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FOSTERING JOY, ENRICHING RELATIONSHIPS, AND ENCOURAGING GROWTH THROUGH OUTDOOR EDUCATION CURRICULUM

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by

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CHAPTER ONE

Introduction

Growing up I was lucky to have access to outdoor spaces like city parks, a backyard, and a family cabin. My brothers and I were the types of kids who arrived at dinner with dirt smeared across our faces after building a complex city for ants in the backyard. I was lucky not only because I had spaces to play, but because I had adults in my life who encouraged these explorations. I was lucky because during all the hours I spent with grass-stained knees and smelling like sweat and sap, I was laying the groundwork for a life filled with passion for nature. I say “I was lucky” because it's become clear to me that many young people don’t grow up with this ingrained comfort in the outdoors. In fact, for many, it is the opposite. Many experience fear and disconnect. Perhaps because movies have shown us that scary things happen to you in the woods, or because we’re taught to kill any non-human being that “invades” our spaces, or because screens are considered a safer pastime than climbing trees, or because many kids don’t see people like themselves represented in those held up as environmental leaders. I cannot say for sure what causes a disconnect between a person and the natural world around them, but I know that it’s happening. It became abundantly clear to me when I began working in outdoor education and most of the time that I asked students to sit on the ground with me, they expressed repulsion at the idea of more of their body in contact with the earth below.

This is an issue for a huge number of reasons. One of these reasons is that time spent in nature can provide several social, emotional, and academic benefits but, due to

rapid urbanization and systemic exclusion of many populations, these benefits are not accessible to all people. The exclusion of people from outdoor spaces will be discussed at a greater depth later in chapter two. This lack of outdoor time is also an issue because the planet is in need of love and care. If a generation's upbringing is void of valuable outdoor connection, it is unlikely it will produce the environmental stewards we need. Environmental and outdoor education fills this void by providing positive outdoor experiences to participants. In my experience, there is some identification of species and observing ecological cycles and discussion of human impact, things many imagine when hearing the term "environmental education". But much of the time in nature is spent going back to the basics, learning to observe with all the senses, to wonder, to notice. Often these simple experiences, rooted not in fact but in a sense of place and emotion, have a much more profound impact than many expect.

This project explored the benefits of time spent in nature and different strategies that can be used in environmental education, a field which will be explained in more detail in this chapter. The ultimate goal of the project was to answer the question: *What does a curriculum that fosters joy, enriches relationships, and encourages growth look like at outdoor learning centers?* This chapter offers a background on environmental education, the need that it fills, and ends with details about the specific settings of this project.

When considering education in and about the environment, a few terms arise. Currently, the two most common terms used are "environmental education" and "outdoor education". Environmental education is an umbrella term that can be used to describe a

number of learning environments that concern sustainability and the environment. This programming might include nature centers, zoos, classroom activities based in the environment, and several more. On the other hand, outdoor education is a type of environmental education that focuses on programming outdoors. This outdoor programming varies in its focus on sustainability from adventure-based summer camps, which may have only minimal focus on nature-based programming and mainly deals with things like team building and skills such as archery, to outdoor schools visited by school groups, which use nature study as its primary programming (Monroe, et al., 2015). This paper will use the terms environmental and outdoor education interchangeably and will center on outdoor education which primarily relies on nature study.

The emphasis on nature study can be found in dating back to the 1700s and became slightly more robust in the early 1900s. This development of nature-centered content was born of the trending movement away from rural farms and countrysides and into cities. Many adults feared that children would no longer have the vital nature interactions that would help shape their adult lives and that teachers lacked the skills necessary to foster these connections (Monroe, et al., 2015). Up until 1969, the focus on the environment had remained mostly in two categories. The first was conservation education and dealt with the conservation of basic resources from a more theoretical perspective. And the second was outdoor education, which at this point, came mostly in the form of summer camps (Monroe, et al., 2015) which were generally only accessible to wealthier, white families (Browne, et al., 2019). Both of these categories failed to consider the impact of the community on the environment - through politics and through

the urbanization of the United States - and collaborative solutions to these problems. William Stapp recognized these voids and proposed a new field of education called environmental education, which would be "aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work towards their solution." (Stapp, 1969).

Though the ultimate goals of environmental education have remained consistent since its birth in 1969, the field has shifted with politics and community value over time. In its early years, environmental education was focused more on activities about the environment that were easy to implement in school classrooms. With an increased emphasis on academic achievement through standards-based knowledge, environmental education has generally suffered one of two outcomes. It has either shifted so that it may be used as a tool to support science content standards, or it has been omitted entirely from formal education due to the fact that in most countries environmental education is not a standard academic subject (Monroe, et al., 2015).

Nevertheless, through the years a number of few organizations have shaped the pedagogy of environmental education. In 1976 a set of activities called Project Learning Tree was developed. This was followed by Project Wet, with a focus on water, and then Project Wild, with a focus on wildlife. Each of these curriculum guides is easily accessible and full of hands-on activities that can be done indoors or outdoors, so they are often used by classroom teachers (Project Learning Tree, n.d.). These activity guides tend

to focus more on the environmental content as a tool for developing sustainable leaders rather than fostering a connection to place.

In more recent years, the Better Environmental Education, Teaching, Learning & Expertise Sharing (BEETLES) project has become widely influential in the outdoor education field. This project is a resource created by a group of environmental educators at the Lawrence Hall of Science. This team has identified the strength of student-centered science curriculum in the outdoors. In addition to several lesson plans promoting student-centered outdoor learning, the BEETLES team has created several research-based resources for field instructors looking to create their own outdoor learning experiences. The BEETLES team approaches teaching with five primary pillars in mind: "Engage directly with nature, think like a scientist, learn through discussions, experience instruction based on how people learn, and participate in inclusive, equitable, and culturally relevant learning environments" (BEETLES, n.d.). Some of their teaching techniques include questioning techniques to encourage critical thinking, promoting student discussion, and exploration routines. They have also created an experiential learning cycle.

Another recent addition to the outdoor education field has been a focus on Social and Emotional Learning (SEL). In 2017, a group of prominent environmental education organizations, including the BEETLES project, began working on resources for supporting SEL specifically in the outdoors (Risinger, 2016). This collaboration has thus far relied heavily on definitions and competencies outlined by the Collaborative for Academic, Social, and Emotional Learning (CASEL). CASEL defines SEL as "the

process through which children and adults understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions" (CASEL, 2020). Currently, while there are several SEL toolkits available to educators, none focus specifically on outdoor education.

Programming and curriculum are the most direct and clear strategies taken by outdoor education organizations to meet the needs of participants and was the focus of this project. I want to ensure that environmental education programming provides the best possible experiences and builds in the inherent strengths of outdoor experiences. The written curriculum is especially important for organizations that have a lot of staff turnover and frequently train new staff with little experience teaching outdoors because in these cases, the curriculum not only describes a specific class, but it also teaches how to teach - the pedagogy behind crafting a positive outdoor experience. Because of its large role in meeting goals and its substantial impact on the training of environmental educators, a written curriculum should employ researched and effective strategies.

I work for the Baker Outdoor Learning Center (BOLC) which falls under the Three Rivers Park District. I focused on the mission and goals of this organization throughout this project. The Three Rivers Park District is a large collection of parks, nature centers, and recreation areas with the mission "to promote environmental stewardship through recreation and education in a natural resources-based park system" (Three Rivers Park District, 2020). BOLC is an Outdoor Learning Center within the district that specializes in residential outdoor education, primarily for middle school

students. During the school year, BOLC offers programs for schools to come visit for an overnight or day program, and during the summer BOLC operates as a summer camp. There is a core team of naturalists at BOLC, but many of the teaching hours are done by seasonal staff who work six-month contracts and are often new to outdoor teaching.

There are currently between thirty and forty lesson plans and several scout badge programs that are run on a regular basis at BOLC. These programs primarily fall into the categories of *outdoor life skills* (archery, GPS, fishing, snowshoeing, etc), *cultural history* (prehistoric skills, voyageur studies), *team building* (climbing wall, group challenges), *evening/indoor activities* (astronomy, campfire, etc.), *natural history* (mammals, winter adaptations, pond study, etc.) and *scout badges* (girl scouts, cub scouts). While there are several categories of lesson plans used by the BOLC, this project includes the natural history lesson plans. The core team has determined that this category of lesson plans has the most room for improvement in light of recent research and collective efforts in the field of outdoor education. There are twelve total lesson plans in the natural history category.

Many of these lesson plans came to BOLC from other environmental education centers around Minnesota such as Eagle Bluff Environmental Learning Center and Wolf Ridge Environmental Learning Center. Some, but not all, of these lessons have been updated in format and level of detail in explanation as recently as 2016. However, the lessons still lacked a consistent, readable style and have not been analyzed to determine if and how they are meeting the specific goals of BOLC through research-based practices.

The core team at BOLC has defined three goals that contribute to achieving the larger park district mission of "promoting environmental stewardship" within the context of our programming. These goals include:

1. Fostering joy
2. Enriching relationships
3. Encouraging growth

As I moved forward in writing the lesson plans themselves, I first needed to explore how to effectively meet the outlined goals by diving into the research of environmental education's pedagogical strategies. Chapter two elaborates on the aforementioned goals and provides some of the most up to date research on reaching these goals through evidence-based outdoor education practices.

Environmental education is a long standing field that may include several different types of education all that are working toward increasing knowledge about the environment, its problems, and its solutions. It arose from the need for students to spend more time in nature as the world became more and more urbanized. The style and influencers have changed over time but the goals have remained relatively steady. Outdoor education is a form of environmental education that happens primarily outdoors. The ultimate aim of this project was to answer the question: *What does a curriculum that fosters joy, enriches relationships, and encourages growth look like at outdoor learning centers?* The answer to this question will come in the form of several new and updated lesson plans. Through this, we provide a richer learning experience for participants and a more valuable teaching practice for staff.

The following chapter includes a detailed description of the stated goals, evidence behind these goals, and a description of strategies for achieving these goals at an outdoor learning center.

CHAPTER TWO

Literature Review

The previous chapter outlined the reasoning for this curriculum project to begin answering the question, *what does a curriculum that fosters joy, enriches relationships, and encourages growth, for students and staff, look like at outdoor learning centers?* It is important to understand these goals and how to best achieve them. The following chapter will dive into the definitions of each of these goals, the evidence for their value, and strategies for reaching them. Strategies include culturally responsive teaching, hands-on/experiential learning, student-centered environments, curiosity and inquiry-based instruction, immersion in nature, using journals as tools, and strategic praise. The strategies for reaching these goals often overlap; one strategy might contribute to all three goals. For this reason, strategies have been organized at the end of this chapter and are not goal specific but do acknowledge ways goals are achieved using the strategy.

I'd also like to recognize that there are likely innumerable ways to reach each of the goals. The following chapter is not meant to be a comprehensive guide for how to reach these goals but is merely an exploration of the goals and a few strategies that line up with programming in outdoor education.

Fostering Joy

What Does "Fostering Joy" Mean?

Joy is a feeling that is fundamental to a person's sense of well being and feelings of satisfaction as a whole. Neuroscientists have studied the brain during moments of joy

and found two chemicals to be large contributors to this emotion - dopamine, and serotonin (Gruber, et al., 2014). The words happiness, excitement, bliss, wonder, etc. are often used to describe a similar feeling. In much research, all of these feelings are described with the term *positive affect* which refers to several positive feelings and emotions. For the context of these goals, anything that falls under the positive affect category will be considered in the *Fostering Joy* section.

Why Is "Fostering Joy" Important?

Some strategies for promoting sustainable action, or pro-environmental behavior, have historically emphasized content education about environmental problems and their solutions. In a meta-analysis of different pathways to pro-environmental behavior, Agyeman and Kollmuss found that one of the biggest contributing factors that lead to pro-environmental behavior was positive outdoor experiences. This consistently had more of an impact than the environmental content knowledge that many have relied on for environmental education programming (Agyeman & Kollmuss, 2002). So, with promoting sustainable actions as the mission, it's important to create joyful experiences that connect participants to the environment.

In addition to increasing sustainable behaviors, joy can impact several different facets of a person's life. Joy in learning has been linked to increased academic achievement (Tornare, et al., 2017). The increase in learning may stem from a positive mood's ability to increase some cognitive processes such as creative problem solving, flexibility of focus on the different subject matter, and ability to elaborate (Isen, 2008). This boost in achievement goes beyond academic subject matters. Cameron et al. found

that when participants felt joy during physical activities, there was an increase in the number of physical goals that a person was able to achieve (Cameron, et al., 2018).

And finally, feelings of elevation, such as joy, amazement, engagement, motivation, etc., are often crucial in creating memorable moments. These elevated emotions play a large role in enhancing memories around that moment and people are generally able to recall times of heightened emotions more so than moments without much emotion (Heath & Heath, 2017). When creating memorable and impactful experiences, joy is a key element.

Enriching Relationships

What Does "Enriching Relationships" Mean?

This project considered two different types of relationships. The first of these types is a person's relationships with others. Enriching these relationships might create deeper connections and come in the form of skills like perspective-taking, empathy, ability to communicate, teamwork, etc. Relationships with others are some of the key components of two of the social and emotional competencies from the Collaborative for Academic, Social, and Emotional Learning (CASEL) - Social Awareness and Relationship Skills (CASEL, 2017). These competencies will be considered both in this section for *Enriching Relationships* and in the following section on *Encouraging Growth.* These goals, while different, are connected and play off of one another well in educational programming, as seen with the overlapping focus on CASEL's relationship competencies.

The second category of enriching relationships to consider is a person's relationship with nature and the world around them. An enriched relationship with nature might include a sense of comfort in the outdoors and a sense of place. The section on fostering joy began to examine how a person's interactions with the environment through joyful experiences might shape their behavior. This section will dive deeper into the relationship between the person and the place.

Why Is "Enriching Relationships" Important?

In a meta-analysis of research that considered 100,000 students worldwide it was found that a focus on social and emotional competencies in school, including social awareness and relationship skills, showed lasting effects even 18 years later. These impacts included an 11 percentile point increase in academic performance, an increase in their ability to manage stress and depression, and better attitudes (Taylor, et al., 2017). This analysis from Taylor et al. included more than just the relationship aspects of social and emotional learning, but relationships hold a large enough role in social and emotional learning that these results are pertinent when discussing the category of *Enriching Relationships*. The connection between relationships and academic achievement has also been recognized elsewhere. Laws and Lygren, environmental educators with a combined 40+ years teaching in the outdoors, mention that when students feel connected to content and peers in their learning, they find joy in learning and will be more excited to learn more (Laws & Lygren, 2020).

A focus on enriching relationships through social and emotional learning also helps support non-academic life skills. Jones et al. found a statistically significant

relationship between students' social and emotional skills during kindergarten and several key events during young adulthood such as employment, criminal activity, substance use, and mental health. Students that had a focus on social and emotional interventions early in school were less likely to be on a waiting list for public housing, they were less likely to spend time in a detention facility and less likely to be involved with the police before adulthood (Jones, et al., 2015). While many of these factors are not often used to measure success in traditional schooling, they are vital for setting students up for success later in life.

Not only does enriching relationships and focusing on social and emotional learning help support a high quality of life, but it also helps achieve the Three Rivers Park District's mission of promoting environmental stewardship. One of the most influential factors in predicting pro-environmental behavior in a person is their relationship with the natural world. People that have a stronger relationship with nature are more likely to act sustainably (Agyeman & Kollmuss, 2002). Additionally, in Chawla's 1999 survey of environmental leaders, she found that a strong influence on the development of environmental leaders was simply the development of leadership and communication skills such as goal setting and perspective-taking rather than specific environmental content knowledge (Chawla, 1999). Cultivating environmental leaders is as much about nurturing leadership qualities as it is about educating a person on environmental issues. Many of these important leadership qualities involve relationship skills and social awareness.

Encouraging Growth

What Does "Encouraging Growth" Mean?

Similar to *relationships, growth* in the context of this curriculum is twofold. The first category to be considered is academic growth. A typical audience at outdoor learning centers is a middle school class group. These groups often come with learning goals that support their school's content and standards. For this project, strategies for academic success were primarily based on research about academic success in relation to state and district standards.

The second category of growth is something often referred to as "whole person growth" which includes things like the ability to recognize and manage one's emotions and make constructive choices. Growth will look different for each student because they will each start out at a different point. This project considered the competencies defined by the Collaborative for Social and Emotional Learning (CASEL) when discussing whole-person growth. These competencies include *social awareness, self-awareness, self-management, relationship skills,* and *responsible decision making* (CASEL, 2017). As mentioned in the previous section, there is substantial overlap between the *Enriching Relationships* and *Encouraging Growth* sections through the CASEL competencies which allude to the fact that these goals complement one another and are often reached with similar strategies.

Why Is "Encouraging Growth" Important?

Much of the evidence for the importance of encouraging growth is similar to that cited in the *Enriching Relationships* section. The bottom line is that students exposed to a

curriculum that focuses on Social and Emotional Growth experience a plethora of positive outcomes including increased academic achievements (Taylor, et al., 2017) and improved life outcomes in regarding employment, criminal activity, substance use, and mental health (Jones, et al., 2015). The emphasis on both relationship skills and whole-person growth each play an important role in achieving each of these desirable outcomes and should be considered together in curriculum development. They have merely been separated in this literature review for the organization of goals.

Academic growth is generally accepted as a worthy goal when it comes to schooling because students are assessed based on their ability to meet the standards. Additionally, academic and social growth go hand in hand. As seen in the 2011 meta-analysis, students with Social and Emotional curriculum saw increases in their academic achievements (Taylor, et al., 2017).

Strategies

The goals outlined by the Baker Outdoor Learning Center clearly support the goal of promoting environmental stewardship. The next step is establishing how to successfully achieve these goals. The following pages outline several strategies that lend themselves to the outdoor education curriculum. As has been mentioned before, all three of the goals are interconnected, strategies that meet one of the goals can likely be used to meet another goal as well. Each section will mention any direct connection to the goals of fostering joy, enriching relationships, and encouraging growth.

This is not an exhaustive list of strategies. There are several other ways to meet the goals of this project. The strategies mentioned in this section are those that are

especially applicable, have substantial research behind them, and/or are strategies that have gained traction with prominent leaders in environmental education. Sections include culturally responsive teaching, hands-on/experiential learning, student-centered environments, curiosity and inquiry-based instruction, nature immersion, journals as tools, a focus on relationships, and employing strategic praise.

Culturally Responsive Teaching

In 2009 a study by the National Parks Service noted that African Americans and Hispanic Americans visit National Parks at rates significantly less than their percentage of the total U.S. population. In addition to lower visitation rates, both African American and Hispanic visitors were more likely to consider their park visits “unsafe or unpleasant” (National Park Service, 2009). Hispanic Americans have noted that the uniform worn by park service personnel is intimidating, not comforting. And, based on the trend in police violence, some African Americans have felt uncomfortable in places where the parks service carry weapons (Bell et al., nd). Throughout history, minority groups have been systematically and subconsciously excluded from natural spaces. Dating back to the creation of the National Parks in 1918, Native Americans were forced from their lands in order to make room for the National Parks. According to John Muir, “father” of the National Park system, Native Americans "were mostly ugly, and some of them altogether hideous," having “no right place in the landscape” (Kantor, 2007). During the Jim Crow era, some natural spaces practiced segregation, including Shenandoah National Park and several other state parks (Bell et al., n.d.). These historical inequities of access paved a way for the unequal outdoor community to today. Now underrepresented populations are

often environmentally disadvantaged in their homes, with landfills and hazardous waste sites more likely to be located near low income communities (Martusewicz, et al., 2015).

Like many other realms, environmental education has been rooted in white cultural values and, subconsciously or consciously, aimed primarily at white audiences (Rose & Paisley, 2012). Many traditional summer camps were built largely through Native American cultural appropriation (Browne, et al., 2019). Considering this background is important in building a curriculum that meets the goals of fostering joy, enriching relationships, and encouraging growth for all students, especially those in historically underrepresented groups in the outdoors. There are many books and articles written about the subject. This section is not meant to be a complete description of how to make outdoor curriculum culturally sustaining, but rather is an acknowledgment of the work to be done in this area and a few first steps that are especially applicable to environmental education.

Culturally sustaining pedagogy, a type of culturally responsive teaching, as described by Paris & Alim (2017), "seeks to perpetuate and foster—to sustain—linguistic, literate, and cultural pluralism as part of schooling for positive social transformation" (Paris & Alim, 2017, pg. 1). As mentioned earlier, many facets of education and environmental education have been centered in whiteness and white cultural values. Employing culturally sustaining pedagogies de-centers whiteness as the standards to meet and structures education not as replacing students' deficits but as enriching their strengths (Paris & Alim, 2017).

Many educators approach Black, Indigenous, and People of Color (BIPOC), students with a *deficit mindset,* a term discussed by Irizarry (2017). This mindset is born from the white standard in education. The basic idea is that students who don't fall into the traditional mold of a successful student must be deficient in something, and education is the way of filling that deficit. To pull back from deficit thinking educators must recognize its presence and also recognize the strengths of BIPOC students that may fall outside the white norm. By giving a learner the opportunity to engage in content that is interesting to them and connected to their life and culture, teachers de-center their values and place the focus of the learning on the student's values and strengths. This acknowledgment and priority given to students' input makes learning more exciting for the student (Irizarry, 2017). Valuing students' voices is the cornerstone of *student-centered learning,* which will be discussed more at length in a later section.

Considering the cultural diversity of any student group is vital to fostering a sense of belonging. This sense of belonging influences a student's academic learning and social growth. Belonging is among the most basic psychological needs as identified in Maslow's hierarchy of needs. A need for belonging is preceded by needs for safety and physiological needs such as food and water. According to Maslow, these needs must be met before a student can reach their full potential (Maslow, 1943). This is supported in more recent research as well. A sense of belonging is integral in academic achievement, relationships, and social and emotional growth (Schwartz, 2016).

Incorporating culturally sustaining pedagogy should not be independent of other strategies discussed in this chapter, but rather it should permeate through all realms of education and curriculum.

Hands-on/Experiential Learning

There has been substantial research surrounding the concept of *hands-on* or *experiential* education. This teaching style hinges on the idea that students will learn by doing and experiencing (Miano, n.d.). Hands-on learning is by no means a new concept. In records dating back to 350 BCE, Aristotle recognized the importance of learning by doing when he says "for the things we have to learn before we can do them, we learn by doing them" (Aristotle, n.d.). This concept has been incorporated into other teaching philosophies and common pedagogical practices through recent years. Howard Gardner proposed the multiple intelligences theory, which includes kinesthetic learning, a style by which students learn best through actions and tactile activities rather than lectures (Gardner, 1993). Experiential learning is at the core of David Kolb's four-stage learning cycle proposed in 1984. In this learning process, students experience something, reflect, process, and experiment with this experience. According to Kolb, through this cycle based on experience and reflections students will learn and remember better than if they were simply taught (Kolb, 1984).

It's no mystery that hands-on and experiential learning has been the cornerstone of many teaching ideologies throughout history. When students experience hands-on learning they are more likely to remember the content (Dieser & Bogner, 2016). Outdoor education lends itself to experiential learning because by default students are

participating in an experience, and often a new experience, simply by visiting the site and using the outdoors as their classroom. While hands-on and experiential learning has been widely used in teaching philosophies, there are several different types of experiential learning which can range from following step by step instructions to construct something identical to what is being made by classmates to designing and carrying out one's own investigation of a schoolyard's water quality. Hands-on learning is most successful when it is also student-centered. This student-centered approach is the subject of the next section.

Student-Centered Environments

"Every time we teach a child something, we keep him from inventing it himself." - Jean Piaget (Piers & Piaget, 1972, pg. 27)

Learning can be "hands-on" but still focused on a teacher. An example of this might be the step by step construction of an art project in which all the end products are expected to look the same. In this example, the students are doing something (constructing an art project) but there isn't much critical thinking on the part of the student. This is clearly illustrated in a study by Bonawitz et al. This team found that when children were shown by adults how to use a toy, they were less likely to explore and discover different ways to use the toy. On the other hand, children that were encouraged to play with the toy, but given no instruction on how to use it, experimented, and found more different ways of using the toy (Bonawitz, et al., 2011). This lack of specific teacher instruction, while uncomfortable for many teachers, is an important part of fostering problem-solving abilities. Students that learn in student-centered environments

experience greater academic achievements in math, engineering, and science (Freeman, et al., 2014).

Promoting productive student discussion is another important way of centering learning around the students. Giving students an opportunity to share thoughts offers an idea of what students are thinking, increases the amount of content that is remembered, and supports reasoning with evidence. Michaels and O'Connor outline several strategies for promoting this productive talk including "a belief that student can do it; well-established ground rules; clear academic purposes; deep understanding of the academic content; framing question and follow up questions; an appropriate talk format; a set of strategic 'talk moves'" (Michaels & O'Connor, 2012). By committing time and resources to enhance student discussion, educators are enriching a student-centered environment with opportunities for students to learn and share.

This concept of student-driven activity doesn't just apply to academic concepts learned in the classroom; it's also important when it comes to outdoor and nature explorations. A child's most valuable nature engagement time is not always the planned and facilitated activities, but rather is the free time in-between activities during which the adults take a backseat role (Skar, et al. 2016). A student-centered approach in outdoor teaching might include asking for input from students on activities and allowing them a choice, which gives students a sense of autonomy in their learning experience. It could also include meaningful group work where students work with peers to solve a problem, and/or class discussions and agreements on group norms and discipline, again, giving students a sense of autonomy in their learning environment. Including strategies like

these not only increase academic achievement, but these strategies also encourage social and emotional growth such as identifying emotions and developing relationships skills (Yoder, 2014).

In addition to increasing achievement, allowing student input to help shape a learning environment gives students an opportunity to share thoughts, values, and norms from their own culture and backgrounds, which may be different from that of their leader (Paris & Alim, 2017). This was described in greater detail in the *Culturally Responsive Teaching* section.

Curiosity and Inquiry-Based Instruction

When thinking about learning, it's important to consider what is happening in the brain during the learning experience. By understanding learning from a neurological perspective it is easier to build on moments that are naturally conducive to learning. Researchers have found that when a person's brain is in an intense state of curiosity they are more likely to remember information; it is the curiosity that primes the brain to learn and remember. This is true not only for information referencing the subject of the curiosity, but it is also true for incidental information - information that has nothing to do with the subject of the curiosity but is present during moments of heightened curiosity. This suggests that the time that the brain is the most plastic and ready to remember new information is during the "waiting period" - the time in between the spark of curiosity and the satisfaction of that curiosity through an answer to the question (Gruber, et al., 2014). During this waiting period, students often feel a "productive struggle". These moments where the brain is challenged are also moments when durable and flexible

learning can take place (Bjork & Bjork, 2011). In this waiting period of intense curiosity and productive struggle, the brain is flooded with dopamine, which engages processes that stimulate memory (Gruber, et al., 2014). So, in these states of curiosity and learning, the brain neurologically mimics joy by releasing dopamine, one of the neurotransmitters responsible for feelings of joy. By creating opportunities for curious moments we also create opportunities for joyful moments.

If curiosity is at the base of good learning, then how can educators generate curiosity in their students? Research has shown that quality questioning strategies can promote wonder and inquiry in students (Schwartz, et al., 2016). Many may be familiar with the style of questioning used by some teachers in which the goal of the question is to test specific knowledge of the student rather than to encourage critical thinking. These include questions such as "Who can tell me what types of animals hibernate over winter?" or "This tree is a…"—here the teacher waits for an answer and when they don't receive it they answer it themself—"maple tree!". These questions are referred to as *narrow questions.* These are questions that only have one answer and if a student doesn't know that answer they are wrong. The other type of questions are *broad questions* that include questions like "what do you notice about that stump?" or "what different ways can you imagine a person breaking a rock?" (Schwartz, et al., 2016, pg. 206). Broad questions allow for more student thought and reasoning.

Investigating curiosities is natural for students, especially outdoors. Though many adults worry that when given free rein of a natural area, children will seek dangerous and risky behavior. Gurholt and Sanderud found that, in their small group of study

participants, children were much more likely to seek and investigate things they were curious about. Upon returning from outdoor free-play, students remembered and described in great detail the things they found curious and interesting, rather than the things they found dangerous and scary (Gurholt & Sanderud, 2016). When students are given the space and encouraged to ask and investigate questions, learning becomes more authentic as it is centered in student curiosity (Schwartz, et al., 2016).

Immersive in Nature

"*If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow."* (Carson, 1956, pg. 49)

A frequently studied strength of outdoor education is simply time spent outdoors. It is often in the mission statement of organizations and it is the subject of many studies attempting to find what makes a person act pro-environmentally (Agyeman & Kollmuss, 2002). Time spent in nature is known to be foundational in the development of a person's relationship with nature (Broom, 2017). A strong relationship with nature and connection to place is ultimately one of the largest indicators of whether a person will go on to act sustainably—the mission of the Three Rivers Park District.

It isn't uncommon for an environmental education organization's outdoor programming to be rooted primarily in content education and knowledge regarding environmental problems and solutions. It's important to note that ultimately the strength is simply connection to place, not necessarily in the knowledge often emphasized. In a study of three summer camps - one in nature and with knowledge-based environmental

education (EE), one in the city with knowledge-based EE, and the third in nature without any knowledge-based EE—Collado et al. found that more time spent in nature was a much stronger indicator of good attitudes toward nature in the campers (Collado, et al., 2013). In fact, green space may play a role in the knowledge that a person can learn. In a small study, Wells et al. (2015) found that the amount of green space present during learning is correlated with the amount a student learns (Wells, et al., 2015). While background knowledge is certainly an important characteristic of pro-environmental behavior, educators working to cultivate environmental stewardship must also understand that a person's non-academic relationship with the environment is a crucial building block for fostering stewardship.

When considering relationships fostered in the outdoors, we must also turn our attention to relationships with others. White (2012) found that mediated group nature programming, including backpacking trips, visits to outdoor education centers, and group challenges, contributed to stronger relationships with others through trust, group cohesion, and individual emotional regulation in students that had been identified by teachers as having social and emotional difficulties in school (White, 2012). This pattern remains for students who have not explicitly experienced difficulties with social and emotional abilities. After participating in nature-based group activities, students reported the development of several group skills including "group work, adaptability, persistence, planning, problem-solving, time-management, communication, leadership, cooperation, group reflection, and team spirit" (Cooley, 2014).

Nature immersion goes beyond relationships. It can also have a profound impact on individuals' mental health. This has become more widely studied after the publication of Richard Louv's book *The Last Child in the Woods* in which he examines the downward trend in how much time kids spend outside and the cascading mental health effects (Louv, 2013). In this research it's found that time spent in nature can benefit a person's mental health in many ways including reducing stress and anxiety (Twohig-Bennett & Jones, 2018), promoting joy and happiness (Benita, et al., 2019), and increasing self-esteem (Barton, et al., 2016). These studies have also shown that in order to reap these benefits from the outdoors, people should seek to spend at least 2 hours in natural areas over the course of a week (White, et al., 2019).

Given the profound impact of spending more time outdoors, educators must consider how to best facilitate this outdoor time in order to successfully provide students with the opportunity to foster a relationship with the environment. Skar, Gundersen, and O'Brien suggest that child-directed free play has more of an impact on a child's relationship with nature than adult facilitated activities. They found that a combination of small group size, adults that took a backseat role in leading activities and staying in the same location for longer periods of time yielded the strongest connections to nature in the children (Skar, et al., 2016). This parallels information cited in the *Student-Centered* and *Curiosity-Based* sections. When given the opportunity to explore freely, without specific instructions, children will seek things they are curious about and engage deeply with them, this is not limited to academic objects or toys (Bonawitz, et al., 2011), but also includes things found in the natural environment.

Journals as Tools

A powerful tool for nature observation is a nature journal (Laws & Lygren, 2020). Nature journaling has become an increasing trend in outdoor education through the emergence and influence of the Better Environmental Education, Teaching, Learning & Expertise Sharing (BEETLES) project and naturalist John Muir Laws, author, and co-author of many books on nature journaling. The growing influence of nature journals is not without research. It likely would not surprise many teachers and learners to hear that writing things down helps learners process and organize their thoughts (Menary, 2007). Writing down information has been a common study technique suggested by many teachers. Less often encouraged is sketching. Sketching allows learners to process and organize in a similar way to simply writing (Carrier & Titus, 1979). A combination of sketching and writing helps make observations and build brainpower; this combination of text and image helps not only with visual understandings of the subject matter but also with language acquisition (Adoniou, 2013).

Especially when journaling about nature, the process can invoke a sense of wonder and awe in the learner. When the process is done with a community of people it can promote connection. These feelings of wonder, awe, and connection can help bring people together (Piff, et al., 2015). Spending time journaling can be a great way to spend substantial amounts of time outdoors in a way that will build connections to place (Pensini, et al., 2016). Additionally, taking time to slow down and pay attention to the things we are curious about allows us to build on the moments of curiosity that naturally happen in our brains. Spending time sketching or journaling often provides this

opportunity for curious contemplation of the world around the learner (Laws & Lygren, 2020).

Focus on Relationships

Education in general is often social. We learn from teachers and classmates. Even work that might be considered as solo work, such a reading, often includes considering another person's perspective. Cultivating a sense of belonging in this social atmosphere can have a deep impact on academic and personal growth. This sense of belonging could come from identifying already shared connections among people in the group, such as sharing fears or strengths with group members, or it could come from creating a group atmosphere by including the perspectives of the group members, such as allowing participants to have a say in group norms and expectations (Schwartz, et al., 2016). This sense of belonging is a key part of culturally responsive teaching as well (Paris & Alim, 2017).

Strategies in belonging largely consider a student's relationship with peers. Another key factor in enriching student relationships is the presence of a supporting adult both inside and outside the student's family unit. When students have a consistent non-familial adult presence, they are more likely to participate in community events that help support positive developmental processes in youth (Scales et al., 2006). One small study that examined the relationships between students and teachers found that when students feel connected to their teacher, they perform better academically. However, an even more compelling finding was that when a teacher felt more connected to their student, the student did even better (Gehlbach, et al., in press). So this would suggest it's

important to consider the teacher development and fostering teacher connection to students as we strive to enrich relationships.

Employing Strategic Praise

A perhaps simple, but nonetheless vital part of education is praise. Educators use praise in a number of different ways from praising students for almost everything that they do to withholding praise to emphasize its impact. Regardless of how often praise is used, it should be intentional. When students are praised only for their intelligence they are more likely to adopt a "performance mindset" and will be displeased with anything less than achievement. Whereas students that are consistently praised for their efforts rather than their accomplishments experience more joy and persistence in the face of setbacks (Mueller & Dweck, 1998; Zentall & Morris, 2010). In an effort to foster joy not just in that moment, but to foster a tendency for joy in any individual student, it's important to praise a student for the process regardless of the outcome. An example of this might be praising the observations that a student made while sketching an insect rather than praising them for the sketch as a final product.

Conclusion

The research is clear. The goals outlined by the Baker Outdoor Learning Center are vital steps in achieving the Three Rivers Park District mission of "promoting environmental stewardship". Joy creates memorable moments. Relationships deepen connections. And growth lengthens impact.

While these goals are a vital part of the programming, they are also difficult to research because there are so many different ways of approaching the same goal. And

rightfully so! Every person feels joy for different reasons and different connections deepen their relationships and different experiences cause growth. This curriculum honors the diversity of methods for reaching these goals by employing lots of different strategies such as culturally responsive teaching, hands-on/experiential learning, student-centered environments, curiosity and inquiry-based instruction, programming that is immersive in nature, using journals as tools, focusing on relationships, and employing strategic praise. I recognize that there is no single right answer to the question: *What does a curriculum that fosters joy, enriches relationships, and encourages growth look like at outdoor learning centers?* And the best way to meet the goals is to create lesson plans that allow learners a range of ways to engage. The following chapters include the lesson plans created to answer this question.

CHAPTER THREE

Project Description

This chapter outlines the framework used and the strategies taken to complete the final product of twelve environmental education lesson plans which help answer the question: *What does a curriculum that fosters joy, enriches relationships, and encourages growth look like at outdoor learning centers?*

These lesson plans target primarily elementary and middle school students from schools in western Hennepin County. In addition to the participants, these lesson plans also affect the teaching staff at the Baker Outdoor Learning Center (BOLC). Many of these staff are seasonal teachers who often have little experience teaching in the outdoors. These lesson plans serve as a tool for teaching lessons specific to BOLC, however, they also include teaching techniques and explanations which seasonal staff can take with them to any future teaching experience, including strategies for facilitating peer and teacher interaction in a constructive way, generating curiosity about the natural world, self-reflections, journal activities, and intentional free exploration time.

While lessons may have a specific season in which they should be taught, programming happens year-round. Students will come to the BOLC site for either a day field trip or an overnight field trip with their school. During their trip, students will participate in 2 - 3 lessons per day. BOLC has limited indoor and classroom space, so the huge majority of the lessons will be taught outside, regardless of season and weather (with the exception of extreme weather events which put participants and staff in danger).

Using a backwards design principle, the first step was to establish the goals and how to best achieve those goals. The goals of fostering joy, enriching relationships, and encouraging growth were chosen because of their contribution to the greater Three Rivers Park District “to promote environmental stewardship through recreation and education in a natural resources-based park system” (Three Rivers Park District, n.d.). They were also chosen because they contribute to the positive development of students' relationships, understandings of emotions, and academic achievement (Jones, et al., 2015; Taylor, et al., 2017). The research and analysis cited in chapter two aid in understanding these goals and the strategies that can be employed by the curriculum to achieve them. Based on this research, the lessons plans would be culturally responsive, hands-on/experiential, student-centered, curiosity and inquiry-based, immersive in nature, use journals as tools, focus on relationships, and employ strategic praise. After analyzing and defining the goals, the next step was to use these strategies to re-write the curriculum of the Baker Outdoor Learning Center (BOLC).

Before beginning to write the lesson plans themselves, a common template was created. Due to the specific needs and formatting desires for these lesson plans, the template was designed using the Canva online platform. This template outlined several spaces in which the researched strategies are included. There is formatting for space to include quality, broad questions relating to the class. Teaching tips that relate to the specific class, such as ideal locations or specific content information, are included along with teaching tips that could be applied to any other lesson, such as discussion strategies, assessment techniques, or opportunities for employing strategic praise. The first page of

each lesson plan outlines a few key aspects including an overview of the lesson, academic and social and emotional goals, and the reasoning behind the lesson or *The Why*. *The Why* section is where the purpose of the lesson is found. This differs from the overview and the goals because it is a call back to research discussed in chapter two for how each specific lesson meets the goals of fostering joy, enriching relationships, and encouraging growth. This section is short and simply meant as a reminder. Another reminder comes at the bottom of each page with a repetition of the three goals of BOLC. The BEETLES experiential learning cycle is also found on the first page of each lesson plan as a callback to the experiential model.

Seven natural history based lesson plans were created that will be used by the BOLC to aid in environmental education programming and meeting the aforementioned goals. The lessons are titled *Animal Tracking, Ecosystems, Explorations & Observations, Insects, Keeping Warm, Plants,* and *Pond Study*. Lesson summaries are as follows:

Animal Tracking: Students explore the forest in search of evidence left behind by animals. When they do find evidence, they will use the clues to piece together a story of what activities happened in the area,

Ecosystems: Students explore how energy moves through an ecosystem by engaging in two different models. The first model is a game of energy transfer through a food chain, and the second is a model of decomposition created by the students.

Explorations & Observations: This lesson is designed as a first or last class of the day. It will be best suited for students who don't have much experience with the outdoors. It is primarily focused on making observations and developing a sense of place.

Insects: Students will catch insects, ask questions, and answer those questions through student led investigation.

Keeping Warm: Students experiment with different forms of heat loss by trying to keep a small jar of water as warm as possible outside in the winter. They discuss what this can tell use about animals that live through the winter.

Plants: Students study plants in the area by creating their own field guides. They will then use published field guides to survey the plants is the area around them.

Pond Study: Students catch and ask questions about creatures in the pond. They will use the scientific method to design an experiment and answer their questions.

Each lesson plan has been written for an hour and a half time block, however, many groups come with different time constraints and lessons may need to be shortened or lengthened. Lesson plans include additional activities and suggestions for activities to shorten or cut out in order to accommodate different schedules. The BOLC lessons are stand-alone plans that can be combined with a number of other lessons and can be adapted for several age groups and timeframes. In other words, each lesson plan is unique and capable of being taught alongside any other lesson while still meeting the goals of the organization.

Based on the logistical constraints of a school's visit to the BOLC, a summative assessment for the students following each field day isn't possible. Instead, each lesson plan includes smaller, informal assessments. Each lesson plan includes a few "on-the-go" assessments used by the instructor to assess background knowledge and to help make decisions about how to proceed with the lesson. These assessments are typically simple

questions or observations that the instructor might make. Several of the lesson plans also include a final assessment, which comes in the form of a journal entry for the students or a final discussion question. Future projects might include an in-depth survey for students and teachers following their visit. Assessment for the staff is more predictable. Each field day ends with a reflection by the staff. During this time staff share their successes and frustrations. While this is an informal assessment, it allows for feedback on the lessons from an instructor's point of view.

This chapter described the process of designing this curriculum and some of the specific details required. This included the logistical timing considerations for the Baker Outdoor Learning Center site, a description of the template used for each lesson plan, a summary of each lesson plan, and a plan for assessment. The following chapter will conclude the project with some reflections on the curriculum design process and a look forward to what is next.

CHAPTER FOUR

Conclusion

I grew up as a lucky child of nature. I played in the dirt and asked questions about the connections in the world around me. I experienced the sensation of mud between my toes and rain pounding on the top of my head. I shrieked with joy and amazement at the constant supply of surprises provided by the natural world. As I grew up, these childhood passions transformed into a lifetime filled with wonder and awe, as well as a desire to protect that which I hold dear. These experiences are not accessible to all children. There are several reasons for why children may feel disconnected from the natural world including lack of access or a role model. In a world of rapid urbanization and loss of natural lands, a connection to the environment is vital in the development of the next generation's stewards.

Environmental education provides experiences that help children form and build on their relationships with the outdoors. Environmental education describes a wide scope of programming from zoo education to overnight camps to environmental learning in the classroom. The field has a long and rich history which is described at length in chapter one. This project focused on environmental education that happens at outdoor learning centers. An education experience of this sort might be a school field trip to an outdoor site during which students learn about winter adaptations or snowshoeing or pond creatures. This project was an exploration of how to facilitate these experiences in the most beneficial way for the children. Specifically, I focused on answering the question: *What does a curriculum that fosters joy, enriches relationships, and encourages growth*

look like at outdoor learning centers? The product of this project is a curriculum set of seven natural history lesson plans to be used at the Baker Outdoor Learning Center, part of Three Rivers Park District, which is a residential outdoor learning center in western Hennepin County in Minnesota.

This chapter will conclude the project by detailing some of my major learnings from the curriculum development process, reviewing the most helpful literature from chapter two, discussing the broader implications and limitations of the project, outlining future projects that will be required to successfully implement this curriculum, and finally, sharing plans for communicating this product with the greater environmental education community.

Major Learnings

Throughout this project I was reminded of an audience I had not given much consideration: classroom teachers. These teachers organize trips to outdoor learning centers and choose which activities or classes their students will participate in. Many of these teachers come year after year and learn to expect certain aspects of the programming. As I proceeded to build a curriculum that I thought best reflected my research, I often found myself leaving out some of these aspects, especially those connected to academic content, that had become expected by teachers. This content may be what teachers use to justify a visit to an outdoor learning center or they may need support in teaching certain content. Though standards and content information is often toward the forefront of classroom teachers' minds, this sort of approach to outdoor learning posed several problems in my mind. First, from my research I'd learned that an

information based approach was not the best way to connect students with the environment. And second, by tying a curriculum to a certain standard, outdoor learning centers inherently restrict activities to specific age levels. In an effort to remain true to the research, curate classes that can be suited for a range of ages, and offer programming that directly supports work being done in classrooms, I chose to call out how each lesson connected to the Cross Cutting Concepts (CCC) and the Science and Engineering Practices (SEP) that will be implemented into Minnesota science classrooms by 2023–24 (MN Dept. of Ed., 2019). The CCC and the SEP are themes and practices that are tied to the content standards at each grade level. These are also practices and themes that easily lend themselves to the programming necessary to foster connection to the outdoors, such as *Asking Questions and Defining Problems* or *Systems and System Models.* By connecting to this part of the standards I was able to justify the value of each of these lesson plans and make them suitable for several ages.

A second unexpected learning was the consideration of tone that must take place when writing a lesson plan. Several assumptions must be made about the audience in order to create consistent instruction. As I read through others' lesson plans, I noticed that some happened in the third person and do not speak directly to the teacher. These lesson plans include direction like, "Students then take out their journals and begin to sketch a plant". Other lesson plans are written in the second person and give instructions directly to the naturalist. These lesson plans include directions like, "Next, ask the student to pull out their journals for a sketch". Because many of the naturalists that will be using this curriculum are new to the field, I decided to use the second person direction.

Additionally, there are varying levels of detail that should be included in a lesson plan based on the experience level of the teachers. Curriculum written for an experienced teacher might simply say, “divide the students into groups”, while curriculum written for a less experienced teacher might need to include more direction on how to create groups of students effectively. Because this project’s curriculum is written for naturalists that are likely inexperienced it includes more specific information that some teachers might not need. However, it also bears in mind that the lesson plans will come paired with a fairly extensive staff training. So while there is a higher level of detail, this detail serves mostly as a reminder to skills introduced during training.

The final curriculum consideration that I made during this project was when and where to include informational content. While my research showed that an informational approach isn’t always the best way to accomplish goals, some content knowledge is vital to creating positive learning experiences. I did not include much of this informational content within the lesson plan because I wanted to focus on the teaching skills. Much of this educational content is easily accessible whether on the internet, through books, or more experienced naturalists. The only time I chose to include content information was in the few times that definitions would be communicated with students. In these cases a student friendly definition would be key to the success of the lesson and so it was provided.

Revisiting Literature

The literature cited in chapter two of this paper proved exceptionally helpful when making decisions about what activities to include in lesson plans. The most influential

sources related to culturally responsive, student centered, play-based, and curiosity focused teaching. Much of this literature builds off of other sources and helps to create a fuller and more specific understanding of successful outdoor education. Specifically, Paris and Alim (2017) describe that learning centered around a student helps promote learning that is relevant to that student's culture. This is mirrored in research done by Bonawitz et al. 2011 who also describe the benefits of learning that is based in student observation rather than adult instruction. Gruber et al. (2014) claim that the point in which learning happens is after the onset of curiosity and before the satisfaction of that curiosity. Gurholt and Sanderud (2016), would suggest that the best way to cultivate curiosity in students is to simply allow them to play, without adult facilitation. This series of findings informed many of the curriculum decisions that I made during the creation of this project.

In addition to the sources described in chapter two, I found several resources to be wildly helpful in providing activities that fell into this criteria. Firstly, time and time again I found myself on the Better Environmental Education, Teaching, Learning & Expertise Sharing (BEETLES) Project website. The BEETLES team has created several activities and lessons based on much of the same research. I used several of their lessons as inspiration for how to structure this project's lessons. In fact, the layout of these lesson plans was inspired by the layout of the BEETLES lesson plans. Secondly, How to Teach Nature Journaling by John Muir Laws and Emilie Lygren was another incredibly useful tool in coming up with activities. A few of the activities and teaching tips came from this book. Lastly, the Coyote's Guide to Connecting with Nature for Kids of all Ages and

their Mentors by Ellen Haas, Evan McGown, and Jon Young provided lots of insight into activities to include as well as ways to think about teaching.

Broader Implications

This project's implications go beyond the student. The lesson plans are tools to help a new naturalist craft their art of teaching in the outdoors. Much of the time, naturalists get into the field of environmental education with minimal previous experience. Often they are passionate about the outdoors but have no teaching experience or they have some classroom teaching experience but minimal experience in the outdoors. While there are universities that offer degrees in environmental education, there are plenty of aspiring naturalists that learn about environmental education after college, attend a university that doesn't have an EE degree, or don't attend university at all. With this lack of a standard academic training for environmental educators, much of the skill building is left up to the organizations. Teaching in the outdoors requires a specific set of skills. These lesson plans will benefit new naturalists not in teaching single lessons but rather in their teaching practice in general. By specifically stating the goals and the reasoning behind the lesson plan, I have called attention to the most important and impactful parts of the lesson - the parts of the lesson which should be focused on. I have also included teaching tips that can be applied to any lesson. These teaching tips may be repeated between lesson plans and are included when they are the most applicable.

While this set of curriculum only has seven lesson plans, the impact is much broader. It will provide naturalists with skills and teaching techniques that can be carried

between lesson plans and even to future outdoor learning centers. The mission of this curriculum will be built into the foundation of several naturalists teaching strategies.

Limitations

The biggest limitation of this project was the time during which it was written. These lesson plans were written during the summer of 2020, amidst the COVID-19 pandemic. Ideally, these lesson plans would be written and tested and then tweaked based on how students and naturalists react to the activities. Unfortunately, during the COVID-19 pandemic, no programming was able to run and no lesson plans were able to be tested. This is simply the nature of the time. It must be understood that all curricula are living documents. What works at one site might not work at another. Testing and tweaking time should be expected during any curriculum implementation at an outdoor learning center.

Another, slightly more minor limitation was implementing journals into lessons designed for the winter months. Much of my research suggested that journals are an important part of learning and can aid in practicing observation techniques. However, much of this research came out of California, or other places with much more mild climates. The lesson plans in this project will be taught primarily in Minnesota and many of them are only done in the winter months. Journaling in sub-zero temperatures is not a recipe for success; students' fingers get too cold to hold a pencil, journals get wet with snow, students' bodies get cold when they sit still observing. I've had to come up with more creative ways of journaling, like a group journal or reflective journaling upon

returning to a classroom. This consideration of how to successfully implement journals in cold winter months will be a problem I continue to ponder.

Future Projects

In order for this curriculum to be effective, there needs to be three accompanying components. First, there must be adequate naturalist training that precedes any teaching. During this training, naturalists will be given a chance to practice the lesson plans and recognize some of the techniques described in the lesson plans. This way the lesson plans themselves merely act as a reminder for what the naturalist already knows. Second, during the course of the season, there must be veteran naturalists present and ready to support new teachers. There must be a culture of curiosity and growth established at any given site. The new teachers must know that it is expected that they will ask lots of questions as they are preparing for their teaching. Lastly, the lesson plans must have an assessment follow up built in. These lessons don't have the assessment built in because of timing constraints. In an ideal world, there will be an assessment available post visit.

Each of these necessary components - the naturalist training, a culture of curiosity and growth, and a post visit assessment - all require planning and intention. These are necessary future projects in order to maximize the success of these lesson plans.

Communicating Results

In addition to being shared on the Hamline Digital Commons, these lesson plans will also be shared with every new staff member at the Baker Outdoor Learning Center (BOLC). Staff will be encouraged to share these lesson plans with any future site for which they work. The full set of curriculum will be made available to other

environmental educators that inquire about BOLC's lesson plans or teaching strategy. And finally, the lesson plans will also be made available to classroom teachers that are considering or planning on bringing students to the BOLC. In short, this curriculum will be available to any inquiring party as a PDF.

Conclusion

This chapter reviewed the background and purpose for the project, discussed some of the biggest unexpected learnings from the process, revisited some of the most helpful literature from chapter two, discussed the broader implications and limitations of this project, outlined future projects, and lastly, shared plans for communicating products with other environmental educators.

Writing this curriculum was a difficult but rewarding challenge in my commitment to providing students with valuable outdoor experiences. With this curriculum, more students will be given the opportunities to play in the dirt, make cities for ants, and smell like sweat and sap. More naturalists will begin to develop a teaching style that fosters joy, enriches relationships, and encourages growth in the outdoors. Hopefully, with these experiences, more students will reap the emotional, physical, and interpersonal benefits that time spent in nature has to offer as well as lay a foundation for a life filled with love for and awe of the natural world.

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