

How Can Educators Implement Nature-based Learning to Increase the Well-being of the
Whole Child?

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CHAPTER ONE

Introduction

Overview

Children today are bombarded with information delivered by technology. I often wonder if these computer savvy students have lost track of the beautiful lessons that can only be learned by experiencing nature. I believe I have benefitted from time spent learning and being in nature. I am excited to explore the benefits of spending time in nature. I question what are the benefits of submerging modern learners in grasses, trees and snow covered fields. I will share my learning journey through a review of my educational history and the path that has brought me to share my passion for environmentalism. Throughout this capstone thesis, I will delve deep into the benefits of nature based learning, specifically answering the question: *How can educators implement nature-based learning to increase the well-being of the whole child?*

Educational History

Nature has been an important part of who I am. I was drawn to nature as a child. I have always been the shy, quiet type. I love learning. I love to observe. I do not love to offer my opinion. I prefer to sit in the back of the class, listen, absorb, and avoid raising my hand. Putting myself out there is uncomfortable. As a child, I moved a lot. I moved eight times between kindergarten and my sixth grade year of school. I went to nine schools by the time I graduated from high school. Moving often forced me to reach out to other people. I had to make friends quickly. I did not enjoy being an extrovert. This was a skill developed through constant practice.

I was an inquisitive, nature loving kid that liked to explore. I spent a lot of time outside by myself watching nature, or inside making art. I was not comfortable at school. I was nervous that I would have to speak in front of my peers, or not know the answer. I spent many hours afraid that I would be called on.

I remember being *below grade level* in my early elementary classes. Spelling was difficult, my times tables did not make sense. I remember the smell of my second grade teacher's cigarette breath as she corrected my spelling in front of the class. Apple ends with an l then an e, not an e then an l. Learning in a classroom was stressful. I remember being called out of class to practice my times tables. I still have not memorized what eight times six or eight times seven is and I am ok with that; my phone has a built-in calculator. I realize now that moving so often created holes in my learning. I missed things, I was not slow or stupid like I felt. I had not learned the necessary things I needed, in the order I needed them.

I forced myself to participate throughout middle and high school. I put myself into activities. I pushed myself to grow. I was passionate about saving the Earth, so in high school, I joined the Environmental Club and became the president. I ran track and cross country because I felt better when I moved my body. Running outside has always released stress. I was involved so I made friends. I made friends so I became more comfortable at school. I worked hard, I caught up on my studies, and graduated with honors.

I hit my stride in college. I loved student teaching, my cooperating teachers, and the students. I observed and I participated. I took risks. I signed up to lead other students on camping and backpacking trips. These trips eased my nerves and rejuvenated my

spirit. It is easy to do well when you love what you are doing. I believe that teaching is about exploration, observation and a willingness to take risks. I have found that my education has included all of these things and more.

Journey to Teaching

One of my first memories of being in a school in the role of a teacher was when I was 10 years old. I had spent the summer helping my aunt with her class of special needs students. We took long walks with her students outside in the warm sun. She allowed me to assist and learn from her while helping her students. Her firm and gentle demeanor resonated with me in a way that I had not expected. I remember thinking at that point that I needed to be in the classroom someday. From this point on, I knew I wanted to be a teacher and being in a classroom was the most exciting thing I could do. Eight years ago, as I reflected on my aunt's early passing, I spent a great deal of time reliving this experience. I attribute so much of my teaching style, compassion, and care for the Earth to that early experience. I am extremely grateful to have had this opportunity and an amazing role model.

My early experiences as a struggling student and the time I spent shadowing my aunt in her classroom were the biggest reasons I became a teacher. I continue to be motivated by the relationships I build with my students. I thrive on the joy they express through my lessons and their learning. We have so much fun creating together. I allow those back row kids time to be observers. I allow the front row kids time to perform. I give my students options to share their work, and will not ever make a student an example in front of the class. I push every student to be the best version of themselves. We spend time outside doing art several times a year. As long as I am teaching, I will

continue to encourage my students to grow, change, explore, participate and create alongside me. I will seek knowledge that improves my teaching, and I will support other educators in their quest for resources.

Environmentalism

My experiences as an elementary art teacher have helped me design open-ended collaborative projects for my students. I have been able to provide students with the opportunity to share and to ask each other questions about their art. My students get to determine their own subject, and sometimes they are allowed to choose their own materials. I would like to provide more opportunities for the exploration of relevant social issues and provide ways to act on these ideas. I anticipate that the environment is one of the issues my students are concerned about. Kimmerer (2013) beautifully describes the importance of learning from our environment:

I had been fooling myself that I was the only teacher. The land is the real teacher. All we need as students is mindfulness. Paying attention is a form of reciprocity with the living world, receiving the gifts with open eyes and open heart. My job was just to lead them into the presence and ready them to hear. (p. 222)

Kimmerer (2013) has an elegant way of checking ego against the powerful systems of the planet. As a participant in the Natural Science and Environmental Education program, I feel a strong responsibility to uphold, protect, and share knowledge of the environment. I feel responsible for students who do not see themselves in whitewashed schools. The artist in me believes the goals, methods, and purpose of education center around my ability to inspire learning and encourage creative thinkers. There are several resources

that shaped my core beliefs about environmental education. I will explore the ways these words influenced me to encourage environmentalism in my students.

Martusewicz et al. (2015) makes a comparison between natural and man-made. They describe the ways humans rationalize doing things that harm the earth. The author describes a scenario where a class discusses perception. If something is man-made, like a drain, or is natural, like a stream, we will treat it in two different ways. Moving things into the realm of man-made gives us permission to take ownership of that thing. We can not really own a stream, but we can own a drain because we built it. If we own it, then we can do what we want with it. As our ownership evolves, it becomes more socially acceptable to treat the man-made item differently than the natural item as it moves farther away from being alive.

I could not help but apply this logical progression to my students. Individual students have become standardized over the last few decades. A cookie cutter approach is an easy way to collect data but it allows for so many to fall through the cracks. A current strategy might be to use technology to individualize learning. Students can plug into their device and learn from their machine. I am not sure that this system of teaching is fully benefiting students. Instead, I would suggest that collaborative learning and practice would be the best way to build leaders for the future. The problems we are facing in the world are too big for one person to take on alone. “What I do here matters. Everybody lives downstream. My pond drains to the brook, to the creek, to a great and needful lake. The water net connects us all” (Kimmerer, 2013, p. 97); as Kimmerer reminds us in this beautiful analogy, collaboration seems to be how plants and animals have the most success in nature.

The dominant narratives that influence education in my field are varied. I dip my toes into the pools of nature and art. These two concepts rippled beautifully within the pages of Strauch-Nelson's (2012) article. They explore the history and purpose of education using Froebel's foundation of kindergarten, specifically the role of nature and art. Strauch-Nelson does a beautiful job communicating Froebel's belief that nature could show children how the world is connected to itself and the child. He believed that children are able to explore nature in a spontaneous way, finding their role within the greater whole. Strauch-Nelson suggests that allowing children to connect with nature through art provides numerous benefits to the child.

This belief in nature exploration through art is a method I stumbled upon a few years ago. I added nature-based art to my curriculum as a precaution during the pandemic. All of my classes met outside and used mostly natural materials. Students were allowed to work independently or with a group. Most students formed groups and collaborated to create beautiful sculptures, fairy houses, or animal playgrounds. I felt a difference in the attitude and participation of all of my classes.

Empowering students to use their voice is another important component of my practice. I work hard to provide a space where students can observe artists of varying gender, cultures, and sexual orientation. All students are given an opportunity to share their thoughts and their work. Students are pushed to explore uncomfortable topics and are given the space to think through big issues.

Paris & Alim state: "Culturally sustaining pedagogy exists wherever education sustains the lifeways of communities who have been and continue to be damaged and erased through schooling" (2017, p. 1). This powerful quote gives meaning and purpose

to the term culturally sustaining pedagogy. It acknowledges that we have students currently moving through our schools taking the brunt of decades of white supremacy. They do not see themselves within the images and words presented by their teachers. We can support students with methods that lift and support all cultures. Students are seen by using current and ever-changing examples that represent everyone.

Through creative and collaborative experiences, I will work hard to uphold, protect, and share knowledge of the environment. I will give my students examples of the ways the world is connected to itself and the child. I will set up opportunities that empower students to use their voice, allowing them to see themselves and be seen by others. These tasks are essential in a country where consumerism, individualism, and white privilege prevail:

Cautionary stories of the consequences of taking too much are ubiquitous in Native cultures, but it's hard to recall a single one in English. Perhaps this helps to explain why we seem to be caught in a trap of overconsumption, which is as destructive to ourselves as to those we consume. (Kimmerer, 2013, p. 179)

If we sustainably manage our natural environments the health of our people will improve.

Summary

I would like to explore the relationship between exposure to the environment and creating life-long advocates for nature. I am interested in discovering the potential benefits of nature based learning. Exposure to nature impacts creativity, mental and

physical health, and stewardship. I want to think of learning in a broader sense. Teachers can be parents, community members, and licensed educators.

This is a relevant question for me because of recent experiences. I had the opportunity to switch my traditional curriculum to outdoor education during the reintroduction of in person learning after the pandemic. I took all of my art classes outside. We did landscape art, drew nature, and created and painted snow sculptures. I saw students blossom in an outdoor environment. They became more relaxed and vibrant. The joy they expressed was immeasurable. They made deep connections that I would have never thought about teaching. I know there are benefits to being outdoors, and I am excited to discover more in depth the research that supports this.

In the next chapter, I will use the literature review to address the benefits of learning in nature on student health, specifically the impacts of environmental justice and the health of underserved populations and historical trauma. I will seek to understand the connection between mental health, the combination of art and nature-based education, stress reduction, and the effects of nature-based learning on trauma. I will investigate the impact of physical health and spending more time outside, and will delve into the positive habits developed through nature-based learning.

In subsequent chapters, I will explain the contents of a website I created. The website houses resources, lesson plans and environmental activities for kids. I hope to inspire and support teachers, caregivers, and anyone looking to implement nature-based learning within their classrooms, with their families, or communities. These tools and resources will help me fully understand the relationship between nature-based learning and the well-being of the whole child.

CHAPTER TWO

Literature Review

Introduction

As our world moves towards a sedentary lifestyle, we fill our days with computer screens, video games, television monitors, and personal devices like iPhones and tablets. It is easy to lose track of time on our devices sitting in our comfortable homes away from the unpredictability of outdoors. I question what this new way of living is doing to us and our children and whether we are helping students by keeping them comfortable. Children go from weather protected homes, to structured classrooms, where they are asked to sit and listen silently, motionless. Some children can not contain the natural energy they have inside of them, earning themselves labels like hyper, restless, or naughty. I believe that we can provide our children with a better way of learning that increases the well-being of the whole child. Learning in nature might be the solution to promoting health for the next generation of students. Throughout this chapter, I will be exploring the question, *How can educators implement nature-based learning to increase the well-being of the whole child?*

This literature review addresses the benefits of learning in nature on student health, specifically the impacts of environmental justice and the health of underserved populations and historical trauma. It will seek to understand the connection between mental health, the combination of art and nature-based education, stress reduction, and the effects of nature-based learning on trauma. It will investigate the impact of physical health and spending more time outside, and will delve into the positive habits developed through nature-based learning. These topics will be addressed throughout this chapter to

bring awareness of the impact of nature-based education on the well-being of the whole-child. The intended audience of this paper is for anyone working with children. The goal is to inspire teachers, parents, caregivers, community leaders, and anyone else wanting to better our world through increased time in nature.

Environmental Justice and the Health of Underserved Populations

The first part of this chapter will explain the historical relevance of underserved communities and the environmental injustice created because of proximity to pollution. It will continue by defining Critical Environmental Justice, describing what the movement can look like when environmental justice is combined with some of the biggest social justice movements of the times. Next, the traditional concept of environmentalism and specifically urban environmentalism will be explored. This section will continue with suggestions for current nature based learning options for inner city students in urban environmental education. Lastly, the evolution of nature-based art education and the evolution into art-based environmental education will be discussed. This section will highlight the role of urban and arts based environmental education in supporting the well-being of the whole child.

Historical Relevance of Environmental Injustice

Historically, companies that pollute choose low income neighborhoods to set up their industry. Sometimes these hazards spill into the surrounding neighborhoods inflicting harm on its neighbors. This misuse of resources and lack of protection against environmental abuse because of income or appearance is considered Environmental Injustice (Hjarding et al., 2015). Hjarding et al. express this concern, “[e]nvironmental injustice occurs when the most vulnerable populations carry the greatest burden of

environmental risk” (p. 82). There are many ways environmental injustices affect marginalized neighborhoods all over the country. Proximity to train lines, interstates, and industrial buildings, waste material disposal sites like landfills, garbage lots, and junk yards, and limited access to public parks and recreation areas all contribute to this increased risk of environmental threat (Hjarding et al.). Communities enduring environmental injustice often feel like their voices go unheard. Citizens in affected areas are not typically the ones negotiating cleanup and compensation leading to worse conditions for the residents (Banzhaf and Timmins, 2019, p. 200). When citizens are willing and able to stand up for themselves in ways that combat environmental injustice, the movement is called Environmental Justice (United States Environmental Protection Agency, 2022).

Critical Environmental Justice. Environmental Justice is a relatively new area of study. Scholars continue to expand their thinking of Environmental Justice as new concepts are assimilated into society. Pellow poses a new theory that combines Environmental Justice with views brought forth by the founders of the Black Lives Matter movement and by incorporating ideas from “critical race theory, political ecology, ecofeminist theory, and anarchist theory” (2016, p. 221). Environmental Justice should be redefined, creating a new category termed Critical Environmental Justice (Pellow, 2016). Critical Environmental Justice acknowledges that we are not all affected with the same potency, that we can see greater examples of negative consequences world wide by narrowing in on specific communities or “barrios, indigenous peoples’ lands, and much of the global South” (Pellow, 2016, p. 228). In these areas, the negative impacts of pollution are clear. We are currently experiencing varying degrees of environmental

health because of the differences in the ways communities are treated. If laws are not changed to protect all communities the impact will be devastating. Environmental contamination knows no boundaries. If we progress at our current rate of pollution all neighborhoods could eventually be consumed.

Urban Environmentalism. When we think of someone concerned about protecting the Earth, we do not often create a picture of an urban citizen in our mind. This is mostly due to the fact that our urban environmental neighbors were overlooked, or consciously dismissed (Gallay et al., 2021). Their concerns have been diminished or not seen as environmental while simultaneously being blamed for not being environmentalists (Gallay et al., 2021). Marginalized communities actively engaging in Environmental Justice, or EJ, take on the role of being Critical Environmental Justice advocates as discussed above. One way to support the urban environmentalist is by engaging in EJ from an early age highlighting “social inequality and environmental harm” (Pellow, 2016, p. 233). Critical Environmental Justice supports urban environmentalists through social actions that shine light on environmental racism, power inequalities, and oppressed citizens, to increase greater freedom and political change.

Traditional environmentalism has focused on non-human components such as protecting and restoring natural areas while not paying attention to inner city, low income, and marginalized communities (Gallay et al., 2021). Our environmental concerns as a society have had great emphasis on non-human aspects of the environment. We have put less emphasis on the people living on the Earth than we have the Earth itself. As a solution to this problem, children can be raised to see their connection to the Earth in a broader sense (Gallay et al., 2021). Urban environmentalists have additional challenges

that encroach on the health and safety of their urban residents. Safety issues can also be a barrier to environmental change. These hazards include air pollution, which can lead to health risks like asthma, and violence against BIPOC individuals occurring in natural spaces like urban woods or parks (Gallay et al., 2021). People living in urban settings might opt to stay inside because of these health risks. Nature-based learning can be the catalyst to Critical Environmental Justice activism. Teaching outside and within local communities, especially those communities that have been discriminated against in the past, can create great change towards urban environmentalism.

Urban Environmental Education. Teaching urban youth in a city setting has been overlooked in the past. Some environmental educators have removed students from their urban communities because of beliefs that urban settings don't have adequate environments to appreciate, fueling misinformation about these environments (Thomashow, 2015, p. 26).

Urban environmental education that is nature-based and close to where students live—also called place-based—could empower future citizens (Gallay et al., 2021). Providing students with easy access to environmental opportunities can promote environmental protection and increase “environmental identities” (Gallay et al., 2021, p. 14). If we teach urban students outside, in their own neighborhoods, we can make the biggest impact on social change. This way of teaching can encourage students to become “community environmental activists” (Gallay et al., p. 14). This can lead to citizens taking the power back from distant decision makers, attending to the health and wellbeing of themselves and their communities.

Further trauma can be prevented by shining light on political systems and the origins of oppression. Education can lead people to better ways of demonstrating environmentalism and learning new ways to protect the earth can allow for activism (Hjarding et al., 2015). This increased knowledge and connection to nature can allow communities to engage in environmental concerns (Hjarding et al., 2015). Environmental education with an emphasis on justice is essential for the future of our Earth and its citizens.

Nature-Based Art Education

Integrating art and nature seems to be a logical pairing. Creating art in a natural setting can have many benefits, including increasing the health of the whole child. Taking children outside to enjoy the beauty of nature while creating art, can enhance the experience of the student (Hunter-Doniger, 2021). Nature-based art education has a completely different set of expectations, feelings, experiences, and physical boundaries than traditional art classrooms. In traditional settings, students have little contact with nature, they sit in desks devoid of natural materials, in rooms with concrete walls, and they may only experience nature during set times, such as recess (Hunter-Doniger, 2021).

The history of this pedagogical combination has evolved from eco-art education to art-based environmental education (Hunter-Doniger, 2021). Eco-art education is the integration of “art education with environmental education as a means of developing awareness of and engagement with concepts such as interdependence, biodiversity, conservation, restoration, and sustainability” (Inwood, 2010, p. 34). While these basic concepts of ecology have been foundational to environmental education, they are limited in their access and inclusion. This way of thinking of the environment and expressing

concerns for the non-human aspects of environmental conservation alienates several groups of citizens including African America and Latinx urban youth (Gallay et al., 2021).

Art-based Environmental Education

Eco-art takes the people out of environmental learning, while art-based environmental education or AEE allows us to include all communities through social justice. Changing the way we interact with the Earth by emphasizing the interconnectedness of everyone and everything in it could improve the way we care for the environment (Anderson and Guyas, 2012). Social justice is an integral part of AEE. If we create place-based environmental art curriculums, we can “engage imagination and interactions that cultivate aesthetic interactions between children and the spaces where they live ” (Trafi-Prats, 2009, p. 19). Teaching art-based environmental education curricula within our own communities can create artists that are able to make social changes that can increase the well-being of the whole child.

This first section highlighted some of the research that explains the historical relevance of underserved communities and the environmental injustice created because of proximity to pollution (Hjarding et al., 2015). It continued by defining Critical Environmental Justice, describing what the movement can look like when environmental justice is combined with current social justice movements (Pellow, 2016). The traditional concept of environmentalism and specifically urban environmentalism was explored, highlighting who has been left out of conversations around the environment and the stereotypes created because of this way of thinking (Gallay et al., 2021). Urban environmental education was defined, giving suggestions for current nature based

learning options for inner city students (Gallay et al., 2021). Lastly, the evolution from nature-based art education into art-based environmental education was discussed, highlighting the importance of the inclusion of social justice (Anderson and Guyas, 2012). This section highlighted the role of urban and arts based environmental education in supporting the well-being of the whole child.

The next section of this chapter will dive into the positive effects nature-based learning can have on mental health. It will explore the ways learning in nature can improve the mental health of children and will give examples of the ways teachers and caregivers can support children learning in nature.

Mental Health

The connection between positive mental health and being in nature is an area that has been researched extensively (Largo-Wight, 2018). The second part of this chapter will explain how being in nature can reduce stress by defining the physical effects of stress, addressing overscheduling of children today, and exploring the benefits of forest schools. It will explain how teachers and caregivers can approach learning in nature with children that have experienced trauma. More explicitly, it will discuss nature as therapy, the appearance of trauma in children, and trauma and nature-based play. Nature-based therapy and mental health will be discussed as it relates to the essential question: *How does nature-based learning increase the well-being of the whole child?*

Stress Reduction

Children carry an enormous amount of stress around with them. Reduced physical activity and a recent pandemic contributed to the stress young people feel (Povšič, 2022).

Spending more time outside in an educational setting can reduce the amount of stress burdening our students (Sobko, 2016).

Effects of Stress. The mental effects of stress can show up in many children today. Stress may worsen some mental health problems like personality or mood disorders, neurodevelopmental disorders, and behavioral disorders (Collier et al., 2015). Additionally, stress can amplify learning disabilities, hyperactivity, inattention, impulsivity, and defiant behaviors (Capital Women's Care, 2019). In order to keep children healthy and mitigate the effects of stress on students, spending time outside is recommended by several scholars (Mayer et al., 2009; Collier et al., 2017; Sobko, 2016). Some insight gained from 20 years of research in environmental psychology shows some of the ways children might express their stress. Negative behaviors like "aggression, anxiety, depression, and illness" can be lessened by being outdoors and positive behaviors like "affect, health, and cognitive capacity" can be increased (Mayer et al., 2009, p. 608). Being in nature allows our brains to recuperate from stress, it gives students a break from constant attention and focus, and social connections can be advanced with the aid of natural environments, giving children a sense of ambition and self-development (Mayer et al.). There are many benefits of being in nature still being studied. The correlation between the improved effects of ADHD and autism and time spent outside is one of them (Collier et al., 2017). The effects of stress on children today are numerous, yet these effects can be reduced by being in nature.

Over Scheduling. The amount of time that children have has not changed throughout the past few decades, however, the way we schedule them has, inspiring the term "time poverty" to describe this deficit of free time (Louv, 2013). The things we

value have also changed. Nature is not high on the list of expectations we set for children, and many times it is left off the list altogether (Louv, 2013). Children are being asked to better themselves by taking the hardest classes they can in school, learning an instrument, participating in high stakes sports, and helping around the house (Louv, 2013). These activities do not leave room for exploring nature. This might not be the best long term plan for our children. Louv cautions, “[t]ime in nature is not leisure time; it's an essential investment in our children's health (and also, by the way, in our own)” (p. 120). In this last statement, Louv draws attention to the importance of allowing children to spend time in nature to preserve their mental health.

Forest Schools. The concept of teaching within nature is presented through the idea of forest kindergartens. These schools focus on year round outdoor exploration as a way to encourage students to work collaboratively or independently, play and create, ask questions and guide their own thinking. Byron and Foutz (2015) explain the benefits of this style of learning. They state, “[l]earning through ‘play’ promotes creativity, develops imaginative thinking and fosters communication and cooperation. It also helps children develop gross and fine motor skills, stamina, self-confidence, a more positive outlook and a greater ability to set and achieve goals” (p. 44). Forest schools promote independence in children through exploration. They encourage students to become investigators of nature by tapping into their natural curiosity. Students in forest kindergartens are able to build life long skills that stretch across multiple content areas, reaching all learning styles, building confidence and self esteem as a natural consequence.

Spending more time outside in an educational setting can reduce the amount of stress burdening our students (Louv, 2013). Being outside can lessen the negative effects

of stress and increase positive emotions (Mayer et al., 2009). It can promote creative thinking, problem solving strategies, and an overall sense of confidence in children (Byron and Foutz, 2015). When students learn in nature, the overall mental health of the child can increase.

Trauma

There are mental health benefits when students learn in nature. This next section will address the role that trauma plays in learning outside. Nature-based play, trauma therapy, and the intersection between the two are important concepts for today's educators. Stallcup (2021) explains, "[w]hen therapy is held outdoors, nature becomes the therapeutic container holding the therapeutic process" (p. 42). This basic understanding of each concept is relatable and the connection between the two are specifically explored. Playing in nature can have a calming effect on students. Nature can help those who have experienced or are experiencing trauma.

Nature as Therapy. M. Birmingham , an experienced nature-based therapist that I interviewed, talked about how she uses nature as therapy. She stated, "[t]rauma reactions take students out of the present moment into the past and nature is a great way to bring them back to the present moment and re-ground them" (personal communication, July 1, 2022). However, Birmingham does caution the potential harm caused to children who have experienced trauma. She suggests allowing children time to adjust to their surroundings, keeping their eyes open and moving at a comfortable pace. Giving students a choice to go outside while they are in a heightened emotional state could help them regulate their emotions faster than staying inside (personal communication, July 1, 2022). The students safety, feelings of exposure, and confidentiality should be considered when

participating in nature-based therapy (Stallcup, 2021). If a student is familiar with the outdoor spaces of a school, they would be more likely to go to those spaces when they feel the need to regulate. For this reason, teachers should explore the outdoor areas of their schools often. This exposure in times of regulated behavior may even prevent unregulated behaviors (Stallcup, 2021).

The key topics of trauma and nature carry social, cognitive, economic, and political weight that influence access and understanding. To be able to fully comprehend trauma, we must be aware of the societal and socioeconomic injustices our students face (Thomas, 2021). Teachers must seek to understand the histories of their students, including the historical contexts and injustices occurring within education (Thomas, 2021). Many school buildings hold negative memories within their walls. If teachers have a good grasp on how to assist students in feeling safe in a natural setting, they can require more academic rigor (Thomas, 2021). Learning and playing in nature can promote learning, retention, and push students to achieve more.

The Appearance of Trauma. When building relationships with kids who have felt the effects of trauma, it is important to give them “as much positive attention as possible” (Miller, n.d.). By giving children immediate, consistent, and systematic attention, it can minimize the times children will seek negative attention. Children that have endured neglect tend to seek any type of attention, often evoking negative reactions from adults asserting high standards of behavior (Miller, n.d.). The attention given should be expected and unexpected (Miller, n.d.). Giving children unexpected positive attention should include compliments but also affection and compassion (Miller, n.d.). As Miller (n.d.) states, “Surprising kids with “random acts of kindness” can help wean them from

habits of acting out to get attention. When a kid is acting out and sucking the oxygen out of a classroom” (“Focus on Positive Attention” section, para.1.). Teaching outside can feel like a breath of fresh air. Students can feel a continuous sense of reward as they learn outside. They are given space, sunshine, praise, and positive attention for no apparent reason.

Trauma and Nature-Based Play. Teachers, therapists, counselors and anyone else working with kids can build nature based play into their routines. Acknowledging the good things about a location can connect kids to their communities (Byron, 2015). Nature is all around us, it is part of our homes, schools and community. If we explore it often, our students will benefit.

This section explored the role that trauma plays in learning outside. Spending more time outside in an educational setting can reduce the amount of stress burdening our students (Sobko, 2016). In order to keep students healthy and mitigate the effects of stress on students, spending time outside is recommended by several scholars (Mayer et al., 2009). Learning outside can promote creative thinking, problem solving strategies, and an overall sense of confidence in children (Byron and Foutz, 2015). It is important to allow children to spend time in nature to preserve their mental health (Louv, 2013). Nature helps the therapeutic process when dealing with students who have experienced trauma by connecting their bodies to the present, as long as the outdoor space is familiar (M. Birmingham, personal communication, July 1, 2022). Teachers should use the same outdoor spaces often to build routines and comfort for their students (Stallcup, 2021). Nature-based learning can be rewarding for numerous students. Students that have

experienced trauma, and others, can feel rewarded by being outside (Miller, n.d.).

Learning in nature can increase the well-being of students that have experienced trauma.

Physical Health

The next part of this chapter will examine the physical benefits of learning in nature. It will look into the effects of nature-based learning on physical activity and address any positive habits created by being in nature. There is a correlation between learning in nature and physical health. Learning in a natural setting increases physical activity. Positive physical habits can be formed by spending time in nature during the school day.

Benefits of Nature on Physical Health

Nature has a long history of benefiting human health. We have spent six to seven million years evolving within nature, only to move indoors, as we know it, a few hundred years ago (Song et al., 2016). This means that “humans have spent over 99.99% of their time living in the natural environment” (Song et al., 2016, p. 1). This statement would lead me to believe that we are designed to be outside, that we need a connection to nature to be at our best. Our history has prepared us for living outside, but our modern lives keep us inside for most of the day.

Healing. Several of the writings that I reviewed mention evidence that nature has a healing effect on humans. There are numerous benefits of being in nature, “(1) it decreased the levels of salivary cortisol, a typical stress hormone; (2) it decreased the pulse rate; (3) it decreased the systolic and diastolic blood pressures” (Forest Therapy section, para. 4). This biological evidence supports nature's positive effect on the body. Not only should we be outside, but we must be outside to keep our bodies regulated.

Nature-based Learning and Physical Health. Other countries have unique names for nature-based learning. In Denmark, they call nature-based learning *udeskole*, which is not only a way to teach but a way to reformulate and think about school (Bentsen et al., 2009). Udeskole is “an understanding that education exists in a social, economical, political and geographical context” (Bentsen et al., 2009, p. 32).

This way of thinking of nature-based education is so embedded into Danish schools that their lessons can infuse nature into every subject. Bentson et al. gives examples of this, “mathematics by measuring the height and volume of trees, language by writing poems in and about nature, or history or religion by visiting historical significant places etc, but are very often also cross-disciplinary and cross-curricular activities” (p. 32). Nature-based learning is a way of life in Denmark. It is how learning happens, not a separate thing to incorporate into learning.

Increased Physical Activity. Spending time learning in nature can increase physical activity in children. Learning outside allows students to move more than twice as much as learning inside during a typical school day (Mygind, 2007). When students learn outside, the activity is pretty constant and, at times, the students can have short amounts of high activity (Mygind, 2007). While learning inside, the activity level of some students is consistently low throughout the day (Mygind, 2007). Nature-based learning can benefit obese students because they may not realize their physical activity is increasing while they are learning outside (Mygind, 2007). Nature-based learning can provide all students with consistent opportunities to move their bodies without the dread of planned physical activity.

Positive Habits. Learning outside can create positive habits that encourage future nature-based activities. Some students have a fear of being outside. Fears students may have include plants, animals and insects that might hurt them, the fear of getting lost, the fear of being uncomfortable, and the fear of getting dirty (Byron et al., 2015) . These fears may prohibit students from spending time in nature.

However, learning in nature on a regular basis can alleviate fears or concerns associated with being outside. Nature-based learning is a safe option for parents that worry about the safety of their children playing outside (Sharma-Brymer and Bland, 2016). Child development experts recommend consistent nature exploration and exposure to outdoor play from a young age in order to build healthy adults (Sharma-Brymer and Bland, 2016). The more children experience nature through positive experiences, the more likely they are to experience nature again on their own.

M. Birmingham (personal communication, July 1, 2022), a therapist with practice in using nature as a support, comments, “nature is a great way to reconnect students to their bodies and to be present in the space they are moving through.” She describes a technique she uses with students. The students she works with are not always effective in regulating their own bodies. She states, “often when a student is upset and cannot regulate, we go outside and use the five senses grounding technique which is to name 3-4 things they can see, smell, feel, hear and even taste.” Giving students opportunities and access to learning outside can teach them how to effectively manage their emotions. Nature can center students so they can be in charge of regulating their own bodies.

This section explored the physical benefits of learning in nature. The benefits of nature-based learning on physical activity are numerous. Learning in a natural setting

increases physical activity and can help students dealing with obesity while nature-based learning adds movement into a student's day without them knowing it (Mygind, 2007). Positive habits created by being in nature include lessening parental fears of letting their children be outside (Byron et al., 2015). Self-regulation is another benefit of nature-based learning (M. Birmingham, personal communication, July 1, 2022).

Health is an important aspect of nature-based learning. Nature-based learning increases the well-being of the whole child in several ways. The relationship between learning in nature and increased health has been proven (Mygind, 2007). Positive reactions, healthy decisions, and dealing with the effects of trauma have been able to be processed by being in nature (Sharma-Brymer and Bland, 2016). Learning in nature promotes a willingness to advocate for environmental injustice, helps students process historical trauma and find benefits to mental health (Thomas, 2021). Spending more time outside can impact one's ability to interact with nature in a positive way and reduce stress (Louv, 2013). Physical health can be improved when a student is given more time to be in nature participating in activities that promote positive habits.

Literature Review Conclusions

This paper explored the relationship between learning in nature and health. The goal of this literature review was to find data from scholarly sources that address the essential question, *How can educators implement nature-based learning to increase the well-being of the whole child?* This research looked into aspects of health as it relates to nature, specifically the impacts of environmental injustice, historical trauma and mental health on students today. It investigated one's ability to interact with nature in a positive way and reduce stress after the impact of trauma. It sought to understand the connection

between mental and physical health and spending more time outside. It dove into positive habits developed through nature-based learning. These topics addressed throughout this chapter brought awareness of the impact of nature-based education on the well-being of the whole-child.

In the first chapter we looked at one of the ways nature based-learning can benefit the whole child is by shifting communal thinking to include marginalized and underserved communities (Hjarding et al., 2015). Traditional conduct of environmentalism had previously been the norm. The concept of an environmentalist had been defined as a wealthy, white, nature-lover, focused on preserving land over people because of the biases placed on marginalized communities (Gallay et al., 2021). Current nature-based learning options for inner city students were discussed. The concept of urban environmental activism was used to center the idea of place-based education as a form of nature-based education and nature-based art education (Pellow, 2016). Urban landscapes and the people they hold are essential ideas to add to the forefront of environmental education (Gallay et al., 2021). When we put people into nature, giving them knowledge and a voice, the health of the whole child and whole community can increase.

The effects of nature-based learning on mental health was addressed in the second part of chapter 2. Research concluded that spending more time outside in an educational setting can reduce the amount of stress burdening our students (Sobko, 2016). Spending more time outside in an educational setting can reduce the amount of stress burdening our students (Mayer et al., 2009). Nature-based learning can be rewarding for numerous students. Students that have experienced trauma, and those that have not, can feel

rewarded by being outside (Miller, n.d.). Being outside can lessen the negative effects of stress and increase positive emotions . It can promote creative thinking, problem solving strategies, and an overall sense of confidence in children (Byron and Foutz, 2015). When students learn in nature, the overall mental health of the child can increase (Louv, 2013). This section went on to explore the role that trauma plays in learning outside. Nature helps the therapeutic process when dealing with students who have experienced trauma by connecting their bodies to the present, as long as the outdoor space is familiar (M. Birmingham, personal communication, July 1, 2022). Nature-based learning can be used to build routines and comfort for students (Stallcup, 2021). All students, including those that have experienced trauma, can feel rewarded by being outside. Learning in nature can increase the well-being of all students.

The third section in this chapter explored the physical benefits of learning in nature. The benefits of nature-based learning on physical activity are numerous. Learning in a natural setting increases physical activity and can help students dealing with obesity (Mygind, 2007). Nature-based learning can benefit obese students because they may not realize their physical activity is increasing while they are learning outside (Mygind, 2007). Nature-based learning provides all students with consistent opportunities to move their bodies in ways that positive habits are created (Byron et al., 2015). Being in nature can help cope with the effects of trauma and self regulation (M. Birmingham, personal communication, July 1, 2022).

Health is an important aspect of nature-based learning. Nature-based learning increases the well-being of the whole child in several ways. The relationship between learning in nature and increased health has been proven (Song et al., 2016). Positive

reactions, healthy decisions, and the effects of trauma have improved by being in nature (Mygind, 2007). Learning in nature promotes a willingness to advocate for environmental injustice, helps students process historical trauma and find benefits to mental health (Miller, n.d.). Spending more time outside can impact one's ability to interact with nature in a positive way and reduce stress (Sobko, 2016). Physical health can be improved when a student is given more time to be in nature participating in activities that promote positive habits (Byron et al., 2015).

In the next chapter I will explain the website project I created. The website includes quality resources for teachers, caregivers, and anyone seeking nature-based content for kids, in one location. One could spend hours looking for ideas or just the right information to share with students. This website provides organization to its viewers that saves time and gives inspiration that informs and encourages great teaching.

The evidence and knowledge I gained from the literature review guided the categories of this website. The three main categories posted on the website are Environmental Justice, Physical Health, and Mental Health. The website subcategories are Nature-based Social Justice Resources, Art-based Environmental Education and Environmental Justice Resources, Nature-based Movement Resources, Nature-based Positive Habits Resources, Nature-based Stress Reduction Resources, and Nature-based Trauma Sensitive Resources. This website is created to support educators in implementing nature-based learning.

CHAPTER THREE

Project Description

Introduction

This chapter explains the website project I created to address the question, *How can educators implement nature-based learning to increase the well-being of the whole child?* The website is intended to be used as a resource for teachers, caregivers, and anyone seeking nature-based content for kids. These high quality materials have been gathered in one location to save time and energy. It is easy to spend hours looking for just the right information to share with students. This website provides an organized approach that saves time and gives inspiration to encourage great teaching.

Background

Environmental education has gone through several transformations recently. The most current research supports nature-based learning in a place-based setting (Hjarding et al., 2015). This style of teaching can support marginalized citizens to engage in activism that improves the health of their communities (Pellow, 2016). Teaching in a nature-based way can improve the mental health of students by reducing stress and lessening the effects of trauma (Miller, n.d.). Learning outdoors in a setting close to where one lives can improve the physical health of its residents (Mayer et al., 2009). Activity levels and positive physical habits can increase by learning outside (Mygind, 2007). This next section will explain how adult learning can be supported and encouraged through the use of a website.

Theory and Framework

There are several components to adult learning, including the “acquisition of three domains: knowledge, skills, and attitudes” and all learning should encompass all three (Taylor and Hamdy, 2013, para. 5). Taylor and Hamdy continue to describe one type of learning theory, called self-directed learning. This type of learning encourages introspection and self-reflection, and it allows the student to make their own choices in their learning. They continue to describe another type of adult learning described as self-determination theory. The basis of this theory is allowing the student to have options, expertise, kinship and connection. Grouping information on a website is a good way to combine both of these theories of adult learning into an easy to access source.

Websites can provide adult learners with a sense of confidence in their learning. They can give the learner a feeling of control over the way they assemble knowledge. This use of control gives power to the student as they construct their own learning through self-selected channels, sources, videos, articles, and podcasts (Chou & Tsai, 2002).

Project Description

It is often difficult to locate resources specializing in nature-based learning. The goal of this website is to be easy to use, focused on the current best practices of environmental justice, and streamlined for effortless access. It provides interesting content that can inspire educators to incorporate nature-based learning into their curriculum and daily lives. It can be accessed by teachers, parents, and community members interested in providing children with a nature-based experience.

It isn't easy for educators to find quality resources in one location. Hours can be lost looking for ideas or just the right content to share with students. This website provides an organized space to inspire, inform, and encourage great teaching.

Evidence gained from the literature review guided the categories of the website. The three main categories posted on the website are Environmental Justice, Physical Health, and Mental Health. The website subcategories include Nature-based Social Justice Resources, Art-based Environmental Education and Environmental Justice Resources, Nature-based Movement Resources, Nature-based Positive Habits Resources, Nature-based Stress Reduction Resources, and Nature-based Trauma Sensitive Resources. This website is created to support educators in implementing nature-based learning.

Environmental Justice Activities

The first category on the website gives some historical background and current information about environmental justice. The misuse of resources and lack of protection against environmental abuse because of income or appearance is considered Environmental Injustice (Hjarding et al., 2015). There are many ways environmental injustices affect marginalized neighborhoods all over the country. Proximity to train lines, interstates, and industrial buildings, waste material disposal sites like landfills, garbage lots, and junk yards, and limited access to public parks and recreation areas all contribute to this increased risk of environmental threat (Hjarding et al.). Communities enduring environmental injustice often feel like their voices go unheard. Citizens in affected areas are not typically the ones negotiating cleanup and compensation leading to worse conditions for the residents (Banzhaf and Timmins, 2019, p. 200). When citizens are able

to stand up for themselves in ways that combat environmental injustice, the movement is called Environmental Justice (United States Environmental Protection Agency, 2022).

The website links and resources are focused on ways to improve the quality of life for all people. This section provides historical content, action steps to improve the environment, and resources to share with students.

Nature-based Social Justice Resources

The first subcategory is focused on social justice. Social Justice, or better defined as Critical Environmental Justice, acknowledges that we are not all affected with the same potency, that we can see greater examples of negative consequences world wide by narrowing in on specific communities or “barrios, indigenous peoples’ lands, and much of the global South” (Pellow, 2016, p. 228). Critical Environmental Justice supports urban environmentalists through social actions that shine light on environmental racism, power inequalities, and oppressed citizens, to increase greater freedom and political change. The social justice category includes nature-based social justice resources. These resources provide information about environmental racism and ways children can take action against these historical traumas. It includes videos, books, articles, and lesson plans that help educators teach children about the historical events that lead to environmental racism and ways to take action.

Art-based Environmental Education and Environmental Justice Resources

The second subcategory listed under the Environmental Justice category on the website centers on art-based environmental education and environmental justice resources. Art-based environmental education or AEE allows us to include all communities through social justice. Changing the way we interact with the Earth by

emphasizing the interconnectedness of everyone and everything in it, could improve the way we care for the environment (Anderson and Guyas, 2012). Social justice is an integral part of AEE. If we create place-based environmental art curriculums, we can “engage imagination and interactions that cultivate aesthetic interactions between children and the spaces where they live ” (Trafi-Prats, 2009, p. 19). Teaching art-based environmental education curricula within our own communities can create artists that are able to make social changes that can increase the well-being of the whole child. This set of resources focus on art-based environmental education. Sources linked in this section include anti-racist art examples, artists working in natural settings using found materials that highlight pollution, artists working in natural materials utilizing the beauty of the natural world, and lesson plan ideas to involve children in creating art in nature.

Physical Health

The physical health category explains the health benefits of learning outside and the ways educators can encourage movement within different subjects. Nature has a long history of benefiting human health. We have spent six to seven million years evolving within nature, only to move indoors as we know it, a few hundred years ago (Song et al., 2016). Our history has prepared us for living outside, but our modern lives keep us inside for most of the day. There are numerous benefits of being in nature, “(1) it decreased the levels of salivary cortisol, a typical stress hormone; (2) it decreased the pulse rate; (3) it decreased the systolic and diastolic blood pressures;” (Song et al., Forest Therapy section, para. 4). This biological evidence supports nature's positive effect on the body. Not only should we be outside, but we must be outside to keep our bodies regulated. This

section includes nature-based curriculum, activities, and examples of ways to encourage physical activities in nature.

Nature-based Movement Resources

Spending time learning in nature can increase physical activity in children. Learning outside allows students to move more than twice as much as learning inside during a typical school day (Mygind, 2007). When students learn outside, the activity is pretty constant and at times the students can have short amounts of high activity (Mygind, 2007). While learning inside, the activity level of some students is consistently low throughout the day (Mygind, 2007). Nature-based learning can benefit obese students because they may not realize their physical activity is increasing while they are learning outside (Mygind, 2007). Nature-based learning can provide all students with consistent opportunities to move their bodies without the dread of planned physical activity. The subsection, nature-based movement resources, provides lesson plans, websites, videos, and motivation to encourage children to move their bodies outside. This section is full of simple ways to encourage movement through play.

Nature-based Positive Habits Resources

The subsection Nature-based Positive Habits Resources provides examples and encouragement for educators to implement nature-based routines into their own curriculum. Learning in nature on a regular basis can alleviate fears or concerns associated with being outside. Nature-based learning is a safe option for parents that worry about the safety of their children playing outside (Sharma-Brymer and Bland, 2016). Child development experts recommend consistent nature exploration and exposure to outdoor play from a young age in order to build healthy adults (Sharma-Brymer and

Bland, 2016). The more children experience nature through positive experiences, the more likely they are to experience nature again on their own. This section highlights activities like nature journaling, volunteering outdoors, and presents information that describes the importance of creating positive habits that include time outside.

Mental Health

The last section provides resources for improving mental health through nature-based learning. Spending more time outside in an educational setting can reduce the amount of stress burdening our students (Sobko, 2016). Learning outside can promote creative thinking, problem solving strategies, and an overall sense of confidence in children (Byron and Foutz, 2015). It is important to allow children to spend time in nature to preserve their mental health (Louv, 2013). Teachers should use the same outdoor spaces often to build routines and comfort for their students (Stallcup, 2021). Learning in nature can increase the well-being of students that have experienced trauma. This section presents curriculum, articles, and other resources that highlight the healing effect of nature on mental health by reducing stress and coping with trauma.

Nature-based Stress Reduction Resources

Children carry an enormous amount of stress around with them. Reduced physical activity and a recent pandemic contributed to the stress young people feel (Povšič, 2022). Spending more time outside in an educational setting can reduce the amount of stress burdening our students (Sobko, 2016). The subcategory Nature-Based Stress Reduction Resources lists articles, lesson plans, tips, curriculum, and ideas for getting children outside to promote stress reduction. This section dives into concepts like forest bathing,

exploring nature with your senses, and how to cope with big feelings around climate change and ways to empower children to create change.

Nature-based Trauma Sensitive Resources

The last subcategory, nature-based trauma sensitive resources, provides education and action to support children experiencing trauma. Nature-based play, trauma therapy, and the intersection between the two are important concepts for today's educators. Stallcup (2021) explains, "when therapy is held outdoors, nature becomes the therapeutic container holding the therapeutic process" (p. 42). This basic understanding of each concept is relatable and the connection between the two are specifically explored. Playing in nature can have a calming effect on students. Nature can help those who have experienced or are experiencing trauma. This section includes articles, activities, and videos that promote an awareness of self and connection through a natural setting, encourage empathy, and provide information about nature-based play therapy.

Setting Audience

This website is geared towards professionals, teachers, caregivers, childcare providers, parents, and any other adult looking for ways to incorporate nature-based learning into their teaching. The website is grouped by categories and is filled with resources, articles, links to other websites, videos, lesson plans, podcasts, and books that provide insight into nature-based learning.

Timeline

The website was constructed within 3 months, but the information was gathered over several years of experience and practice stemming from my own work with students in an elementary classroom. New articles will be added and ineffective information will

be deleted as these resources are continued to be utilized. Feedback from an online survey will be gathered and content adjusted to improve visual effect and ease of use.

Assessment

An online google form survey is linked to the website to collect feedback. A selected group of individuals have been asked to explore the website and provide feedback at three different points throughout the beginning months of the website's creation. The group was asked to complete the form in June, July, and August, 2023. The information provided by this survey adds to the evolution of content and organizational ease today and as a continued point of maintenance for the website. Information is constantly being updated and this tool ensures this website will continue to remain current.

Summary

The website I created can support educators in implementing nature-based learning. It is full of a variety of resources for educators looking for content on the three main categories of Nature-based education. Environmental Justice, Physical Health, and Mental Health are the three main topics covered on this website. The subcategories included are Nature-based Social Justice Resources, Art-based Environmental Education and Environmental Justice Resources, Nature-based Movement Resources, Nature-based Positive Habits Resources, Nature-based Stress Reduction Resources, and Nature-based Trauma Sensitive Resources. The website is easy to access and provides interesting content connected to nature-based learning. It can be utilized by teachers, parents, and community members interested in providing children with a nature-based experience.

This tool is intended to make it easy for educators to find quality resources in one location. It may save hours of time when looking for ideas or content to share with students. This website provides an organized space to inspire, inform, and encourage great teaching. This chapter explains the website project I created to address the question, *How can educators implement nature-based learning to increase the well-being of the whole child?*

In the next chapter I will reflect on the findings from the implementation of the website. I will discuss implications, limitations, related research projects, results, and benefits of the website.

CHAPTER FOUR

Conclusion

Introduction

This final chapter concludes the findings from my research process. It explores unexpected learnings gathered from the literature review, makes new connections to my current profession, describes implications and limitations of presenting materials as a website, investigates future research projects, and provides recommendations, results, and professional benefits brought about by the experience of creating this capstone project.

As I began the research to develop my capstone project I was filled with questions about the ways learning in nature could benefit children today. I noticed that many students are bombarded with information delivered by technology and I often wondered in what ways these computer savvy pupils could benefit from time spent learning in nature. Throughout this process, I dove deep into the benefits of nature-based learning, specifically answering the question: *How can educators implement nature-based learning to increase the well-being of the whole child?*

Process

As our world moves towards a sedentary lifestyle, we fill our days with computer screens, video games, television monitors and personal devices like iPhones and tablets. It is easy to lose track of time on our devices sitting in our comfortable homes away from the unpredictability of outdoors. I questioned what this new way of living is doing to us and our children and whether we are helping students by keeping them comfortable. Children go from weather protected homes to structured classrooms, where they are asked to sit and listen silently, motionless. Some children can not contain the natural

energy they have inside of them, earning themselves labels like hyper, restless, or naughty. I started on this research path to explore better ways of learning to increase the well-being of the whole child. I wanted to understand how learning in nature might be the solution to promoting health for the next generation of students.

This was a relevant question for me to research because I had recently experienced the benefits of nature-based learning, but I did not quite understand the ways in which children benefitted. I had the opportunity to switch my traditional curriculum to outdoor education during the reintroduction of in person learning after the pandemic. I took all of my art classes outside. We did landscape art, drew nature, and created and painted snow sculptures. I saw students blossom in an outdoor environment. They became more relaxed and vibrant. The joy they expressed was immeasurable. They made deep connections that I would have never thought about teaching. I knew there were benefits to being outdoors, but the research I discovered along the way was more empowering than I expected.

Unexpected learnings

I came to understand that traditional environmentalism has focused on non-human components such as protecting and restoring natural areas, while not paying attention to inner city, low income and marginalized communities (Gallay et al., 2021). Our environmental concerns as a society have had great emphasis on non-human aspects of the environment. We have put less emphasis on the people living on the Earth than we have the Earth itself. As a solution to this problem children can be raised to see their connection to the Earth in a broader sense (Gallay et al., 2021). Urban environmentalists have additional challenges that encroach on the health and safety of their urban residents.

Pellow (2016) poses a new theory that combines Environmental Justice with views brought forth by the founders of the Black Lives Matter movement and by incorporating ideas from “critical race theory, political ecology, ecofeminist theory, and anarchist theory” (p. 221). Environmental Justice should be redefined creating a new category termed Critical Environmental Justice (Pellow, 2016). Critical Environmental Justice acknowledges that we are not all affected with the same potency, that we can see greater examples of negative consequences world wide by narrowing in on specific communities or “barrios, indigenous peoples’ lands, and much of the global South” (Pellow, 2016, p. 228). In these areas, the negative impacts of pollution are clear. We are currently experiencing varying degrees of environmental health because of the differences in the ways communities are treated. If laws are not changed to protect all communities the impact will be devastating. Environmental contamination knows no boundaries. If we progress at our current rate of pollution all neighborhoods could eventually be consumed.

My privilege has kept me unaware that safety issues can also be a barrier to environmental change. These hazards include air pollution, which can lead to health risks like asthma, and violence against BIPOC individuals occurring in natural spaces like urban woods or parks (Gallay et al., 2021). People living in urban settings might opt to stay inside because of these health risks. As I learned through this research, nature-based learning can be the catalyst to Critical Environmental Justice activism. Teaching outside and within local communities, especially those communities that have been discriminated against in the past, can create great change towards urban environmentalism.

Literature Review Revisited

Teaching urban youth in a city setting has been overlooked in the past. Some environmental educators have removed students from their urban communities because of beliefs that urban settings do not have adequate environments to appreciate, fueling misinformation about these environments (Thomashow, 2015, p. 26).

The literature review highlighted urban environmental education, emphasizing that when learning is nature-based and close to where students live, also called place-based, future citizens could become empowered (Gallay et al., 2021). Providing students with easy access to environmental opportunities can promote environmental protection and increase “environmental identities” (Gallay et al., 2021, p. 14). If we teach urban students outside, in their own neighborhoods, we can make the biggest impact on social change. This way of teaching can encourage students to become “community environmental activists” (Gallay et al., p. 14). This can lead to citizens taking the power back from distant decision makers, attending to the health and wellbeing of themselves and their communities.

Further trauma can be prevented by shining light on political systems and the origins of oppression. Education can lead people to better ways of demonstrating environmentalism and learning new ways to protect the Earth can allow for activism (Hjarding et al., 2015). This increased knowledge and connection to nature can allow communities to engage in environmental concerns (Hjarding et al., 2015). Environmental education with an emphasis on justice is essential for the future of our Earth and its citizens.

New Connections

As an elementary art teacher, I already knew that integrating art and nature is a logical pairing. Creating art in a natural setting can have many benefits, including increasing the health of the whole child. Taking children outside to enjoy the beauty of nature while creating art can enhance the experience of the student (Hunter-Doniger, 2021). Nature-based art education has a completely different set of expectations, feelings, experiences, and physical boundaries than traditional art classrooms. In traditional settings, students have little contact with nature, they sit in desks devoid of natural materials, in rooms with concrete walls, and they may only experience nature during set times, such as recess (Hunter-Doniger, 2021).

I was excited to discover research about the history of this pedagogical combination and how it has evolved from eco-art education to art-based environmental education (Hunter-Doniger, 2021). Eco-art education is the integration of “art education with environmental education as a means of developing awareness of and engagement with concepts such as interdependence, biodiversity, conservation, restoration, and sustainability” (Inwood, 2010, p. 34). While these basic concepts of ecology have been foundational to environmental education, they are limited in their access and inclusion. This way of thinking of the environment and expressing concern for the non-human aspects of environmental conservation alienates several groups of citizens including African American and Latinx urban youth (Gallay et al., 2021).

I learned that eco-art takes the people out of environmental learning, while art-based environmental education or AEE allows us to include all communities through social justice. Changing the way we interact with the Earth by emphasizing the

interconnectedness of everyone and everything in it could improve the way we care for the environment (Anderson and Guyas, 2012). Social justice is an integral part of AEE. If we create place-based environmental art curriculums, we can “engage imagination and interactions that cultivate aesthetic interactions between children and the spaces where they live ” (Trafi-Prats, 2009, p. 19). Teaching art-based environmental education curricula within our own communities can create artists that are able to make social changes that can increase the well-being of the whole child.

Implications

The website I created for my capstone project is intended to be used as a resource for teachers, caregivers, and anyone seeking nature-based content for kids. High quality materials have been gathered in one location to save time and energy. The sections on Nature-based Social Justice Resources, Art-based Environmental Education and Environmental Justice Resources can influence policy change by bringing awareness to social justice issues and providing concrete action steps to encourage educational transformation.

Limitations

Websites fall into the type of learning theory called self-directed learning (Taylor and Hamdy, 2013). This type of learning encourages introspection and self-reflection, it allows the student to make their own choices in their learning (Taylor and Hamdy, 2013). Grouping information on a website allows adult learners to easily access sources, but this also means that they can make choices about what parts of the website they want to access. If a teacher has implicit bias they may avoid categories that make them uncomfortable, sheltering their students from important information.

Future Research Projects

Creating this project has inspired me to think of other areas that need attention. I would like to continue to gather resources for educators, highlighting place-based environmental art curriculums and social justice advocates. There are numerous local artists creating beautiful work while inspiring social change. My friends and colleagues could benefit from having easy access to these resources. This is the next step in high quality art teaching. There is not enough attention on art-based environmental education as a means to social justice at this time. I would encourage others to add their resource ideas to the internet for all to enjoy.

Results

I will do my part to share the sources I have gathered. I will add my website to my personal and professional email signature. I will share my website within my professional learning communities. I will link my website on my social media accounts. I will intentionally share my websites with my future student teachers. I will encourage others to add, share, and create content on art-based environmental education with an emphasis on social justice. I will share the resources I have gathered with my own children and I will create lessons based on my website contents to share with my students.

Professional Benefits

With the current political divide pushing citizens further apart on the topics of social justice, environmental education, and the rights of all Americans, the intention of this research is to provide opportunities for educators to find information that supports all children. This website gives concrete evidence of research looking into aspects of health as it relates to nature, specifically the impacts of environmental injustice, historical

trauma and mental health on students today. It investigates one's ability to interact with nature in a positive way and reduce stress after the impact of trauma. It seeks to understand the connection between mental and physical health and spending more time outside. It dives into positive habits developed through nature-based learning. This website was designed to bring awareness of the impact of nature-based education on the well-being of the whole child.

Conclusion

This concludes the findings from my research process. I have explored unexpected learnings gathered from the literature review, made new connections to my current profession, described implications and limitations of presenting materials as a website, investigated future research projects, and provided recommendations, results, and professional benefits brought about by the experience of creating this capstone project.

When I began the research to develop my capstone project I was filled with questions about the ways learning in nature could benefit children today. I have provided a set of materials presented in a website format that dives deep into the benefits of nature-based learning, specifically answering the question: *How can educators implement nature-based learning to increase the well-being of the whole child?*

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