Increasing Activeness:

Cultivating Ecological Understanding in kindergarten

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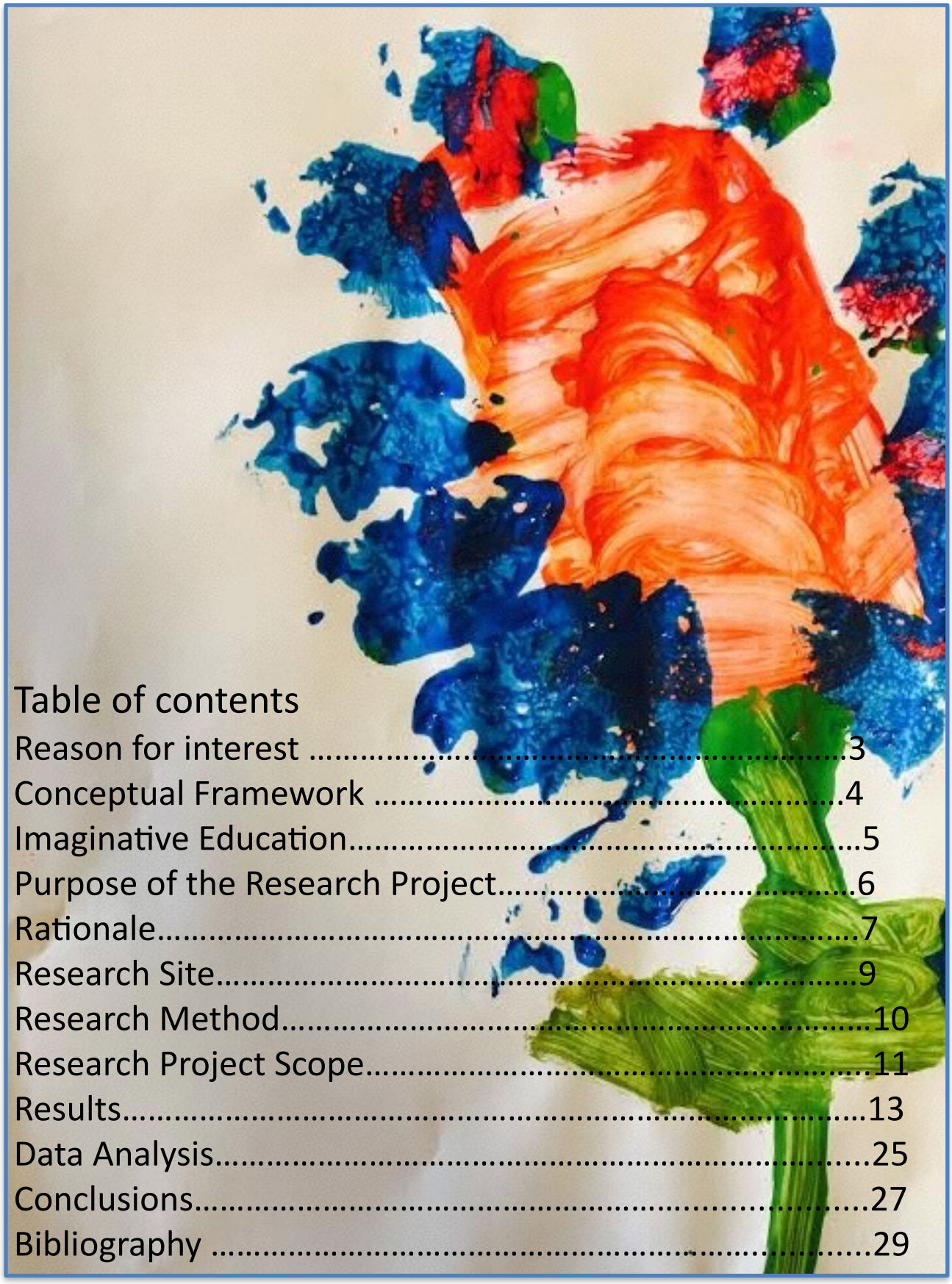

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Reason for interest

Every week, I arrive at the grocery store with a handful of bag-less Brussels sprouts or 8 bag-less apples rolling around freely as the cashier attempts to weigh them. My recently rinsed, un-bagged organic kale gets the belt and the scale all wet and the cashier reluctantly takes a tissue and attempts to wipe it dry. I apologize for the inconvenience but she seems annoyed. The lady behind me with bananas in a plastic bag (bananas, which already have protection from the elements in the form of a peel) bereft of reusable bags gives me a look. I feel frustrated and I wonder what it will take for people to start to recognize their role in caring for the natural world. I have experienced these feelings of frustration in my own classroom as, for example, I watch a student take a piece of paper, scribble some blue lines in felt and move onto to do a similar drawing on the next piece of paper. I have witnessed them clean up small amounts of spilt paint or water with about 45 paper towels. Despite countless lessons on proper placement of garbage and recycling, I go through the recycling bins to find paper in the garbage, compost in the paper recycling, and unwashed applesauce containers in the paper towel bin. My love and care for the natural world has generated a passion for ecological education and a keen interest in exploring ways in which I can encourage my students to care more about the natural world and to begin to understand ecologically - “to make sense of the human world as part of, not apart from, nature” (Judson, 2015, p. 9).

Conceptual framework

I received a full time teaching contract in a grade two French immersion classroom immediately after completing my PDP. I spent one year in complete survival mode, following any and all programs that were thrown my way and having no clear idea why I was doing the things I was doing. A passion for learning combined with general feelings of incompetence after my first year of teaching, led me to pursue a master's degree in education. I stumbled upon the application for the Imaginative Education masters program. I had never heard of it, but I applied for the reason that it was still accepting applicants, and most others were not and it sounded… easy. My experience with Imaginative Education has pushed me to completely change the way I see myself as an educator and the way I see my students as learners.

Imaginative Education

Imaginative Education (IE) is a new approach to teaching and learning that strives to make learning more effective, meaningful and memorable by engaging students' imaginations and emotions in learning (Egan, 2005). In order to engage students' imaginations and emotions in learning, IE presents a cognitive tools approach to teaching. Cognitive tools are defined as "aids to thinking developed in human cultural history and learned by people today to enlarge the powers to think and understand" (Egan, 2005, p. 219). For example, students who have not yet developed fluent literacy skills use cognitive tools such as binary opposites, story form, imagery, metaphor, rhythm and rhyme, play, humour and mystery to categorize, organize and understand their everyday environment (Egan, 1997). Teachers can incorporate these tools in any unit by presenting

the topic in story form, by using metaphors and jokes or having students create their own, by having students listen to or create poems or songs, by evoking mental images associated with the topic or by playing drama games relating to the topic (Egan, 2005).

For students who have developed fluent literacy skills, Egan (1997) describes a different set of tools they are using to make sense of the new reality that literacy has created for them. These tools include, but are not limited to, associations with the qualities of heroes, finding the extremes and limits of their reality, collecting things, and changing the context (Egan, 1997). For these students, learning becomes more engaging when teachers access these already present tools by, for instance, exploring the biggest, greatest or most dangerous thing about the topic, by having students become experts about a specific aspect of the topic or by dressing up as a character in the narrative on the subject (Egan, 2005).

Egan (1997) goes onto describe a different set of cognitive tools for those who have continued to develop their literate cognitive tools and are beginning to develop theoretical thinking. This set of cognitive tools includes the sense of abstract reality, a grasp of general ideas and their anomalies and the sense of agency – the ability to understand ourselves as products of historical and social processes (Egan, 2005, p. 153). The consideration of the cognitive tools is crucial for students to engage emotionally and imaginatively in the content we are teaching. If students are emotionally and imaginatively engaged in their learning, they are more likely to make meaning from the content of the lesson. This is important because “ideas become rich and flexible and strong as they are supported and challenged by the constant growth of knowledge” (Egan,

2005, p. 169). It is this development of the abstract world of ideas that will allow students to become productive and thoughtful members of our society.

Having been raised in the Western culture in which this approach is based, I was able to relate to the cognitive tools described by Egan. For example, when I was 9 or 10, I was using the cognitive tool collections and hobbies in the way that I was absolutely obsessed with pandas - panda sheets, panda wall paper, panda stuffed animals, and panda pajamas. My understanding of the cognitive tools helped me to understand many of the problems with my own education as well as challenges I was experiencing in my teaching practice. This shift in my understanding of how my students relate to the world encouraged me reflect on how I can better engage my students emotions and imaginations in learning, and in particular, in learning to care for the natural world.

Purpose of the research project

Imaginative Ecological Education (IEE) is a cross-curricular approach to ecological education, based on the framework of Imaginative Education, that aims to engage body, emotion and imagination in the natural context in which students live and learn (IEE, 2014). IEE proposes three principles to support this aim. The first, "feeling", requires that teachers engage emotion and imagination by employing a cognitive tools approach to teaching, as described above. The second principle, "activeness", involves providing students' opportunities to feel their connectedness with the world through the attunement of their senses with their surroundings by providing opportunities to stop, to pause and to reflect as part of learning (Judson, 2008). The last principle, "place/sense of place", is concerned with the development of a personal relationship or an emotional

"Through full sensory engagement of the body in the world and through the emotional responses this evokes we may cultivate emotional connections with the world around us" (Judson, 2015, p.23)

bond with one's local natural context, whether that context is urban, sub-urban or rural (IEE, 2014). This action research project is a product of my-going inquiry into the three principles of IEE. More specifically, my research has focused on ways in which I can increase the second principle, activeness, in my kindergarten classroom.

Rationale

It is widely accepted in our society that the state of the environment is cause for concern. "Daily, there are references in the news media to environmental issues, such as global climate change, ozone depletion, dwindling resources, famine, disease, loss of biodiversity, pollution" (BC Ministry of Education, 2007, p. 3). It is also widely acknowledged that schools have a responsibility to educate in order to cultivate an attitude of care and respect towards the Earth. To illustrate, the BC Ministry of Education's Environmental Learning and Experience Guide states: "We must also turn to ourselves as individuals and as educational professionals to make changes and develop a new ethic – a responsible attitude toward caring for the Earth. Working to integrate environmental learning within all subject areas promotes this change in attitude by providing students with opportunities to experience and investigate the relationships linking individuals, societies, and natural surroundings" (BC Ministry of Education, 2007, p. 6). In many of the existing environmental education programs, it is understood

that in order to cultivate this attitude of care, students must have direct experience with the natural world.

For example, in the "Get Outdoors!" educator's guide to outdoors classrooms, they state: "unstructured play in nature encourages creativity, imagination and a sense of wonder" (WildBC, 2009, p. 22). Additionally, the David Suzuki Foundations educational guide for kindergarten argues that being outdoors is important because "studies have shown that spending time in nature helps with recall and memory, problem solving, and creativity [and that] children (and adults) who spend more time outside are physically healthier and less stressed" (2014, p. 4). Furthermore, the BC Ministry of Education's "Environmental Learning and Experience Guide" explains that direct experience with the environment is an important way to learn about sustainability" (BC Ministry of Education, 2007). They also note that experience in the environment helps to "provide students with a deeper understanding of natural systems and the impact humans have on those systems" (BC Ministry of Education, 2007, p. 9). Although the value of spending time in nature has been widely acknowledged, Takahashi (2004) argues that simply being outside or doing activities outside will not necessarily contribute to a sense of connection to nature (as cited in Judson, 2015, p. 18).

One way to encourage a sense of connectedness to nature is to recognize the importance of engaging the body's tools for learning in the context of ecological education (Judson, 2015). Smith and Williams (1999) argue: "children, as well as adults, need to be encouraged to learn how to look and listen and smell and feel without the

mediating influence of electronic screens or digitized sounds" (p.8). This intentional and purposeful engagement of the body's innate tools for learning, or, activeness, is valuable because "through full sensory engagement of the body in the world and through the emotional responses this evokes we may cultivate emotional connections with the world around us" (Judson, 2015, p. 23).

This idea is echoed by Selby (2017) who argues that too often, the discourse in environmental education is focused on the notion that nature needs protecting on grounds of usefulness and by commodification of elements making up the natural world. Selby (2017) argues further that environmentalists are often not environmentalists because they have an emotional reaction to the wild world, but have an interest in "sustaining human civilization at the comfort level that the world's rich people - us- feel is right, without destroying the "natural capital" or the "resources base" that is needed to do so" (Selby, 2017, p. 14). Selby (2017) proposes that in order to shift the discourse, we need "to build a sense of oneness and intimacy with nature through learning that is local and vernacular and that fosters an empathetic and emotional bonding with place" (p. 20). He believes this can be encouraged through sensory engagement in the world , or, activeness.

Research site

This action research project was conducted with my kindergarten French immersion students as participants. My class is comprised of twenty-two students (eleven boys and eleven girls) of which nineteen are Caucasian, one is First Nations, one is Lebanese and one is Chinese. I have been working with this group of students since

September. My group is one of four kindergarten classes within a very busy school that enrolls close to 450 students in grade k-5.

Research method

Prior to beginning my action research, I followed research ethics procedures in creating and collecting a consent form to notify parents of my research and ask for their permission to include their child in my project. My research consisted of three activities designed to engage my kindergarten students' physical senses in the local, natural context. My data collection methods were qualitative in nature and included participant observation, taking photographs of the students and recording all observations, quotes and thoughts and feelings in a research journal (figure 1).

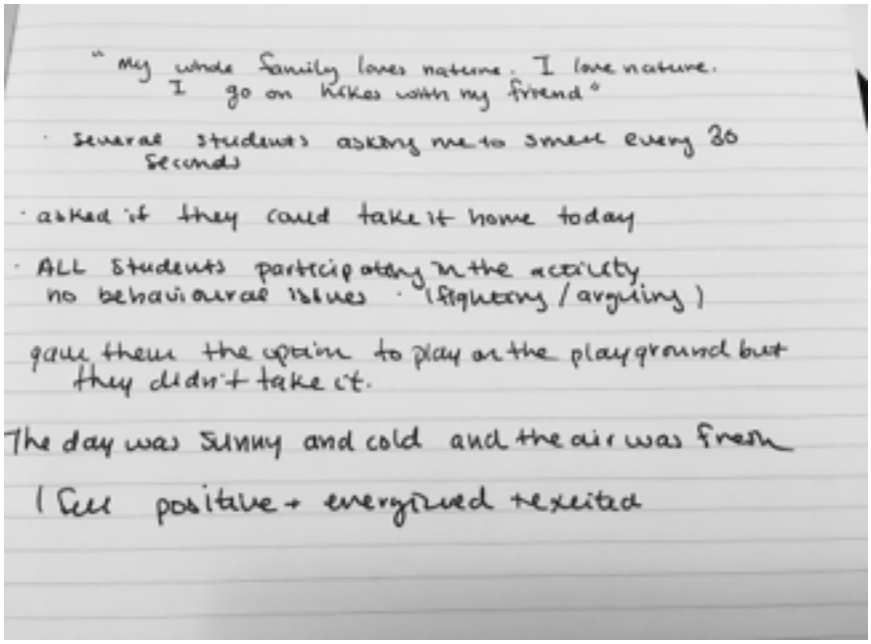


Figure 1 - research journal sample

Because the goal of my research was to increase activeness amongst my students through engagement of their senses in nature, my next step was to complete a literature review on student engagement in order to try and make sense of the data I had collected. What I found in my review of the literature was that there seemed to be a consensus that engagement is multifaceted in nature and can be defined in three ways: behavioural engagement, affective engagement and cognitive engagement. Behavioural engagement entails positive conduct, involvement in learning and academic tasks and includes behaviours such as effort, concentration and attention (Fredricks, Blumenfeld, & Paris, 2004). Affective, or emotional engagement, "refers to students' affective reactions in the classroom, including interest, boredom, happiness, sadness, and anxiety" (Fredricks, Blumenfeld, & Paris, 2004, p. 63). Cognitive engagement is characterized by a desire to go beyond the requirements, a flexibility in problem solving and positive coping in the face of failure (Fredricks, Blumenfeld, & Paris, 2004).

Despite the widespread acceptance of student engagement as multidimensional with three subtypes, there has been less agreement as to how each dimension should be conceptualized and measured (Shernoff, 2013). Measurement techniques include, but are not limited to, self-report measures such as questionnaires about effort and attention or rating scales where, for example, teachers are asked to rate students' level of participation. (Fredricks, Blumenfeld, & Paris, 2004). Observational techniques are also used to assess engagement by observing behaviours such as student attentiveness, doing the assigned work and showing enthusiasm (Fredricks, Blumenfeld, & Paris, 2004). For my research, I chose observational techniques because I wanted to qualitatively assess

what was going on at a local level and because alternative measurement techniques such as self-reporting can be both challenging and unreliable with the age group I am working with. Keeping the definition of the three subtypes of student engagement in mind, I created an observational checklist to help explain my data in relation to the literature on student engagement.

Observations of Student Engagement
• Students demonstrate enthusiasm in the task/topic • Students demonstrate an interest in the task/topic • Students show an eagerness to participate • Students were able to stay on task • Students followed rules • Students demonstrate a desire to go beyond the requirements

Figure 2 - Observational checklist

Research project scope

To make my research manageable, I chose to delimit it in certain ways. The delimitations of my study were that I looked only at the 22 students in my kindergarten classroom. Additionally, my research was limited by the 6-week time frame that was allotted for the implementation of my research activities. Another limitation to this study is that research on Imaginative Ecological Education is fairly new and therefore, there is a lack of prior research studies on the topic.

Assumptions

To complete my research, I made the following assumptions. I assumed that when I observed my students participating actively in activities, that they were engaged in the

activities but it is important to note that "when a behaviour is observed that appears to represent engagement, it may actually represent passive compliance to authority figures rather than an authentic investment in mastering or comprehending knowledge (Shernoff, 2013, p. 48). Additionally, I assumed students positive emotions were directed towards the activities but it worth mentioning that it is not always clear whether emotions are directed towards content of the lessons, their friends or the teacher (Fredricks, Blumenfeld, & Paris, 2004).

Terminology

To understand my research more completely, the following terms must be defined:

Activeness: "how engagement of the body's innate tools can contribute to learning by developing a distinctly body-based understanding of topics" (Judson, Engaging Imagination in Ecological Education, 2015, p. 23). For the purposes of this research "innate tools" refers to the physical senses.

Ecological Understanding: "to make sense of the human world as part of, not apart from, nature; it is to understand humankind's implicatedness in life" (Judson, Engaging Imagination in Ecological Education, 2015, p. 9)

Results

I will begin with a discussion of some of the challenges (and perceived challenges) I faced when planning and implementing this project followed by a description of the three activities designed to increase Activeness amongst my students.

Weather

I implemented this action research project in February, so I anticipated weather could be one of my biggest challenges. Over the course of the project, we spent time outdoors in the wind, rain, snow and sunshine and as it turns out, kids don't really care about the weather. In fact, it's the adults that do. Before leaving for a nature walk one snowy morning one of the moms who was joining us said: "are we seriously still going? I only have runners!" My students, on the other hand, eagerly suited up in their mittens, toques and snow boots and lined up at the door.

Figure 3 - "neither snow nor rain nor heat nor gloom of night stays these students from the outdoors (adapted from the U.S. Postal Service Creed)

Support

Another challenge I anticipated was a potential lack of support and I was feeling hesitant to share my project with parents and administrators. I feared that because I was not focusing on improving reading or developing number sense, that the activities I had

planned might not be considered valuable or appropriate educational activity. In my proposal, I assured them that the activities cover curricular competencies such as "make exploratory observations using their senses" and "experience and interpret the local environment" (Ministry of Education, 2017). I drew their attention to the fact that my activities align well with the First Peoples principle of learning of "connection to the land" and that we are encouraged to "wherever possible, look for opportunities to take learning outside" (First Nations Education Steering Commitee, 2012, p. 15). Fortunately, support was not a challenge for my research as I have an exceptionally supportive administrative team and group of parents who have encouraged this project along the way.

Knowledge of outdoor instructional activities

In my initial planning stages, I had planned to cover the curricular content "local First Peoples uses of plants and animals" (Ministry of Education, 2017). I planned to take the students on nature walks and stop to point out different local plants and their traditional uses. I knew practically nothing about this topic, but I was keen to learn so I asked for help from our librarian and he found every book that related to First Nation's environmental education. Although these books were helpful, I was still anxious and I worried that I did not have enough knowledge to be teaching about this subject. I feared that the information I would share was not true, or that it would be in some way offensive. To help with my feelings of uncertainty and incompetence, I sought out help from the members of the local First Nation's community and organized someone to join us on our first nature walk. I was starting to feel excited.

My challenges began when I received a phone call from the Aboriginal Nations School Counselor and member of the Songhees Nation, who was going to facilitate the nature walk and talk about the traditional use of the land. He explained to me that he does not think an environmental field trip with kindergartens in our area is a good idea. He said that there are very few local plants near the school because much of it has been taken over by invasive species. He went on to explain that their attention span is too short, and the walk to the park would be too long. I hung up the phone feeling discouraged and wrote some of my thoughts in my research journal: “If the man who does this for a living thinks I won’t be successful, what makes me think I’ll be able to engage my class on a walk with just me and my limited knowledge? Uh oh. Feeling anxious”. Despite this advice, I set out to plan our first nature walk.

I planned our first nature walk for weeks. I strategically planned their walking partners, organized parent volunteers, I carefully planned the route and walked it through twice, and I created and printed a coloured scavenger hunt sheet. I planned where we would stop and gather so I could point out ferns, moss and cedar trees and talk about some of their traditional uses. I thought I had it all figured out. The walk was scheduled for Valentines Day in the afternoon: my first mistake. My students came to school with chocolates, cupcakes and lollipops for all and displaying the emotions that come along with ones first experience of Valentines Day in an elementary school. The afternoon arrives and loaded with sugar, the students get lined up in preparation for our walk: A walk that took me 15 minutes, took my class 30, despite multiple warnings of the lack of washrooms, one girl peed her pants and as she was wearing pink tights, there was an

obvious wet patch all down the side of her legs. Another girl got a blister from her rubber boots and a parent had to run around asking strangers for Band-Aids because I failed to bring a first aid kit. We arrived at an open field and they just went wild; they were running all over the place, climbing on rocks and on the walk back, they were walking off the sidewalk onto the road and stepping on people's lawns.

My first experience was an absolute nightmare. Needless to say, at the end of the day I felt discouraged, incompetent and embarrassed. I was feeling foolish that I hadn't taken the Aboriginal Nations School Counsellor's advice and was seriously considering changing my research topic to something indoors, like reading. It was at this point that I switched the focus of my research from teaching about local plants and animals to a focus on increasing activeness amongst my students. After some serious self-reflections, many conversations with colleagues, reading a variety of books on outdoor education and attending a Pro D session with an ecological education focus; I made a list of all my mistakes and sketched out an improvement plan for the next walk.

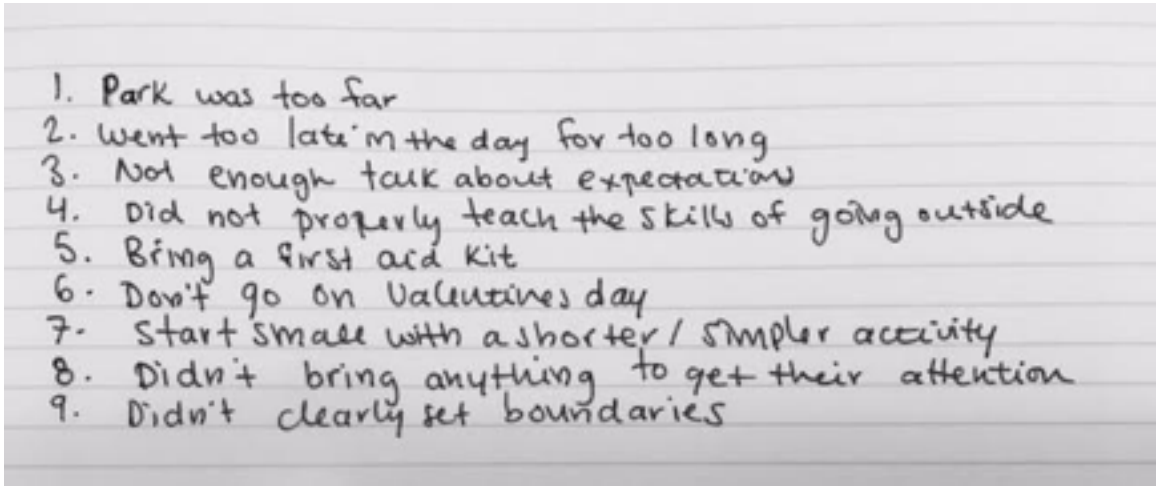


Figure 4 - Valentine's Day Massacre: Reflections

The next week, I decided, I would take them to a closer park, for a shorter period of time, earlier in the day, and have them do a simple activity that engages the body. Prior to the date, I spent lots of time in the class reviewing expectations and sent an email out to parents the day before asking them to go over certain expectations with their child. On the morning of the walk, I was feeling anxious. Flashbacks of the previous week's events were creeping up in my mind and I feared as soon as we stepped off school ground my students would turn into wild animals.

Activity 1 – engaging the sense of sight

Figure 5 - if at first you don't succeed, try try again

I lined them up in partners and we walked, entirely on the sidewalk, for about 10 minutes to a nearby park. We stopped in an open space and I identified the boundaries with them. It was snowing, so we began with an activity to warm up our senses. We took a deep breath to smell the ocean air, rubbed our hands together to feel the warmth, cupped our hands around our ears and listened to the wind. My students were engaged and attentive. I explained that we would be doing an activity to help us warm up our sense sight. I gave each pair of students a paint chip with several shades of the same colour and asked them to match their

chip colour as closely as possible with something natural (WildBC, 2009).

Figure 6 - there are many forest greens

They were excited about the activity and were running around yelling things like "Madame, the dead grass est orange!" and "J'ai trouvé vert!" (I found green!) and "Madame this brown matches the dog poo exactly". They ran around matching up their colours for several minutes, running back to me to get new paint chips if they were done. I blew my whistle and they all came running in and we discussed what colours were easy to find (brown, green, gray), which ones were more challenging (red, purple, pink) and how it might be different if we were to return in the summer or spring. They lined up and we walked back to the school without a foot off the sidewalk. I was relieved.

Activity 2 - Engaging the sense of smell

To draw awareness to their sense of smell, I gave each student an individual eggcup labelled with their name and explained that they will be making their own personal brand of nature perfume by combining small pieces of nature they find on the ground (WildBC, 2009). There was a palpable buzz amongst the class as they anxiously waited for me to pass out their cup. Some initially hesitated, seeming unsure what I was asking them to do. One boy grabbed a handful of grass and shoved it into his eggcup and

Figure 7- eau de nature

held it up to me. I brought the cup right up to my nose, breathed in deeply and exclaimed "Mmmmmm! I LOVE the smell of fresh grass. I wished I could bottle up this scent and wear it everyday!" After witnessing this interaction, they were all coming up to me every 30 seconds asking me to smell their concoction with their latest addition of mud or pine needles. Small eggcups held by wide-eyed 6 year olds were being pushed up to my face left, right and center as they eagerly awaited my reaction.

Someone discovered a rosemary bush and they were all fascinated by the strong scent of the leaves and I explained to them that many people also enjoy the taste of rosemary and use it in their cooking. They were all keen to add a sprig or two to their mixture. They were engaged in this activity for 20 minutes, running around like mad scientists trying to find the perfect addition to their concoction and asking their friends to smell. Some students took little sticks and discovered that when they crushed or ripped

the leaves, the smells got stronger. After 25 minutes or so, I gave them the option of free play and even my most rambunctious, star wars Lego playing group of boys continued on making

Figure 8 - the perfume counter

their perfect perfume. As we were walking back to the school, one of my students was walking along side me and said, “My mom is going to love this perfume. My whole family loves nature. I love nature. I go on hikes with my friend”.

Activity 3 – Engaging the body

“Practicing some basic yoga postures helps students become aware of their bodies and engages mental imagery” (Judson, 2015, p. 50). We did yoga once a week for 5 weeks, three sessions inside and two sessions outside. I set up the expectations that yoga is a very special time for us and it was important to be calm and try to stay as still as possible. I dimmed the lights; put on calming music and allowed them to take their shoes off, which appeared to be one of the most exciting things I’ve ever asked them to do. During the first session, it was difficult for them to not share their opinions about each pose I would introduce, whether they found it hard or easy, whether they had done it

before or not, whether they liked it or not, but by the third session, they knew what to expect, they had become familiar with the poses and began to take it rather seriously. Teaching the poses also provided me with a valuable opportunity to teach new French vocabulary: la montagne (mountain), la grenouille (frog), l'arbre (tree), la fleur (the lotus), and le serpent (snake or cobra).

For our first session outside, I scoped out a quiet area in the schoolyard and planned the sequence of poses carefully, knowing I wouldn't be able to hold their attention for long. We sat down cross-legged near some trees and started by taking a few deep breaths. We moved onto mountain pose and although they chatted a little between

poses, there was a powerful moment of stillness where I encouraged them to focus on

Figure 9 - Warrior 2

their senses and the feeling of the air on their faces (Judson, 2015). From mountain pose we moved to tree pose where I was able to draw their attention to the few trees around us and asked them to notice the way the branches moved in the wind and try to imitate it with their arms while still maintaining balance. We returned to the ground for a few moments in lotus pose but I noticed some students were getting a little restless. Not wanted to push it, we took one last deep breath together and felt pleased with the valuable few moments of stillness we shared together.

One thing that came about unexpectedly after introducing yoga to my class was the ways in which some of my students brought practicing yoga into their play. For example, during centers one afternoon a group of girl were playing "yoga teacher" and taking turns guiding their friends through a series of poses. Also, on a beautiful, cold, sunny afternoon, several students decided to spend their outdoor free time

Figure 10 - future yogis

practicing some poses I had taught them, using their coats as mats and, off course, taking off their shoes.

Data analysis

In general, I feel as though the activities were successful in engaging my students in the local, natural context. I feel this way because their levels of engagement were noticeably higher than during other activities I had done that week. For example, when I had them writing math sentences using cuisinaire rods, I had a few students off task, building towers with the rods, I had one drawing a picture of a rainbow and a several who were quick to say: "J'ai fini. Est-ce que je peux jouer?" (I'm done, can I play now?). However, I do feel it necessary at this point to analyze some of the data in relation to the literature on student engagement. The tables below include some of the indicators of student's engagement outlined by Paris Fredricks, Blumenfeld, & Paris (2004) and my observations of student behaviour written in italics.

Activity 1 – engaging the sense of sight

Observations of Student Engagement	
• Students demonstrate enthusiasm in the task/topic Students demonstrate an interest in the task/topic • Students show an eagerness to participate • Students were able to stay on task • Students followed rules • Students demonstrate a desire to go beyond the requirements	• *Smiling, running, showing me when they found a colour match* • *actively listening to instructions, starting task right away* • *students stayed in bounds and listened to the adults* • *returned for more paint chips when they were finished*

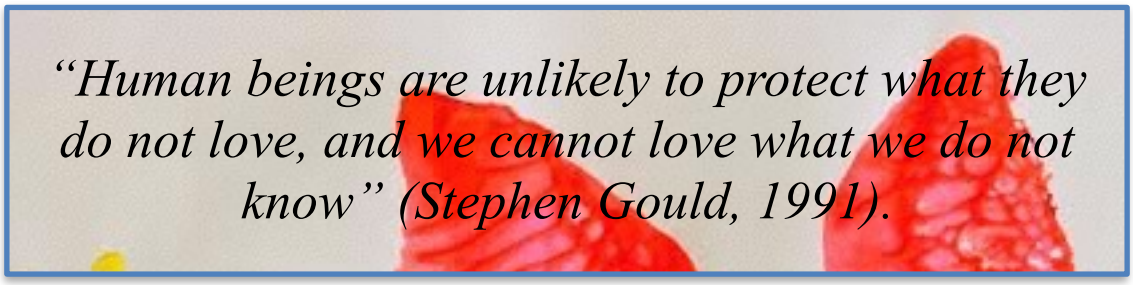
Activity 2 – engaging the sense of smell

Observations of Student Engagement	
• Students demonstrate enthusiasm in the task/topic • Students demonstrate an interest in the task/topic • Students show an eagerness to participate • Students were able to stay on task • Students followed rules • Students demonstrate a desire to go beyond the requirements	• *smiling, running, complementing others, asking me to smell their cups very frequently* • *asked if they could take it home, one student expressed a love of nature/ hiking, students were very curious about the rosemary bush (asking lots of questions, smelling it intently)* • *began the task immediately* • *participated in the activity for 20 minutes* • *no students went out of bounds, no behavioural issues* • *gave the option of free play, but they didn't take it.*

Activity 3 – engaging the body through yoga

Observations of Student Engagement	
• Students demonstrate enthusiasm in the task/topic • Students demonstrate an interest in the task/topic • Students show an eagerness to participate • Students were able to stay on task Students followed rules • Students demonstrate a desire to go beyond the requirements	• *closing eyes, smiling* • *some students shhhing others who are talking* • *eyes on me, waiting quietly for the next instructions* • *sitting quietly, followed along with all the yoga poses* • *doing yoga during free time*

Although I can fairly confidently say my students were engaged in the activities, I cannot, of course, assert that the participation in these activities has led to the cultivation of an ecological understanding. I can, however, confirm that my students displayed wonder, joy, curiosity and excitement when engaging in the local, natural context and that is these concepts that lend themselves to embedded affinity with nature (Selby, 2017). In other words, it is a sense of wonder that can move us to understand and act differently" (Judson, 2015, p. 202).



Conclusions

If the goal of ecological education is to cultivate ecological understanding and to create more ecologically aware citizens such as those who think twice about putting bananas in a plastic bag; then as educators, we need to recognize the importance of emotional engagement in learning about the natural world. Emotional engagement is important because "all knowledge is imbued with feeling" (Judson, 2015, p. 202). Rachel Carson acknowledges the connection between knowledge and emotion in her essay *The Sense of Wonder:* "Once the emotions have been aroused – a sense of the beautiful, the excitement of the new and the unknown, a feeling of sympathy, pity, admiration or love – then we wish for knowledge about the object of our emotional response" (as cited in Judson, 2015, p. 202). This idea is echoed by Stephen Gould (1991): "Human beings are unlikely to protect what they do not love, and we cannot love what we do not know" (as

cited in (Smith & Williams, 1999, p. 7)

One way to engage student's emotions in nature is through the engagement of the body's innate tools, or, through Activeness. In my research, I have explored activities designed to increase Activeness amongst my students. I found that when students were given an opportunity to explore the natural world with their senses they became behaviourally, affectively and cognitively engaged in the activities. It is my hope that, through a continued exploration of the principles of IEE, my students will begin to cultivate an ecological understanding and to start to become motivated to care for and act for nature. It is also my hope that as a result of my research, other educational professionals with being to explore the concept of engaging students' emotions and imaginations in ecological education because, after all, "emotional and imaginative engagement is the glue that bonds us to the world" (Judson, 2015, p. 18).

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