therefore,
returning to the original goal of this paper, I will strive to demonstrate the benefits of OLEs in an effort to encourage more teachers to believe in the benefits of OLEs, and then incorporate them into their teaching practice.
Chapter 3: METHODOLOGY

Procedure

This chapter outlines the research methodology that was used in the study. One method that I implemented was a literature review to identify what researchers are saying about this issue. For example, I investigated what researchers have identified as the benefits and drawback of OLEs; how OLEs contribute to authentic learning experiences; and finally what researchers have identified as the opportunities and obstacles related to teachers incorporating OLEs in their teaching practice.

The literature review revealed some common themes throughout the writings – themes that are examined further. For example, there is a lot to be said about the benefits of taking students outdoors and having them interact with their surroundings, as well as how OLEs increase student learning. These points will help strengthen my argument (Barrett and Greenaway, 1995; Morris, 2003; Fine-Meyer, 2012; Rickinson et al., 2004; Thurber et al., 2007; Maas et al., 2006; Bowler et al., 2010; and Wolf and Flora, 2010, Dillon et al. 2006). Contrastingly, the drawbacks of taking students outdoors were discussed much less in the literature. This gap will help guide this research, given that the goal of this study is to present teachers with evidence-based research that highlights the benefits of OLEs, as well as best practices and/or solutions for incorporating OLEs that will make taking students outdoors an easier endeavor.

This exploratory research study also looked at several teachers’ experiences with OLEs, in order to identify opportunities and strategies that all teachers can implement so as to create more authentic opportunities for students to learn in outdoor settings more often. The exploratory study format will be used as it focuses on the lived experiences of
the participants and the commonalities they share with the phenomenon in question (Creswell, 2013). Identifying the commonalities that exist between these teachers highlights what most teachers experience with regards to this phenomenon. Once having listed the experiences these teachers, applicable solutions and suggestions on how teachers can incorporate OLEs are then offered.

**Instruments of Data Collection**

In order to collect data, I reviewed the current literature on this topic, as well as examined Ministry curriculum documents in order to identify possible opportunities and barriers to integrating OLEs into teacher practices while meeting curriculum requirements. Informal interviews with educators to identify their experiences with outdoor learning were also conducted. Participants were provided with interview questions ahead of time. Throughout the interviews, I put my personal experiences with the phenomenon aside so that I could collect data that was solely reflective of my participants' experiences (Creswell, 2013).

For a list of the research questions, please see Appendix A.

**Participants**

Participants were selected based on a list of requirements (see Appendix B). For example, the participant must have had some sort of experience with outdoor learning and the ability to incorporate grades 4-10 curriculum with OLEs. The experience the teacher may have had with OLEs could be have been as simple as them thinking about taking their students outside, but choosing not to for one reason or another.

Participants were recruited via connections I have made in the Toronto District School Board, the University of Toronto, and the Greater Toronto Area.
Data Collection and Analysis

Once the interviews were complete, I transcribed the interviews myself so that I could review what exactly was said by all of the participants of this study. I highlighted the commonalities with regards to the phenomenon amongst all the participants. For example, I focused on what teachers had to say about the benefits and drawbacks of OLEs; why teachers have had many or few experiences with outdoor learning; what teachers found was preventing them from or had allowed them to provide students with OLEs; and what worked well/did not work well for them when leading OLEs.

Common themes that had not been anticipated were also noted. For example, I did not anticipate participants categorizing OLEs based on their purpose. One participant noted that some OLEs are great for enhancing the Ontario Science curriculum because students are in direct contact with the theme of the unit. However, that same participant noted that OLEs are also great for health reasons because the air in schools is stale and students will benefit from the exposure to fresh air. Based on my participants’ differentiation of OLEs, I began to listen for whether other participants were differentiating OLEs as well. Three of my participants noted different purposes for OLEs. This is an interesting discovery, as I believe this differentiation can help teachers identify how best to utilize OLEs in order for their students to get the most out of the experience.

Ethical Review Procedures

I will follow the approved blanket ethics protocol for the Master of Teaching program. As outlined in the ethics protocol, students completing their Master of Teaching Research Project can only interview participants who are educators. Participants were recruited by phone, in person, and online. They were informed that they have been
chosen because they display both experience and knowledge about the topic I am researching. I asked whether they were willing to participate in my research project, which consisted of taking part in a 30-45 minute interview (depending on how much they had to say on the topic). I asked participants which format was most convenient for them and accommodated as necessary. For example, if participants preferred meeting in person, we met in person. Similarly, if participants preferred to e-mail me their responses and allow me to ask follow up questions, I accommodated this request as well.

If they agreed to be research participants, I provided them with my contact information and a letter of informed consent that they must sign (see Appendix C). Once this was complete, we scheduled interviews that were convenient for the participants. I clearly explained that the participants could end the interviews whenever they wished. I also explained that the names of participants, their schools and school districts would not be revealed and would be confidential. For any publications related to this research (including the final Master of Teaching Research Project), pseudonyms would be assigned to protect participants’ identity. Finally, I told participants that I would control access to the data at all times, although a portion would be shared with my professor.

Limitations

The limitation of this research project was the sample size. As Sandelowski (1995) notes, an insufficient number of participants can undermine the robustness of the research. With only five research participants, it is difficult to make generalized statements about the phenomenon, as well as draw strong, reliable conclusions. Nonetheless, the information that I have gathered as a result of my research and
interviews will be able to bring further awareness about how teachers can meet the grades 4-10 curriculum with OLEs.
CHAPTER 4: FINDINGS

In this chapter the findings from the interviews that were conducted with Toronto teachers of students in grades 4-10 are discussed. How the interviewees align with or contradict the research from the literature review will also be noted in this chapter.

Six themes emerged as the interview transcriptions were reviewed and related back to the existing material available on this subject. Establishing the themes illustrated the complexity and the many benefits of OLEs for practicing teachers and their students.

The five themes are listed here:

Theme 1: Teacher’s Prior Knowledge
Theme 2: Concrete Measurements of Success
Theme 3: Benefits of Outdoor Learning Experiences
Theme 4: Types of Outdoor Learning Experiences
Theme 5: Barriers to Outdoor Learning Experiences

Themes

Theme 1: Teacher’s Prior Knowledge

Isolating this theme helped distinguish what teachers considered as important elements in considering, preparing and implementing OLEs. Rachel, a veteran teacher and now a university professor in the pre-service teacher program, stressed the importance of having a basic philosophy surrounding the importance of OLEs. Rachel is a strong proponent of OLEs and describes this basic philosophy as of utmost importance to her, as without it she believes teachers will have no interest in ever taking their students outdoors. Lila, another veteran teacher who teaches grades 7-12, did not think that a philosophy was what drove her, as a philosophy “requires an active thought
process” which she believes she does enact. Rather, she described OLEs as being cultural for her, as she was raised this way. Among some of the experiences that helped shape her identity are: as a child she was always camping with her parents; was then constantly out in the field observing wildlife during her undergraduate degree; and was then placed at an outdoor education centre during a practicum placement in Teacher’s College. These experiences led her to define an identity of herself that requires her to go outside as often as possible, clearly highlighting the importance of how lived experiences contribute to how ones develops their teaching identity.

Roger is another veteran teacher. He has been teaching in public schools in Hamilton, Oakville and Toronto since the 1970s and is a university professor in the pre-service teacher program. He discussed how his prior knowledge impacts his decision to take students outdoors from a more applicable perspective. He believes that students need to see math in a more applicable way and given that “math is all around us” it made sense to him that students should interact with the real world and see the applicable side of mathematics, as opposed to only using the pure side of math (algebra, formulas, etc). He notes that teachers are not implementing this teaching strategy in their classrooms and he saw a need for a change in mindset, and thus began creating lessons that took students outside and seeing math from a more applicable perspective.

Alfred and Cora, two novice teachers who have been teaching in the public system for four years and one year respectively, and who do not have a lot of experience with OLEs, discussed the importance of enjoying the outdoors themselves. Alfred talked about his experience at an outdoor education facility as an instructor and student and noted that his experience there was memorable and beneficial to him as both a student
and a teacher. Given this experience, he understands the benefits of OLEs but believes that teachers must make the goals and objectives clear for the students and should not just take students outdoors for no reason. Alfred raises a good point and is reminiscent of what Rickinson et al. (2004) mention regarding teachers being careful to not saturate their students with outdoor lessons; they must always ensure the OLEs are related to the lesson at hand. Based on Alfred’s prior knowledge of OLEs, he believes that teachers should only use the outdoors as a method of enhancing their students’ learning.

Cora did have much to say on this topic. She regularly referred back to her experiences with OLEs and how based on her limited anecdotal evidence with her students she continues to implement OLEs whenever she can because she sees their benefits.

**Theme 2: Concrete Measurements of Success**

This was an important theme to identify as it speaks to the value and warrants either the continued use of OLEs or the need to terminate the practice. All participants discussed the feedback they got from their students either in the form of increased engagement or students verbally expressing their enjoyment. Rachel, Lila and Rog went a step further and all mentioned that they have had only positive feedback from students, parents, and other teachers, and thus are confident that OLEs should not only remain a current practice for teachers, but should be encouraged more often. The strongest evidence of positive feedback isolated from the interview results is that which Rachel received: a Governor General’s Award for Excellence in the Teaching of Canadian History. Rachel designed a course for students to create an archive for their community. Requirements for the course include students visiting historical sites, interviewing elders in the community, as well as inviting elders into the classroom so that they can share their
historical knowledge of the community with the entire class. This course is a good example of how teachers can incorporate OLEs into their teaching practice while meeting the Ontario Curriculum given that in order for students to visit and research historical sites students must leave the school property and spend some of their time outside, moving around, and exploring. Similarly, activities where community members come into the classroom can further enhance curriculum and bring the outside into the classroom for another type of authentic lesson.

Not only did Rachel win an award for this course but also she regularly had to close down registration for the course as it filled up too quickly. Additionally, Rachel noted that she regularly received positive feedback from parents and students, and that her students felt good about themselves and that this led them to excel in her course. These concrete measurements are solid pieces of evidence that demonstrate the benefits of OLEs and lend credence to my argument that more teachers should implement more OLEs in their teaching practice.

Lila also discussed the ways that she can concretely measure the success of implementing OLEs. The story she regularly drew on to support her belief that OLEs are important for student learning is that on a Friday afternoon, when she was teaching a careers course, her students were misbehaving and were not engaged with the lesson. She decided that instead of coercing and forcing her students to work with their bums in seats, typing away on the computer she would take them outside. She described the situation as follows:

…I was like, I don’t have time to not go outside because it was going to be coercion and forcing for the rest of the class time and trying to encourage them. And yes they were still distracted because it was Friday, but they were able to sit down and get some work done [after playing the game outside]. The quality of the noise, from before and after really changed. Like before it was like “oh,
Ms. S, we don’t want to…” to more of the silent typing away business… (Lila, personal communication, September 24, 2014)

Instead of forcing her students to listen to her and do some research she decided to go outside and play Oh Deer! with her students. Originally, Oh Deer! was designed to teach students about ecology and how animals in ecosystems need shelter, water, and food. After playing a round of the game, students learn that given the population size, not all animals will have access to shelter, water, and/or food. Since Lila’s class was about careers, she modified the game so that rather than shelter, water, and/food, students had to fight to find jobs. Lila further describes the situation as follows:

I added the modification so that they get [the idea of finding a job], rather than food, water and shelter, they had to fight for money, for the love of it, and status. And they got it; they were like ‘oh ya there aren’t many jobs out there, so I better run faster’. So they got the idea of urgency. And when they came back in, I don’t know if it was because they learned something from the game, but they were like ‘oh man I better work on this, there are other people that are smart out there that want the same jobs as me’. So, I don’t know if it was that or if they had a little oxygen in their brain but they worked hard on a Friday afternoon (Lila, personal communication, September 24, 2014)

This is an excellent example of the benefits of OLEs. Indeed some time might have been lost in preparing the students to go outside and preparing them for the actual game, but they learned something, rather than wasting time until the bell rang.

In addition to being able to measure success by simply observing her students engagement level, Lila also notes that she asks her students to fill out feedback forms, and they regularly come back stating they enjoy going outdoors, as they believe it improves their ability to learn.

Roger, like Rachel and Lila, also explained that his students have frequently expressed gratitude for the OLEs that he implements in his classrooms. Additionally,
Roger spoke about the teachers he has worked with alongside the students. Roger has worked with teachers from all over the world; either working with their students during an OLE, or taking the teachers on OLEs as a way of training them so they can lead their own OLEs. Roger explained that in many situations, the teachers point out students that normally never participated in the classroom, but as soon as he took them outdoors they became different students; ones that were engaged and interested in the subject matter. Roger also noted that when he works with teachers they are appreciative as they admit to not having been able to make real-life connections for their students, but now with an OLE planned out, they feel they could finally make those connections for their students.

**Theme 3: Benefits of Outdoor Learning Experiences**

As noted above, Roger explained that many of his teacher colleagues appreciated the authenticity of the OLEs he introduced them to. This is a powerful example of how beneficial OLEs are, and one that all interview participants and many researchers refer to, as it allows students to make connections to the world outside the four walls of their school. It is vital that teachers allow students to step out of these four walls and show them how all the information they are learning inside the school is applicable to the world they live in. One of the benefits Roger kept referring to was “the outdoors can shed more light on content and deepen students’ understanding of concepts” (Roger, personal communication, September 24, 2014). This sums up this paper’s argument well, but it is only one piece. Fortunately, interview participants expand this issue further below.

Participants and researchers also note that OLEs lend themselves well to opportunities for interdisciplinary learning. For example, Rachel, Lila, Roger and Cora described the interdisciplinary lessons they ran and they all noted that it might have been harder to do if they never went outside, as the outdoors provided more space for students
to learn, and more opportunities for students to collaborate and unpack the issues they were examining. Lila explained that she took her students to High Park and ran English, History, Geography, Math, Physical Education, Environmental Education, First Nations, Métis and Inuit Education and Science lessons. She used a rotating station format where one station was a literature circle where students had a book written by an Ojibway girl read to them. Then students were asked questions about Aboriginal people’s relationships to the land, and whether those relationships were different than their own. Another station had students exploring the land itself and learning about the ecology of the land, and how that connects to people’s interactions with the land. Another station was the Oh Deer! game, and a discussion about how a building a park might have impacted the lives of the deer. As you can see, the diversity and the size of the park allowed students to explore many interrelated issues all at once. Lila discussed this lesson in detail and it clearly demonstrates how beneficial OLEs for student learning can be, as they receive hands-on, real-time experiences with the information they are learning.

Additionally, all participants noted the important health benefits of spending more time outdoors. However, this was not something they thought of on their own; it required a prompt and a bit of reflection from them. When the interviews began, none of the participants initiated the perspective that OLEs can improve student health. It was only once asked whether they thought teachers could play a role in improving the health of their students did they answer in the affirmative and then provide examples for how they can do so with OLEs. All of the participants noted that when students are outdoors they have more opportunities to move around and breathe in fresh air, but this was mostly an afterthought. Lila and Cora really supported the idea of going outdoors for health
benefits, in fact Lila has a collection of clipboards on hand so that if the weather is nice, her students can go outside to complete assignments and/or listen to her lecture.

Similarly, once probing the issue further, all participants readily agreed that Physical Education and the Ontario Government mandated Daily Physical Activity (DPA) period lend itself perfectly to increasing the time students spend outdoors moving around; as not only are students moving around more and improving their healthy, but the fresh air and sunshine can further improve student health. This was an interesting observation, as it seems to show that teachers might be more focused on they can meet the Ontario curriculum, rather than how they can ensure they are helping to develop healthy and able individuals.

Roger and Cora noted that along with the health benefits, they found their students were more inspired to learn. They could not say for sure that it was due to the fresh air, and the increased stimuli of being outdoors, but Cora noted that some of her students verbally admitted to being more inspired from being outdoors. She also noted that she liked implementing OLEs because she finds that she can reach more of her students this way. Roger also touched on this benefit when he mentioned that teachers often point out that some students do not participate in class, but were very engaged during the OLE he led.

Alfred touched on some points that the other participants did not bring up. While Alfred does not believe that OLEs should occur regularly, rather they should be used for specific purposes, he did note that OLEs are beneficial for students in the development of their observation skills and character building. He noted that OLEs help students solve real problems in real time as they are in a setting that requires them to think on their feet
and implement the solutions they come up with immediately. This is a good point, and leads well into the next section regarding the different types of OLEs.

**Theme 4: Types of Outdoor Learning Experiences**

Four types of OLEs were discussed in the research and in the interviews. This was an enlightening trend, as I had not thought of OLEs in terms of categories. Categorizing OLEs in this way can help teachers incorporate OLEs in a way that will allow them to identify a purpose, as Alfred and Rickinson et al. (2004) allude to.

An OLE that enhances the curriculum by allowing students to see, hear, touch, smell, and/or taste the content has been classified as an OLE 1. An example of this type could be a science lesson on ecology where students benefit from interacting with different ecosystems in order to deepen their understanding of the different components that make up an ecosystem. This type of OLE is one that Alfred described as having the most value, as it is actually using the students’ natural surroundings in order for them to experience the lesson. This type of OLE is perhaps one of the most beneficial type in terms of student learning, however, the other participants and I take the idea of an OLE a few steps further.

Rachel, Roger and I believe that some weight should be placed on the OLE that brings the community into the classroom. This type of OLE has been labeled as an OLE 1a, as it is still using the community to enhance students’ understanding of content matter, but rather than going outside into the community, community members are invited into the school. Having community members come into the classroom to discuss their experiences and their expertise demonstrates for students that what they are doing in their classrooms is connected to the real world. For example, Rachel’s course that won the Governor General award includes preplanned guest speakers such as city planners,
Elders, Lands and Titles council members, amongst others. This bridging of the school with those working in the community shows students that they are learning practical knowledge that they can one day put to use in their community.

Another type of OLE, and one that is perhaps more familiar to most, is the one where students visit a specific location that has resources available for them that will enhance the curriculum; otherwise known as a field trip. Field trips are an important part of student learning given that some places have resources that schools do not have, and allows students to interact with the content manner in ways that would otherwise not happen in the school. Of course, it also shows students that the activities that their teachers plan for them while in class have importance in the community and should be appreciated for their applicability. Something else of special note is how Rachel used the journey to the location as another opportunity for student learning. Rachel effectively explains this idea below:

… at Annette Public School we had to walk to the archives. And so while we walked there I had them counting certain features. When we went to go and do the research of the history of the garment industry and we were talking about the history of Toronto and the garment industry, a big part of it is on Queen St. We started at Trinity Bellwoods Park, and we walked along Queen St. I instructed the students to use a little pad of paper or use phones and tick off every time they passed a store, cause it’s still the garment sector, that sells buttons, or ribbon, or cloth or whatever. Then by the time we got over to the other side of Spadina, I asked them how many they got. So they were observing. Observing is a skill that they don’t get to work on much in the classroom. So there is another advantage of going outside. They can count, they can observe and they can assess other things (Rachel, personal communication, September 22, 2014)

As Rachel outlines in her explanation of walking to a location that will further enhance the curriculum content, OLEs can also be used to help students develop their observational skills, and assess the neighborhood in which they go to school. Readers might be surprised to know that Rachel and I have both come across many students, and
adults for that matter, who once they are inside of a building have completely lost their
sense of direction. Imagine being a student and being forced to attend classes indoors for
8 hours a day, 5 days a week; it is no surprise that students feel disconnected to their
community and sometimes do not understand why teachers teach them certain topics.
OLEs provide teachers and students with opportunities to connect curriculum content
with authentic and applicable experiences that are happening all around the school’s
community.

The final type of OLE that was identified is the one that sparked my interest in
this topic: OLEs for the purpose of increasing student mental and physical health. During
the interviews with Rachel, Lila, Roger, Alfred, and Cora, I waited to see if they would
bring up the idea of OLEs as a way of improving student health, surprisingly however
this was not something that was mentioned without my prompting them towards the
concept. Rachel and Lila both were hesitant to speak to the issue as they stated that they
were unfamiliar with the research and did not feel comfortable commenting. However, as
soon as I explained that the research discusses issues such as increased exposure to fresh
air (Morris, 2003; Fine-Meyer, 2012; Rickinson et al., 2004; Thurber et al., 2007; Maas et
al., 2006; Louv, 2008; Bowler et al., 2010; and Wolf and Flora, 2010), and more
opportunities to move around and collaborate with fellow students, they both quickly
agreed that of course OLEs could help improve student health. Roger on the other hand
did not hesitate for an instant; he noted that his wife is a family physician and regularly
tells him that as a teacher he has a huge role to play in improving student health and one
way could be to get them outdoors more often throughout their day. Cora also agreed that
increased exposure to the outdoors is a good idea and can lead to increased students
health and well-being. Similarly, Alfred agreed with this idea but still emphasized the importance of needing a purpose to take students outdoors. For Alfred, it was not enough to simply take students outdoors during a class to increase their exposure to the outdoors. He was still a strong advocate of giving students a purpose for being outside, and improving their health was not enough of a reason. I was surprised by this point, given the recently mandated DPA policy enacted by the Government of Ontario that notes that giving students 20 minutes “of sustained moderate to vigorous physical activity each school day” will help “publicly funded schools [become] healthier places to learn and improve student achievement” (Ontario Ministry of Education, 2009). Evidently the Ontario Government, through evidence-based research, has identified the link between student health and student achievement. Thus, my proposing that increasing the time students spend outdoors in an effort to improve their physical and mental health, as well as their learning experience, all the while meeting the Ontario curriculum is a proposition that is steeped in research and should be supported by teachers, principals, school boards, and the provincial government.

I began this research project because I believe that teachers can take students outdoors for all kinds of purposes: to enhance the curriculum, to take them to another venue that will have more resources, and/or to increase their mental and physical health. Most participants agreed that this is a good idea. Lila and Rachel both noted that there are many things that teachers and students can do both in the classroom and outdoors, and a lecture is a perfect example of something that can be done outdoors on a nice day. I was pleased to hear this from participants, but as I began my field observations in classrooms across Toronto, Ontario, I have come to understand what I believe Alfred was trying to
stress when he kept coming back to the need for a purpose to go outdoors. This topic is discussed further in the next section.

**Theme 5: Barriers to Outdoor Learning Experiences**

Now that I have spent time in a variety of public schools in the Toronto area, I have come to understand the barriers that exist when planning to take students outdoors. Some interview participants mentioned that lack of time and resources results in teachers not incorporating OLEs more often. Lack of time is something that deserves a lot of attention, and in my experience, explains why I have not implemented OLEs more often in my teaching practice. Winters in Toronto require students to put on many layers of clothing before they can go outside safely. Some students need as much as 10 minutes to get ready, and when a teacher only has 30-40 minutes with a group of students, 10 minutes is valuable time that is lost simply getting students dressed.

This is where I think Alfred and Rickinson et al. (2004) have hit on something important: teachers must have the time to plan intentionally and accordingly ahead of time and thus must give the outing purpose. When considering OLE 3, the OLE that increases student mental and physical health, it may not work well during Canadian winters, as likely no one will enjoy a lecture that has the students sitting on the snow taking notes with their gloves on. Therefore, if the sole purpose of the OLE is to increase student exposure to the outdoors for their mental and physical health, the teacher would be wise to include another aspect of the curriculum, such as a DPA period.

However, once this additional element is brought into the fold, we are no longer in the category of an OLE 3, we have moved into the OLE 1 category, as now the outdoor space is being used to enhance the curriculum. Recall, an OLE 1 is one where the outdoors enhances the curriculum by allowing students to see, hear, touch, smell, and/or
taste the content. Also recall that an OLE 1 is the one Alfred believes is the sole way of implementing OLEs more often because of its purpose of using the environment. This is not to say that I have turned a corner and believe that an OLE 1 is the only way of incorporating OLEs into teaching practices, however it is important to highlight the importance of being purposeful when trying to include more OLEs in our teaching practice. Alfred may not be a huge supporter of OLEs in general, but he raises an important point for teachers to consider: OLEs should be purposeful and should always benefit student learning and health.

Other barriers that may come up were the issue of permission forms. Lila highlighted an important point: some schools require permission forms simply to take students outside of the classroom and down the hallway. Similarly, other schools have students sign a permission form at the beginning of the year that gives teachers permission to take their students off school property at any time, within a defined area. Therefore, teachers looking to implement OLEs into their teaching practice must be aware of this possibility and follow-up with administration as required.

Field trips, or OLEs 2, are different and this is something that Alfred raised as a barrier that has prevented him from implementing more OLE 2s into his teaching practice. He noted that a lack of access to things like transportation, equipment, finances, personnel, and permits have made it difficult to take students off school property for meaningful experiences. Few participants mentioned difficulties regarding field trips, however I understand Alfred’s hesitation as my experience teaching has showed me that one has to truly believe that a field trip will benefit student learning and achievement since teachers are asking parents to spend money if the financial cost of the trip is not
subsidized by the school board or a Home and School Association. It is thus incredibly important that teachers be intentional when planning all types of activities.

Another barrier for teachers to take note of is that some students will not benefit from an OLE, and in fact perform better in classroom settings. Lila, Alfred and Rickinson et al. (2004) all noted this important point, as they have observed that some students do quite well in classroom settings, and similarly, there are some topics that are better taught in classroom settings. Lila explained that her astronomy unit would be best taught outdoors at night time, but explains that given the impossibility of this idea, showing students slides on a PowerPoint or from the Internet is a better way of teaching this unit. Of course, the opposite is true and some students work better outdoors, as Roger observed during his time spent with a variety of students. Thus, the teacher who is interested in exploring how to incorporate OLEs into their teaching practice more often, must be aware that OLEs, just like time spent in classrooms, should be practiced in moderation.

The following chapter will discuss the overall recommendations and implications of this study, as well as options for further study.
CHAPTER 5: DISCUSSION

The following chapter will highlight the implications and recommendations that have resulted from the research done, as well as the limitations of this study, and finally the areas that will benefit from further research.

Implications

In Dillon, et al.’s (2006) work, they highlight the benefits that other researchers have attributed to “preparatory meetings, discussions, explanations and materials for creating accessible and inclusive field courses” (p. 108). Dillon et al. (2006) also discussed Emmons’ (1997) study of a Belize field course, where students’ learning was assisted by their teachers’ role modeling of their enjoyment and interest regarding the forest surrounding. This is of particular importance as it adds another layer to our examination of effective practices for OLEs. Based on these findings, it is not enough for teachers to take their students outdoors. Indeed, if teachers do not want to go outdoors, and/or do not believe in the benefits of OLEs, then this will be evident to the students and will inevitably inhibit student learning. Therefore, returning to the original goal of this paper, I hope that the contents of this paper have demonstrated the many benefits of OLEs, and that hesitant and/or uninterested teachers can see the benefits of OLEs, and might now incorporate them into their teaching practice.

It must be noted that barriers and drawbacks exist, and that even an interested and willing teacher must be aware that OLEs are not a perfect science. As a researcher and teacher I have come to appreciate the planning that accompanies OLEs. They take time on the part of the teacher, as well as on the part of the students. Time to prepare and discuss the OLE, time to get ready to go outside, the worry that goes along with a teacher
taking their students outside of a controlled environment; these are all factors that a
teacher must consider before taking their students outside. However, as I have discussed
in this paper, there are plenty of solutions to these barriers, and thus one should not shy
away from providing their students with these valuable, authentic learning experiences.
For example, as I have eluded to in the pages above, teachers preparing to go outside with
their students must, among other things, teach their students the signal for when to return
to the school and how they will transition from the indoor environment to the outdoor
environment, and vice versa. Addressing this important component helps an OLE run
smoothly as students know exactly what to do as soon as their environment changes, and
thus reduces the amount of time wasted. Teachers should also keep an open line of
communication with the guardians and the administrators to ensure all policies have been
adhered to and that taking students outdoors is allowed. For more helpful suggestions for
how to include OLEs into your teaching practice, please refer to the contents of this study
and do not hesitate to contact the researcher for more information.

Recommendations and Best Practices

This section will list the recommendations and best practices that have been
identified and isolated for teachers looking to implemented OLEs in their teaching
practice:

Sample Lesson Plans and Best Practices

Rachel, Roger and Lila have kindly agreed to share lesson plans and best
practices they have created in an effort to aid those teachers looking to integrate OLEs.
Commonalities that made these plans successful include aspects such as: clear direction
for students at all stages of the lessons; clear understanding of the purpose of the OLE; and clear understanding of what tasks must be completed by the end of the OLE.

- Rachel’s lesson is entitled *The Study of Archives and Local History*. Please see Appendix D to familiarize yourself with this lesson plan.

- Roger’s lesson is entitled *The Math Trail*. Please see Appendix E for a snapshot of the in-depth lesson plan. If readers are interested in learning more about this lesson, please contact the researcher at ilana.kronick@mail.utoronto.ca

- Lila chose to list a variety of lesson ideas and games that she regularly incorporates into her classroom. Please see Appendix F for details.

**Recommendations for implementation of OLEs**

Based on the research and interviews conducted, this section will discuss the most applicable and helpful recommendations. Given that winters in Toronto require students to put on many layers of clothing before they can go outside safely and that some students need as much as 10 minutes to get ready, teachers can alert students ahead of time that the upcoming class will be spent outdoors. Giving students plenty of warning that class will be held outside, as well as explaining the importance that everyone get ready quickly, can help alleviate the problems surrounding time lost getting dressed and undressed. Thus, the teacher who is planning to take their students outside should alert students to the upcoming outdoor adventure at least one day ahead of the scheduled outing. Lessons that allow for more lead up time, for example a week or three days ahead of the scheduled outing, are ideal and allow the teacher to alert guardians in the form of a note home, announcements on the class website, and/or emails.
When considering OLE 3, the OLE that increases student mental and physical health by taking students for no particular reason besides the fresh air, it may not work well during Canadian winters. Given the cold temperatures, it is likely that few students will enjoy a lesson that requires them to sit on the snow taking notes with their gloves on. It is imperative that teachers understand that the learning must be active and interactive in order for students to be happy and able to focus on the lesson. On cold days, note taking and summing up learning can be done inside to consolidate learning. In addition, if students are too cold and unhappy, little information will be retained, as they will be too focused on staying warm. This is where I think Alfred and Rickinson et al. (2004) have hit on something important: teachers must have the time to plan intentionally and accordingly ahead of time and thus must give the outing purpose. Therefore, if the sole purpose of the OLE is to increase student exposure to the outdoors for their mental and physical health, the teacher would be wise to include another aspect of the curriculum, such as a DPA period during the winter seasons, where students are free to move around and stay warm by being active.

The other most applicable and helpful recommendation for teachers looking to implement OLEs into their teaching practice are strongly urged to speak with their school’s administrators. Speaking with administrators is twofold. On the one hand, it will provide the teacher with all the necessary information they need before even planning an outing. For example, visiting with the administrators will inform the teacher of what the school policies are regarding this issue, and whether there is a form that they can send home with students in order to seek approval from guardians that allows the teacher to exercise their own caution when planning small outings. On the other hand, speaking
with administration can lead to a change in the school’s culture, a change towards embracing interactive learning outdoors, despite our Canadian climate. This is a necessary “movement” as our kids are becoming more sedentary as stated in the Active Healthy Kids Canada.

Having performed literature reviews, interviewed practicing teachers from Toronto, as well as performed in-field observations, I can conclude with confidence that OLEs are incredibly beneficial for student learning and achievement. I have read about and witnessed increased student engagement levels due to authentic learning experiences, as well as the exercise and fresh air, they receive during OLEs. As a teacher, I will practice OLEs as often as possible and will be sure to implement the best practices I have discussed throughout this research paper.

Limitations

The limitation of this research project was the sample size. As Sandelowski (1995) notes, an insufficient number of participants can undermine the robustness of the research. With only five research participants, it is difficult to make generalized statements about the phenomenon, as well as draw strong, reliable conclusions. Nonetheless, the information that I have gathered as a result of my research and interviews will be able to bring further awareness about how teachers can meet the grades 4-10 curriculum with OLEs.

Further Study

It was interesting to discover that my apprehension towards OLEs and Mathematics was shared by 3 of the 5 participants. Three of the participants mentioned that they believed that they could not as easily incorporate OLEs into their mathematics classes as
they could into their many other subjects. On the other hand of course, Roger felt very strongly that OLEs could easily be incorporated into mathematics. This juxtaposition of the two sides is of particular importance and highlights the need for researchers to further investigate this issue.

Further research should also be done into how exactly the Ontario Ministry of Education and the individual school boards could help support this idea of increasing the amount time children spend outdoors. Roger had many interesting and seemingly effective suggestions for the boards could help. For example, Roger proposed that schools implement a rotating schedule where each Day of the schedule one subject area must hold their classes outdoors, rain or shine (of course not if the temperature is -20°C), noting that if teachers knew that they had a block of time to get somewhere, they would be more inclined to do so. Indeed, this would increase opportunities for students to see how the different subjects they are taught are all interconnected and can all be applied to the outdoors and their community. Similarly, he proposed that if school boards plan to build new schools they should be sure to incorporate designs for outdoor classrooms, as well as things on the pavement such as Fibonacci sequences and Venn Diagrams. In this situation, students and teachers would have more purpose for going outside, as they would be interacting with the outdoor setting. Unfortunately, this paper did not investigate these suggestions but argues that further research should certainly be done in this area.

Finally, two of the participants noted that they were not sure how they would handle a situation if the neighborhood in which their school was situated were too dangerous for taking students outdoors. Roger noted that a past student of his took students in the Jane
and Finch neighborhood outdoors for a math walk, despite being strongly advised by other teachers to not do so. The principal however, was completely supportive of the idea. Fortunately, the students thoroughly enjoyed the experience and admitted to Roger’s student that they learned a lot that day. However, one could argue that if anything bad happened to those students, that teacher and that teacher candidate would have been liable, begging the question: “How much risk is too much?” In today’s western society, when children are outside of the home, they constantly being told to ‘watch out’ and ‘do not stay out too late’ and ‘make sure you call me every hour’, etc. Children today are being taught that outside is a dangerous place and if they want to be safe, they should be inside. Similarly, teachers and parents are buying into this idea that being outside is a lot more dangerous than if they keep the students inside and are thus, falling into the habit of keeping students inside in an effort to minimize the possibility of risk. Have taught in a variety of schools in Toronto, I understand this fear and am not suggesting that teachers are unfounded in their hesitations to go outside. However, I would argue that if we want our students to truly understand and appreciate the lessons we are teaching them, they need to utilize the information as often as possible, and sometimes that means taking them out of the classroom and applying what they have learned. Similarly, as we bring our students out into the community, we will inevitably build greater community support and awareness amongst our students. The understanding of what goes on in the neighborhood will more likely than not, drive our students to improve and respect their built and natural surroundings, leading to safer communities that are perceived as caring and inviting spaces. Thus, it will be wise for the issue of ‘how much risk is too much risk’ to be further investigated in order to inform the school boards and
the Ministry so that they may encourage students and teachers to go outside more often. 
Evidently, there are still some unanswered questions related to my argument of 
incorporating more OLEs into teaching practices. However, I think that it is a particularly 
important issue that needs the questions answered.

Thinking back to the opening of this research paper, I stated that students will 
cognitively as well as mentally and physically benefit from more OLEs during school 
hours. I argued that teachers must teach the whole child, and holistically support the 
growth of physical, cognitive, mental, and social development in order for student 
achievement to improve given the fact that students do not all learn in the same way, and 
individual students need to understand their importance in this world. If we teachers keep 
our students indoors all day, glued to their seats, with only little exposure to their 
surrounding communities, how can we expect our students to healthily grow physically, 
cognitively, mentally, and socially? I argue that this is not possible, and that despite the 
difficulties associated with incorporating OLEs with Ontario curriculum for students in 
grades 4-10, teachers must plan to purposefully take their students outdoors more often.
REFERENCES


Fine-Meyer, Rose. (2012). “Engendering Power and Legitimation: Giving Teachers the Tools to Claim a Place for History Education in their Schools” in Becoming a


Heritage Toronto Archives, Toronto Historical Board Annual Report 1972, 27.


APPENDICES

Appendix A: Interview Protocol and Questions

This is an exploratory study that looks at whether practicing teachers of grades 4-8 in Toronto, Ontario, are providing their students with outdoor learning experiences. For the purposes of this paper, outdoor learning experiences is defined as instances when students and teachers go outside during their class time and work towards completing the requirements for the Ontario Curriculum for grades 4-8. It should be noted that outdoor learning experiences is not the same as outdoor education; teachers are not expected to be teaching students about how to survive in the wilderness.

Despite physicians and researchers highlighting the positive health impacts of spending time outdoors, children are still spending a large portion of their days indoors, due to the structure of school systems in Ontario, how busy teachers are, and the accompanying paper work. This study will look at current practices in order to identify the barriers and areas in need of improvement for opportunities for outdoor learning experiences while incorporating curriculum requirements.

In order to provide relevant and current data on this topic, teachers currently teaching in Ontario schools, as well as researchers who have been researching this topic will be interviewed. Scholarly journals and Ministry of Education documents will also be examined to gain further insight on this issue. For example, are there instances in the Ministry documents that encourage teachers to take their students outdoors? Or, is the opposite more apparent; are there barriers that prevent teachers from going outside?

Background Question (Professional and Content Knowledge)

1) What grade (s) do you teach?

2) What subject (s) do you teach?

3) What does an outdoor learning experience mean to you?

4) Do you believe there are any subjects that are easier than others to incorporate the curriculum with during an outdoor learning experience?

5) Do you believe there are any subjects that are harder than others, or even impossible to incorporate the curriculum with during an outdoor learning experience?

6) What has your experience been with outdoor learning experiences?
### Understanding and Practice of Outdoor Learning Experiences

<table>
<thead>
<tr>
<th>If the participant answers that they have little experience with outdoor learning experiences I will ask questions from this column.</th>
<th>If the participant answers that they have a lot of experience with outdoor learning experiences I will ask questions from this column.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1)</strong> Why do you think you have little experience with outdoor learning? <strong>Prompt:</strong> Is it a lack of confidence, experience, resources, or support systems?</td>
<td><strong>1)</strong> In what ways does your expertise help you feel confident about taking students outdoors for the purpose of holding classes? <strong>Prompt:</strong> In what ways does your expertise help you feel confident in implementing/creating resources for taking students outdoors for the purpose of holding classes?</td>
</tr>
<tr>
<td><strong>2)</strong> What value do you see in incorporating outdoor learning experiences with the J/I Ontario Curriculum?</td>
<td><strong>2)</strong> What value do you see in incorporating outdoor learning experiences with the J/I Ontario Curriculum?</td>
</tr>
<tr>
<td><strong>3)</strong> Could you please discuss the elements (resources, supports, training) that would help you so that you could provide your students with more outdoor learning experiences?</td>
<td><strong>3)</strong> Could you please discuss whether you believe you can play a role in improving your students’ health (both mental and physical)?</td>
</tr>
<tr>
<td><strong>4)</strong> Could you please discuss whether you think your students would enjoy outdoor learning opportunities?</td>
<td><strong>4)</strong> Could you please discuss the things that have helped you the most in providing your students with outdoor learning experiences? <strong>Prompt:</strong> Resources, supports, training?</td>
</tr>
<tr>
<td><strong>5)</strong> What do you think the benefit from outdoor learning experiences would be for your students?</td>
<td><strong>5)</strong> Could you please discuss a lesson plan(s) that show(s) how the grade 4-10 curriculum was incorporated with outdoor learning experiences?</td>
</tr>
</tbody>
</table>

*Ask this question if interviewee answers in the negative for either of the above 2 questions:*

<p>| <strong>6)</strong> Could you please discuss how you concretely measure your observation that your students would not enjoy and/or benefit from outdoor learning experiences? | <strong>6)</strong> Could you please discuss how you concretely measure the value of OLEs? <strong>Prompt:</strong> How do you know that outdoor learning experiences are benefiting your students? How do you know that your students enjoy outdoor learning experiences? Do you see a difference between student... |</p>
<table>
<thead>
<tr>
<th>behavior/attention levels/alertness/engagement?</th>
</tr>
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<tbody>
<tr>
<td>7) Could you please discuss whether you believe you can play a role in improving your students’ health (both mental and physical)?</td>
</tr>
<tr>
<td>7) May I please have a copy of the lesson plan for the purposes of data collection?</td>
</tr>
</tbody>
</table>

Is it OK if I contact you again for any follow up questions?
Appendix B: Participant Requirements

1) Educator is a junior/intermediate teacher;

2) Educator understands what outdoor learning is; and

3) Educator has some kind of experience with outdoor learning.
Appendix C: Letter of Consent for Interview

Date: ______________

Dear ______________,

I am a graduate student at OISE, University of Toronto, and am currently enrolled as a Master of Teaching candidate. I am studying **how teachers can further incorporate the Ontario Junior/Intermediate curriculum requirements with outdoor learning experiences** for the purposes of investigating an educational topic as a major assignment for our program. I think that your knowledge and experience will provide insights into this topic.

I am writing a report on this study as a requirement of the Master of Teaching Program. My course instructor who is providing support for the process this year is Dr.____________. My research supervisor is ______________. The purpose of this requirement is to allow us to become familiar with a variety of ways to do research as well as study a topic in teaching that will better inform my future practice as a teacher. My data collection consists of a **40-60 minute interview** that will be tape-recorded. I would be grateful if you would allow me to interview you at a place and time convenient to you. I can conduct the interview at your office or workplace, in a public place, or anywhere else that you might prefer.

The contents of this interview will be used for my assignment, which will include a final paper, as well as informal presentations to my classmates and/or potentially at a conference or publication. I will not use your name or anything else that might identify you in my written work, oral presentations, or publications. This information remains confidential. The only people who will have access to my assignment work will be my research supervisor and my course instructor. You are free to change your mind at any time, and to withdraw even after you have consented to participate. You may decline to answer any specific questions. I will destroy the tape recording after the paper has been presented and/or published which may take up to five years after the data has been collected. There are no known risks or benefits to you for assisting in the project, and I will share with you a copy of my notes to ensure accuracy.

Please sign the attached form, if you agree to be interviewed. The second copy is for your records. Thank you very much for your help.

Yours sincerely,
Researcher name: Ilana Kronick

Phone number, email: 647-983-5804 or ilanakronick@yahoo.com

Instructor's Name: ________________________________
Phone number: __________ Email: ________________

Research Supervisor's Name: ____________________________
Phone #: ________________ Email: __________________

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 at any time without penalty.

I have read the letter provided to me by Ilana Kronick and agree to participate in an interview for the purposes described.

Signature: ________________________________

Name (printed): ________________________________

Date: ________________
Appendix D – Rachel’s Lesson Plan

IDG4U1: The Study of Archives and Local History

This is the property of Rachel – interview participant from Uzes, France. Please do not distribute or reproduce without permission.

Course Details:
- Department: Interdisciplinary Studies
- Course Code: IDG 4U1
- Course Title: Archives and Local History
- Credit Value: 1.0

IDG Overview:
This course will test students' ability to interpret and analyze primary sources and secondary literature. Students will be required to present a research project on a specific topic related to local history. The course will provide a valuable opportunity for students to gain a deeper understanding of their local community and the role of archives and local history in shaping our understanding of the past.

Course Description:
The IDG4U1 Archives and Local History course was designed to bring local community residents into the classroom and engage them in cooperative research projects that support student learning. The course is structured around the examination of local historical sites and provides opportunities for students to develop a broader understanding of the role of archives and local history in shaping our understanding of the past.

Examples of Course Research Work:
- What is share-based?  What purpose and focus?
- What is the role of elders, language leaders, and indigenous leadership in the community?
- Examination of oral narratives and historic sites.
- Discussion of communication and memory and its impact on historical records.
- What is the role of local history and archives in the community?
- Local community history and the impact on students.
- History and how we commemorate the past.
- Field trip to local historical sites.
- Local community history and the role of archives and local history in shaping our understanding of the past.
- Fast finding lesson about the research.
- How can we locate and use archives and historic sites?
- Study of school archives/publications.
- Creating or improving a school archives/publications guide and mandate for the school/community archive.
- The collecting, maintaining, preserving, and cataloguing of the history and archives.
- End-of-unit assignment: Formal academic interviews with members of the community.
- Assessing the role and function of local history and archives in the community.
- Field studies such as community centers, local archives, libraries, and local history organizations.
- Field trips to local historical sites and community spaces.
- Local community history and the role of archives and local history in shaping our understanding of the past.
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- Study of school archives/publications.
- Creating or improving a school archives/publications guide and mandate for the school/community archive.
Appendix E – Roger’s Lesson Plan

Introduction

Welcome to the OISE Intermediate/Senior Math Trail! The location for this Trail is downtown Toronto, a perfect place to visit while wearing a pair of mathematical glasses.

The idea behind a Math Trail as it is now commonly called is quite simple: students follow a planned route and answer or create mathematical questions related to what they encounter along the path. Through this experience students are given the chance to connect the mathematics curriculum to many subjects including art, design, architecture, science, geography and history.

You are probably going to be incredibly busy during your practicum and the thought of taking your students on a Math Trail might end up being just that - a thought. The same might be true in your first few years of teaching. My hope is that at some point you will be able to take your students on a Math Trail. When you do, I suggest you start with a short Trail right on the school property. This will allow you to avoid the complications of taking your students off campus and it will provide you with a relatively simple way of experimenting with the idea of taking your students outside.

In the meantime, please consider using some of the questions from this Trail with your students now. Take photographs (where permitted) along the Trail and show them to your students when you assign the questions. You might even want to arrange the photographs with the accompanying questions around your classroom and have students move from one station to the next. Participating in a simulated Trail is not as good as actually being there, but it will provide your students with an opportunity to view the world through a mathematical lens.

At the end of this document you will find a bibliography and information about my work with Math Trails. Happy Trails.

Activity to do during or after the Trail.
Searching for letters of the alphabet in unintended places.

Here is a creative task that will improve your observational skills! Look for letters of the alphabet that appear in unintended places. Find letters that can then be used to spell your name or someone you know. For example, the four photos shown below spell the word MATH.

Take a photo of each letter you find and record the location where you found them in space below. Save your photos using the naming convention given below and email them to me when you submit the Trail.

Naming convention for photos.
Section Number_Letter_Your Last Name.jpg

For example, if Debra Beard were a teacher candidate in Section 1, and she found a V, she would save her file as S1_V_Beard.jpg

For example, if Stanley Yelnats were a teacher candidate in Section 3, and he found an X, he would save his file as S3_X_Yelnats.jpg
The Trail

Our meeting point will be in the courtyard behind the Commerce Court North building at 25 King Street West. This building is located just west of Yonge Street. To get to the courtyard, enter the building and walk through to the opposite end and then exit the building.

Question 1

Walk to the large, circular area (during the summer there is a fountain here) in the middle of the courtyard. Locate three huge concentric circles that surround the fountain (Figure 1).

![Figure 1](image1)

(a) Use a tape measure to find the

(i) distance between the small and middle circles of the fountain (Figure 2, left side)
(ii) distance between the middle and large circles of the fountain (Figure 2, right side)

(b) Use a tape measure to find the circumference of each of the three circles. Record your answers in Table 1.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td>circumference of the inner circle</td>
<td></td>
</tr>
<tr>
<td>circumference of the middle circle</td>
<td></td>
</tr>
<tr>
<td>circumference of the outer circle</td>
<td></td>
</tr>
</tbody>
</table>

(c) Based on your results from part (b), what happens to the circumference of the circle when the radius of a circle is repeatedly increased by the same amount each time? Will it go up by the same amount each time or will it grow in some other manner?

NOTE: Do not use the formula for the circumference of a circle. The point of these questions is for students to observe or be reminded that the relationship between the circumference and the radius of a circle is a linear one.
Appendix F – Lila’s Lesson Ideas

- *Project Wild* game "Oh Deer" played outside for:
  - Grade 7 Ecosystems Unit (Geography and Science):
    - Teachers can use the game for concepts of resource use, human impact, parasitism, and/or habitat fragmentation.
    - Teacher can make a funny joke and have a smaller student on the leg of a bigger student, representing the parasite that slows you down and makes you more vulnerable to be killed by something else, but does not directly kill you.
    - I have also had children run across the field as the trucks and then I assign one student as the hunter, but he/she can only touch (kill) one animal at a time (based on quotas the Government enacts).
  - Grade 9 Biology: Sustainable Ecosystems (nutrient cycling):
    - I designed this where the teacher can use tokens that represent nutrients. It’s an outdoor cocktail party and students get a business card that tells them who they are and what they do (if the weather is not good, we can do this inside, but the students are still moving around). For example, a student will be categorized as an herbivore and will then be given different colored tokens to represent their nutrients. I found some golf tees that are different colors, so I use that too.
    - Then students mingle at the party, and if I walk up to you and if you happen to be a carnivore that eats meat (i.e. me) then I take my cup and I pour my nutrients (tokens/golf tees) into your cup.
    - But then they can go to the reincarnation bar. They use their business card and put it at the bottom of the deck and take another one from the top. So they are always in the game.
    - They may be a producer and realize that producers suck because they just get eaten all the time. Same thing with herbivores.
    - The teacher can also add a human that can kill things for pleasure since humans like hunting and fishing for fun.
    - You end up seeing this from the students: where are all the resources? They are all accumulated here with the humans, or carnivores!
    - Then the teacher can ask: Well is that fair? Then they end up having these interesting discussions about the ethics of it all.
  - Grade 10 Careers:
    - Teacher modifies resources to be "money", "status", and "for the love of the job" (instead of food/shelter/water).
    - Students could see the implications of a tight job market vs. less competitive situation.
  - Grade 12 Biology: Population Dynamics Unit (density-dependent and density independent impacts of population size, also to gather data for
population cycling demonstration)
- Similar to descriptions above
- Sidewalk Chalk:
  - Grade 10 Biology: Tissues, Organs, and Systems
    - Have students draw the outline of partner’s human body on the ground with sidewalk chalk.
    - Give them a list of body organs and have them place them. Tell students I want accurate size, location with respect to each other and what it is connected to and stuff like that.
    - It is really interesting to see what they do not know. It led to good discussions
  - Any grade/topic:
    - Mind maps done outside with sidewalk chalk
    - Followed by gallery walk, instead of indoors on paper or white boards
- Visit to High Park
  - Grade 7 Ecosystems field trip (Science, Social Studies, English, Math, Physical Education):
    - Rotating stations through High park where students run between stations:
      1) "Migration headache" game (see Project Wild – Activity Guide page 237);
      2) Read students an Inuit legend and focus on relationships with nature. I read a story from an Aboriginal perspective, it was called Rough Faced Girl, an Ojibway retelling of the Cinderella story;
      3) Quadrat sampling comparing vegetation in forest with lawn with a walking path;
      4) Soil sampling comparing forest floor with open (unforested) area
- Dramatization
  - Grade 8 Electricity: Factors that Affect Resistance (works best outside, but can be done in 'reduced' way in hallway)
    - Half of the students are nuclei of cells, half are electrons
    - Nuclei arrange themselves in rows and columns in an open space with room for others to pass around them.
    - When the arrangement is wide and/or short, the electrons can run through quickly.
    - If the nuclei are slightly shifted so that they are 'staggered', it simulates a different arrangement of atoms and a different material being used for a conductor (more difficult for electrons to run through a staggered configuration of nuclei, so not as good a conductor).
    - The nuclei, when 'cold' do not move as much, so it is easier for the electrons to run through (this simulates superconductors which are low temperature situations).
• **Note-taking**
  - **Any grade/topic:**
    - Note-taking/discussion session outside (simply to take advantage of good weather)
    - In good weather, if the lesson relies on note-taking/discussion and can use a whiteboard instead of needing PowerPoint, we simply go outside and do the lesson on the steps of the school, or on a grassy hill area in a parkette behind the school.
    - Topic does not matter: venue does.

• **Grade 9 Sustainability:**
  - **Soils: mini-workshop:**
    - Demonstrate soil sampling equipment (soil core, soil thermometer, percolation rate measurement, texture tests, soil triangle)
    - Do it all outside as it avoids hassle of cleanup indoors
  - **First Contact Simulation Game:**
    - Europeans / Aboriginal peoples meeting for the first time
    - Both sides have certain resources/skills/information and must cooperate with no common language.
    - Addresses alternate views/stakeholders in ecosystem/resource use situations

• **Solo Walk**
  - **Life Skills:**
    - Lead students along a trail
    - Plant one student here, continue hiking with other students
    - Plant the next here, continue hiking with remaining students
    - Carry on until all students are planted.
    - Ensure students are close enough away that if something happens the next students can hear, but not close enough that they can have a conversation.
    - By the time you come back to the first student, they have been along for 5-10 minutes
    - Debrief: what did you see/hear when you were all by yourself?
    - This pushes students to build confidence and be able to be by themself
    - Being alone is the first step towards to withstand peer pressure.
    - Teaches students to like who they are. Reinforces idea that if you identity is threatened by your being alone, then maybe you do not have a really stable one.