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Increasing Student and Educator Participation in Outdoor Classroom Spaces Through Teacher Education and Community Connection

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Increasing Student and Educator Participation in Outdoor Classroom Spaces Through
Teacher Education and Community Connection

by

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A capstone submitted in partial fulfillment of the requirements for the degree of Master
of Arts in Education: Natural Science and Environmental Education

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“Be praised, my Lord, through all your creatures, especially through my lord Brother Sun, who brings the day; and you give light through him. And he is beautiful and radiant in all his splendor! Of you, Most High, he bears the likeness.

Be praised, my Lord, through Sister Moon and the stars; in the heavens you have made them, precious and beautiful.

Be praised, my Lord, through Brothers Wind and Air, and clouds and storms, and all the weather, through which you give your creatures sustenance.

Be praised, My Lord, through Sister Water; she is very useful, and humble, and precious, and pure.

Be praised, my Lord, through Brother Fire, through whom you brighten the night. He is beautiful and cheerful, and powerful and strong.

Be praised, my Lord, through our sister Mother Earth, who feeds us and rules us, and produces various fruits with colored flowers and herbs.

Be praised, my Lord, through those who forgive for love of you; through those who endure sickness and trial. Happy those who endure in peace, for they will be crowned.”

— St. Francis of Assisi

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CHAPTER ONE

Introduction

The purpose of this capstone is to explore methods for increasing student and educator engagement in outdoor classroom spaces with a specific emphasis on the primary grades. This research is intended to be used by public school teachers who do not necessarily have a science background for the advancement of integrated natural science and environmental education. I aim to answer the question: *How can urban elementary educators take advantage of schoolyard resources for integrated place based learning experiences?*

The benefits of using outdoor classrooms with young learners have been well documented, and yet the prevalence of participation in outdoor education during the school day still lags behind. Educators face a wide range of barriers to implementation (Patchen et al., 2022).

This capstone addresses the discrepancy between the research which overwhelmingly supports outdoor learning and the common current practices. It is vital for schools to examine their current models and implement a more research based approach. Educational systems must ensure holistic wellbeing of the child and the wellbeing of the communities in which they operate. A shift to integrated outdoor learning experiences can provide a pathway to a more holistic and culturally sustaining educational experience. New evidence based approaches have the potential to increase student and educator engagement in outdoor classroom spaces and provide these positive effects.

In order to examine the root causes of the discrepancy, I explore the historical and present day aspects of the outdoor education movement, and use the research to inform recommendations and teacher development methods for effective integrated outdoor experiences. To this end, I share best practice and current practices, as well as some current pressures within education that decrease participation and engagement in outdoor spaces during the school day.

Personal Background

I approach this research from the position of someone with a complex relationship with education, and a deep and powerful relationship with the natural world. For me, nature and education are deeply connected to my spiritual beliefs and worldview. My beliefs about nature are essentially Franciscan, and my ideological framework is distributist. Franciscan views of nature recognise the interdependence of all life and its intrinsic goodness. From this vantage point nature is not seen as separate from humanity, but more of a fraternal relationship. Distributism centers these spiritual values over that of the economic. This is contrary to the current realities in which we live that center the economy as God and nature is seen as a resource to serve that God.

I was born to White working class parents who were members of the back-to-the-land movement. They built a house “on the land” in West Virginia. It was a little A-frame cabin with no water or electricity. My earliest memories are of living in an old farmhouse in rural Minnesota. We moved a couple more times after that, but we always lived in rural areas with lots of wild spaces to play. As a result of this background I had strong connections to the natural world as a young child. I had ample time to play in

the woods and spent my days building elaborate forts, and engaging in other immersive activities such as digging up clay to make pottery, and climbing trees.

Another consequence of my upbringing is that I had a lack of connection to the formal educational world. I was sent to public school, but because of my upbringing I was disconnected from the culture there. My parents were voracious readers and lifelong learners who could build, cook, repair, discuss anthropology, history, art, and science, but they were not college graduates and I did not have a college savings account. I did not have any help or support in pursuing post-secondary education. As a result of my disenfranchisement with formal education and my inability to see its relevance, I dropped out of high school.

I eventually earned my highschool diploma and when I walked across the stage to receive it I was five months pregnant with twins. I did not pursue college until my twins were in kindergarten. I thought perhaps I should pursue a nursing career because I had experience working in activities coordinating at a nursing home and I enjoyed volunteering in other medical care settings. So I began coursework at the community college level taking beginning math courses to catch up, and some general courses that would apply to a nursing degree. I was viewing formal education at this point as a means to an end. I would get career training and qualify for a higher paying job. Education at this point in my life equaled power for me. I surprised myself by being successful in my studies and developed a sense of pride in my academic accomplishments. I was the only person in my immediate family to pursue a college education.

While I was experiencing success in this new way it caused me to reflect on my love and passion for learning outside of formal education. I wasn't as behind as I thought

I would be because I had never stopped reading and learning independently. For me, learning was something I did for fun, and deep down I knew I didn't really view knowledge as power, but instead as contemplation. From this place of understanding, curiosity, and love of learning, I decided to become a teacher instead.

It is relevant to note that I did not have any instruction in outdoor education in my preservice teaching courses. I personally learned a lot about outdoor education by making mistakes and navigating new challenges as I encountered them in my teaching career. I also sought out professional development opportunities after becoming a teacher to support growth in this area.

Professional Background

I began my teaching career in urban education in 2011. I spent most of my career as an elementary science teacher in a large urban school district. I taught for a decade at a school that is a longstanding African American institution in the Frogtown-Rondo neighborhood of Saint Paul. When I started there it had the highest poverty level of any school in the area and continued to struggle with high rates of related issues throughout my employment there. For example, the mobility index which highlights the percentage of students who enroll or leave during the school year was almost 60% at this school (SPPS, 2022).

The reasons that our community faced these challenges are long and complex. The school itself was situated right on Interstate 94—a freeway that was put right through the heart of the neighborhood back in the 1950's and 60's, displacing Black families, and permanently impacting its residents for generations to come (Cavett, 2005). The

relationships between the community and the history of the land and the neighborhood's relationship to the school were all interconnected.

Teachers at our school rarely used the outdoor space beyond the playground. The outdoor space beyond the playground consisted of a rundown soccer field and some small lawn areas between the building and the sidewalk. The sidewalk directly abutted the street with no sidewalk buffer. Using the outdoor space was fraught with difficulties. One prominent barrier was the noise and fumes of the freeway itself. Additionally, the school was on the corner of an unsafe intersection. The grounds were strewn with litter that was dangerous for children such as glass alcohol bottles, condoms, and lighters.

My First Teacher Project

One of my first projects involving outdoor education at the school was building a school garden. I wanted to carve out some usable outdoor space so that students could make real world connections to their science studies. I was allowed to use a small space in front of the school to install some new raised beds for a vegetable and flower garden. With the help of community organizations such as the Urban Farm and Garden Alliance, the Aurora St. Anthony Children's Peace Garden, Community Stabilization Project of St. Paul, Peace Corps volunteers, and University of Minnesota Master Gardener volunteers, a garden was born.

Each spring my students and I would start seeds in the science room and nurse them along on light carts in a sunny window until the soil outside was warm enough to begin planting. We donated our surplus plants to the Urban Farm and Garden Alliance, so renters in the area had access to free plants. Additionally, two of the beds in our garden were given to renters in our area to use and plant as they wished. Within this framework

the garden thrived as an outdoor science lab for a decade. We hosted garden tours, and family night activities in the garden and had lots of happy times there.

While the garden was a wonderful resource for me as a science teacher and our community, it was still an underutilized space at our school outside of science instruction. Classroom teachers were not using it, and when I left to teach at another school during the pandemic, the garden fell into disrepair and was eventually removed. Ultimately, the lack of participation and buy-in from classroom teachers led to the garden's demise, despite the massive benefits it had for students and community.

A New School But a Familiar Issue

When a veteran science teacher on the east side of St. Paul contacted me and said she was retiring and wanted me to consider taking the position, I was curious about the outdoor education opportunities there. This school was situated on a large nature preserve with access to a pond and large wooded area.

I began my new position there teaching online under pandemic restrictions. When I finally was able to be on campus the following year I was surprised to learn that the amazing and abundant resources that had attracted me to the school were not being used by classroom teachers. Curious to learn more about supporting students outdoors, I applied for a mentor through *Teach Outdoors! Minnesota*, and I was matched with the education director of a nearby nature center. My mentor helped me explore my new resources and carve out some outdoor learning spaces in the woods. He also helped me with learning techniques and strategies for classroom management in less defined outdoor spaces. With his encouragement and guidance, I took students out regularly and incorporated outdoor experiences for students into each grade level. I wondered how I

could share what I learned, and get other teachers to join in taking their students outdoors.

As I contemplated this, our school was also in the midst of a transition with lots of staff turnover and two first year principals back to back. Our school lacked leadership to pursue utilization of this resource.

A Successful Model

The spring before I left my eastside school, I got administrative permission to pursue some grant money to install a school garden. I gathered together a team of interested staff members who wanted to see a more integrated outdoor education focus developed. Together we visited an urban school just outside Minneapolis with an innovative outdoor immersion program. I also had the opportunity to interview their principal. The school had received media attention for their innovative shift to outdoor immersion for their kindergarten cohort (meaning students spent most of the day outdoors) and were planning on expanding the program to first grade the following year. The school had goats and chickens, and inspiring outdoor classroom spaces and gardens.

The principal explained that they had a district superintendent who supported innovation, so that he as a principal could support his staff in making change. They also had a kindergarten team that was educated on the social emotional benefits of outdoor education and motivated to make change. The principal said that his biggest takeaway was that behavior improved exponentially with the move to outdoor education. Students and families were happy according to survey data, and he was happy that the innovative change was drawing lots of positive media attention (Nolan, personal communication, 2022).

Current Challenges

Inspired by this progressive model I decided to change gears and pursue my dream of developing more integrated learning opportunities outside of the science specialist role. I accepted a first grade classroom position at a school in the West Side neighborhood of St. Paul. This school is located in an urban neighborhood setting that shares space with a generous city park and recreation lot. A youth gardening organization also operates a small garden and greenhouse on the premises and I received a garden grant to install a pollinator garden in the spring. I was excited to have the opportunity to explore outdoor education through a different lens.

At this school I encountered lots of enthusiasm about the *idea* of outdoor learning, but once again it was not a common practice here either. However, I have gained perspective and experience. Now I can further investigate what gets projects moving and the advocacy groundwork that needs to be developed in order for teachers to develop new practices.

Common Threads

As I reflected on my experience at all three schools I noticed that having abundant outdoor resources didn't necessarily mean that they were used more, so why weren't teachers regularly taking students outdoors? What factors create a recipe for success?

It is worth noting that all three of the schools that I taught at were high poverty schools as measured by free and reduced lunch data available through the district (Saint Paul Public Schools, 2023). Students at these schools are perceived as beginning school already behind because they didn't come to school with the reading and math skills of

their higher socioeconomic status (SES) counterparts. This deficiency model is the foundation of popular efforts in Minnesota such as universal preschool (Antonsen et al., 2021). The rationale is that students are behind and need to get caught up so we should start them in traditional education centers earlier. This view permeates urban education and forces teachers to focus on teaching to the test. Successful programs will need to address the perceived barriers due this deficit model.

Advocacy is needed to both educate teachers about the positive impact of time outdoors, but also about how the deficit model limits teacher agency and prevents teachers from taking students outdoors. Once teachers have an opportunity to truly integrate these practices, true holistic changes can begin to take place. Teachers could also benefit from supportive mentors and community connections.

Rationale

Integrating outdoor learning into the school day has a great impact on the overall health and wellbeing of students. Benefits of outdoor learning include improved academic engagement and attention, stress reduction, improved connection and relationship to the natural world, as well as the development of lifelong pro-environmental and stewardship behaviors.

Given the known benefits of time outdoors for children, advocacy and resources are needed for change. Outdoor integrated learning is a resource that is not yet utilized to its full potential. Aspects of my own personal experiences and observations cause me to reflectively consider further investigation. These experiences have also led me to specifically investigate strategies such as mentorship, the importance of community connections, and the pervasive impact of deficit models. I have proposed and developed

resources and professional development for teachers and other advocates based on this research.

Introductory Conclusions

In conclusion, this capstone investigates pathways for teachers to embrace integrated schoolyard learning experiences. It is my intention to gather research to use for on the ground advocacy in my own school and community. For the purpose of this capstone I'm going to focus solely on urban elementary students and teachers in the United States.

In the next chapter I will review the literature on the topic of integrated outdoor education for children. I will take a closer look at the research that supports the benefits of these teacher practices on the overall health and wellbeing of the child, and also examine the history of outdoor education. To bring the conversation up to date I will also examine more emergent place based models and the EcoJustice movement—looking at how these issues connect to culturally relevant instruction and asset based pedagogies. Finally, I will discuss implementation strategies and look at some commonly reported barriers teachers face in providing integrated education to their students.

Subsequent chapters will propose specific methods for addressing these barriers in the form of targeted teacher training that establishes a community of support. I will explain how this professional development for general education teachers aims to aid in the development of teacher advocates and leaders in the field. Finally, I will share my reflections on the limitations of the scope of this project and recommendations for future research.

CHAPTER TWO

Literature Review

Introduction

Given the known holistic health and wellness benefits of time outdoors for children as introduced in chapter one, further research is needed to construct a plan for advocacy to advance the effectiveness of urban public education. This research aims to close the gap between these known benefits about learning time outdoors for children and the current lack of utilization of these methods and resources. In order to attempt to answer the question, *How can urban elementary educators take advantage of schoolyard resources for integrated place based learning experiences?* I will examine the research that explains the extensive benefits of outdoor education. I will also look at the history of teaching children outdoors, and what research says current best practice is. Additionally, I will research the keys to teacher motivation to use outdoor resources and integrated learning strategies, and the barriers that affect implementation. The reasons teachers may see these opportunities as valuable or not is influenced by larger social constructs as well as individual experiences. Finally, I will explore potential evidence based solutions for integrated outdoor learning.

Defining Integrated Outdoor Education

Integrated outdoor education in a general elementary setting may look different than other forms of outdoor education, such as environmental education. Integrated outdoor learning in this setting may take the form of using an outdoor space to do things

that would regularly be done in the classroom; such as, reading a story outside. It could also be further integrated to incorporate learning about the natural world as new classroom concepts are introduced. For example, first graders studying measurement in math might measure and record tulip growth in the spring or go outside to do nature observations and journaling as part of a nonfiction writing unit.

Benefits

The benefits of outdoor learning for children have been touted by many prominent influencers in education over the years including Dewey, Froebel, Steiner, Montessori, Rousseau and Malaguzzi (Ernst, 2013). Outdoor learning has numerous benefits which include positive behavioral and academic outcomes, holistic wellbeing, physical health, and an increase in pro-environmental behavior. Pro-environmental behavior can be defined as measurable actions or changes in future behavior such as volunteering for pro environmental causes or recycling (Loose et al., 2023). A recent extensive review of research spanning the last twenty years concludes that the benefits of outdoor learning are measurable and consequently should be included in every child's educational experience (Mann et al., 2022.).

Engagement and Attention

One of the benefits of time spent learning outdoors is that it improves subsequent classroom engagement as measured by attention and behavior after returning to a traditional classroom setting. A study by researchers at the University of Illinois investigated the benefits of learning outdoors—paying specific attention to student behavior after returning to the classroom. They wondered if a popular teacher perception

was true, are students more keyed up and less able to focus after returning to the classroom environment after outdoor adventures? The study results showed that the opposite was true. It was found that after teaching lessons in nature teachers were able to teach for twice as long with less interruptions and redirections. Students benefited from learning the curriculum outdoors as it also strengthened their capacity to learn indoors (Kuo et al., 2018). This then runs counter to common teacher perceptions that time outdoors away from the classroom winds students up and decreases the effectiveness of subsequent lessons. Additionally, students do not need to be specifically learning about the environment or nature to see these attention benefits. For example, simply taking a language arts lesson outdoors reduces off-task behavior and results in fewer teacher redirections (Largo-Wight et al., 2018).

Positive Outcomes for Attention Deficit Hyperactivity Disorder

The positive effects of nature on engagement and attention also extend to students who struggle with focusing on tasks the most. These benefits have led some people to refer to green space exposure as “nature’s ritalin”. Students with attention deficit hyperactivity disorder (ADHD) see improvement in focus and concentration after spending time outdoors (van den Berg, & van den Berg C.G., 2011). In fact, in another study where children with ADHD symptoms were given matched physical activities in natural and built spaces, a greater benefit and relief of symptoms was seen in the activities in natural spaces (Kuo, & Faber, 2004). These positive effects also extend beyond attention to other aspects of mental health.

Mental Health and Wellbeing

Spending time outdoors increases the overall wellbeing of teachers and students, and teachers report a greater sense of wellbeing teaching outdoors. (Largo-Wight et al., 2018). In an academic study published with grant funding from the Environmental Center in North Florida, Largo-Wight looked at the effects of outdoor learning on wellbeing. Several mechanisms, or processes were found to contribute to human wellbeing including stress reduction, connection to the natural world, and improved mental and emotional processing. (Largo-Wight et al., 2018). This study was conducted by having teachers teach a lesson they would have normally taught in the classroom outdoors and comparing the results with teachers who taught the same subject indoors. Teachers in the outdoor group reported greater student and personal wellbeing in post-lesson surveys. This study is particularly relevant because it demonstrates that nothing extra needs to be done in order for benefits to be seen from taking learning outdoors.

Stress Reduction Theory

Another proposed mechanism for the benefits of time spent learning outdoors is stress reduction theory (Bratman et al., 2010). This theory states that there is evidence that points to an innate preference that humans have for natural settings that may be an evolutionary psychological adaptation that takes place at the precognitive level. These precognitive responses to natural spaces cause autonomic nervous system responses that reduce stress (Bratman et al., 2010). Aspects of this evolutionary process could be seen as an untapped resource for populations of students who face more chronic stress as a result of lower socioeconomic status (SES).

Connection and Relationship With the Natural World

Another mechanism theory is that feelings of connection and relationship with the natural world are actually fulfilling primary human psychological needs of inclusion and belonging (Bratman, et al., 2021). This sense of belonging can be beneficial and contribute to increased emotional regulation. Feelings of student belonging can be difficult for teachers to cultivate for their students and public schools have recognised that more time and resources need to be devoted to developing these connections in order for other high quality learning to take place (Hammond & Jackson, 2015). I think that this offers another lesser explored pathway that could help to develop feelings of connection beyond human-to-human relationships.

Mental and Emotional Processing

Nature exposure can also affect mental and emotional processing. In fact, being in nature can help people to reflect and problem solve. In a study where participants were asked to reflect on a life problem in different settings, it was found that more natural settings helped participants resolve issues more quickly than ruminating on the same problem indoors (Mayer et al., 2009). This benefit holds a great deal of potential to contribute to socioemotional health of young children. Giving students alternative ways to resolve issues more effectively can contribute to mental states that are more ready to learn. For example, an emotionally dysregulated child taken to a natural space to resolve their issue would be able to return to learning more quickly.

Regardless of the mechanism, students who spend time outdoors for instruction during the school day experience improved mental health as measured by reduced mental disorder symptoms, increased prosocial behavior, and reduced hyperactivity. Spending

learning time outside also decreased peer conflict among disadvantaged children (Loose et al., 2023).

Pro-environmental Behavior and Stewardship

Pro-environmental and stewardship behaviors can be defined as measurable actions or changes in future behavior such as volunteering for pro environmental causes or recycling (Loose et al., 2023). Stewardship actions are behaviors that demonstrate a conscious decision to minimize one's impact on the environment (Fang et al., 2021). Stewardship behaviors can be developed by recognising the positive effects of time spent outdoors (Panno et al., 2020).

A recent research study looked at the effects of spending time in an urban park setting on cognitive reappraisal and its subsequent restorative effects. Cognitive reappraisal is an emotional regulation strategy by which one can gain perspective on a problem or issue by viewing it in a more objective way (Forgas et al., 2011). Results showed that people who experienced the restorative effects of the park setting on the effectiveness of their cognitive reappraisal first hand, also had a subsequent higher level of pro-environmental behavior (Panno et al., 2020). In fact, the more an individual is aware of the useful or utilitarian benefits of nature exposure and experiences its effects—the higher their subsequent level of pro-environmental behavior (Panno et al., 2020). When applied to integrated elementary education, this shows that regular guided experiences in outdoor settings with opportunities for students to reflect on their own perceived benefits could produce community members who value their environment more and act on those values.

Stewardship behaviors are conversely negatively impacted by reduced time outdoors and increased screen time. Studies that examine factors such as time spent on a smartphone have shown that more time spent on a smartphone actually increases feelings of disconnection from nature and negatively impacts levels of pro-environmental stewardship behavior. This is true for both children and adults (Fang et al., 2021). Meanwhile, school districts across the country have pushed to implement one-to-one technology—where each student has their own device. In my school district each student has an iPad to use—yet students do not have equitable and consistent access to learning time outdoors beyond recess.

Physical Health

Spending learning hours outdoors has been shown to contribute to better physical health. Investigations into the mechanisms of these benefits have uncovered new insights. One mechanism, or process, is somatic wellbeing. Somatic wellbeing is the health of the somatic nervous system. This system involves things you can consciously sense and do as opposed to your autonomic nervous system which works without us thinking about it. It is a subdivision of your peripheral nervous system. This system sends information to your brain in the form of smell, sound, touch and taste and also helps to control muscle movement (Cleveland Clinic, 2022).

Somatic wellbeing is demonstrably improved by exposure to daylight which then increases sleep quality (Jucker & von Au, 2022). Children typically spend their school day in what could be called biological darkness—which is not sufficient enough to regulate their circadian rhythms (Wirz-Justice, 2022). When I interviewed the principal at the outdoor immersion school in a neighboring metro district about their outdoor

immersion program he remarked that parents had shared their experience of how well their children slept at night after spending most of their learning day outdoors. (Nolan, personal communication, 2022). This is likely a real world example of a zeitgeber effect. A zeitgeber effect is when something in the environment affects an organism's biological rhythms (Quante et al., 2019).

Children learning outdoors are also simply more physically active. In a study that used GPS devices and accelerometers to track activity levels of preschoolers in school settings throughout the day it was found that children were twice as active outdoors as they were indoors (Tandon et al., 2018). Increasing time outdoors increased time spent in moderate to vigorous physical activity (MVPA). Time spent in MVPA decreases the risk of childhood obesity and is related to other long term health benefits (Tandon et al., 2018).

Physical activity outdoors also lowers the level of the stress hormone cortisol, which contributes to stronger immune system responses and reduced absences to illness (Song et al., 2016). Reduction of stress hormones is also observed in natural settings without physical activity—so combining two stress hormone reducing elements, physical activity and being outdoors in a natural setting can increase the effectiveness of both pathways. These natural settings can include urban parks and gardens and do not need to be remote or difficult to access to observe benefits (Song et al., 2016).

Academic Outcomes

Learning outdoors can increase academic performance. Research on the effects of meaningful outdoor learning experiences on cognitive function indicate that improved memory and recall are benefits. This is a result of a deeper processing of the learning

experience due to a more engaged and relaxed learning experience that creates wider awareness of their surroundings (Hopwood-Stevens, 2013). One additional proposed mechanism for this cognitive improvement is that exposure to light is a zeitgeber that can also positively affect cognition (Wirz-Justice, 2022).

Benefits Conclusion

The benefits of getting children outside for learning include increased focus and attention, mental health and wellbeing, development of pro-environmental and stewardship behaviors, increased physical health and positive cognitive and academic outcomes. Considering these facts, school based outdoor learning shows great potential to be an equalizing factor for underserved populations.

In this section various proposed mechanisms for these positive outcomes were also examined, including increased light exposure which impacts somatic wellbeing and sleep cycles, increased physical activity, and improved emotional regulation. Despite this confluence of evidence a discrepancy remains between what is practiced in schools and the research. In order to understand this discrepancy the next section will explore the history of outdoor education.

Historical Perspective

Nature Study

At the turn of the twentieth century there were a great deal of changes taking place in children's education and in the public's attitude towards nature and the human condition (Kohlstedt, 2010). The relationship between humans and nature was changing

and the nature study movement reflected the shifting cultural priorities of the time. The underlying philosophy of the nature study movement was to cultivate appreciation and understanding of the natural world (Stevenson, 2007).

One of the first published works of nature study for elementary students in the United States was authored by educator Wilbur Jackman. With his publication of *Nature Study for the Common Schools in the United States of America* in 1891, the importance of nature study for elementary age children was introduced. Jackman stated, “The life, health, and happiness of the individual is dependent upon his knowledge of the things about him and upon the understanding that he has of their relations to each other and to himself” (Jackman, 1894).

The nature study movement was concerned with dispelling ignorance and superstition and introducing a value of the importance of studying and appreciating other life beyond human life. For example, Jackman took a strong stance against the popular “pistol practice” of the time and subsequent “indiscriminate killing” of wildlife. He believed the remedy for this undesirable behavior was education and an understanding of the natural world. Jackman saw education as the antidote for fear of nature and superstitious beliefs that centered humans. He believed that when nature is perceived “as brute” it lends itself to an almost exaggerated regard for human life (Jackman, 1894). From fear to understanding and appreciation. The nature study movement built the foundation of later conservation movements.

Conservation

Conservation education in the United States became mainstream in the 1930’s. It was a response to the widespread destruction that was experienced due to early

industrialisation. Natural spaces were seen as threatened by human development—and rightfully so. Concerns about the effects of deforestation from logging, the extinction of many species from hunting, dust bowls, and flooding, led to the creation of state and federal natural resource agencies and other private conservation organizations (McCrea, 2006). This new conservation movement coincided with the progressive education movement led by John Dewey and led to many educational approaches still seen in environmental education today (McCrea, 2006).

The conservation movement promoted protection of natural areas and preservation from human destruction. These areas could only be enjoyed recreationally on a more limited basis. Many educational programs for children in the conservation realm use the environmental camp model, such as Boy Scouts, and regional environmental education centers. These educational programs often focus on building bushcraft skills, and naturalist education.

Critics of the conservation model point out that conservation education seeks to separate humans from the wilderness to protect the wilderness from human activity which counterproductively further disconnects humans from the land. Chris Sandbrook, a conservation and social scientist at the University of Cambridge writes “Contemporary conservation practice includes two important strategies: trying to separate people and nature in space (in order to protect nature) and in trying to reconnect people with nature (to promote human well-being and support for conservation)” (Sandbrook, 2015).

Through this lens we can see that the conservation movement contains a paradox where humans with good intentions to protect and conserve, actually create further disconnect from nature as less people actually interact with it.

Nature Deficit Model

In 2005 Richard Louv wrote his bestselling book *Last Child in the Woods*. In this book Louv proposed a thesis about nature-deficit disorder, a term he used to describe a theory where a lack of connection with nature is seen as a root cause of many ills, both physical and spiritual (Louv, 2005). In 2005 Richard Louv wrote his bestselling book *Last Child in the Woods*. In this book Louv proposed a thesis about nature-deficit disorder, a term he used to describe a theory where a lack of connection with nature is seen as a root cause of many ills, both physical and spiritual (Louv, 2005).

A subsequent evidence-based nature immersion study also supported Louv's theory. Time spent immersed in nature has demonstrated holistic health and wellbeing benefits (Warber et al., 2015). For example, students who spent time at nature based wilderness camps experienced positive effects that can counter the effects of our increasingly urbanized and technology driven society (Warber et al., 2015).

Critiques of this model parallel criticisms of the conservation model and point to its root causes. The cause of the problem is in seeing ourselves as separate from nature, and in the name of protecting nature we separate ourselves from it even more. The concept of nature being a separate "self-willed" entity separate from human consciousness is reinforced by the environmental education that is designed to overcome it (Fletcher, 2017).

Historical Perspective Summary

In this section the history of the movement in the United States to include outdoor experiences in education for children was outlined. Nature study, conservation, and the nature deficit model were discussed with attention also given to criticisms of these

movements. The next section will continue to outline the conversation that carries into the present day.

Current Discourse

This section will explore what the research indicates is the current academic discourse related to integrated outdoor education. I would like to draw particular attention to how these trends in the discourse overwhelmingly support the implementation of outdoor integration in elementary education. To this end, I will present an overview of place based models, indigenous contributions, ecojustice and culturally relevant instruction. In this section a concept will be developed of the critical elements that contribute to a holistic and integrated outdoor education.

Emergent Place Based Models

A significant amount of recent literature focuses on place based models for outdoor education. Place based practices utilize whatever resources exist locally and view human communities as a part of ecosystems. It uses the local environment as a starting point to teach concepts (Martusewicz et al. 2021).

Place based education can be defined by its features. The Great Lakes Stewardship Initiative's definition is:

“... a hands-on, inquiry based, contextually embedded, and community-supported approach to teaching and learning that occurs in and with a place or community, is about a place or community, and yields benefits for a place or community.”

(Lowenstein et.al, 2018).

Since it is connected to place and inquiry based, it can foster a community's civic engagement and benefit the community as a whole.

Just as the conservation movement was born as a reaction to industrialization, the place based model is also a reaction to industrialization—except this time it is a reaction to the industrialization of education itself. (Vander Ark et al., 2020).

Indigenous Knowledge

Contributions to the current prevalence of place based models owe a lot to the shift in academic intellectual discourse from that of western colonialism to postcolonialism (Johnson & Larsen, 2013). Indigenous voices have contributed to the full contextualisation of place and the concepts of positionality that are now mainstream in academia. This contribution also shows us that knowledge that is abstract and not connected to place can actually be seen as dangerous because it is no longer connected to its point of origin (Johnson & Larsen, 2013).

In Robin Wall Kimmerer's book *Braiding Sweetgrass*, she discusses how our perception of human relationship with the environment and human impact on the land influences the intellectual discourse on these topics. In the chapter Mishkos Kenomagwen: The Teaching of the Grass, Kimmerer illustrates how academic practices can be limited when they don't take into consideration different ways of knowing. In this story she presents a story of a female researcher presenting a proposal for a study of sweetgrass. The scientist was treated in a dismissive fashion because her proposal for the study was not considered a valid question in the eyes of the scientific community. The question the researcher wanted to investigate was the effect of human harvesting on sweetgrass. The proposal was dismissed because it was seen as a question with an already

known outcome. Of course, areas where humans impacted the grass would be negatively affected. However, at the end of her meticulously conducted study, the opposite was found to be true, the carefully and respectfully harvested sweetgrass plants grew more robustly than the unharvested control (Kimmerer, 2013). This story is a poignant example of how “facts” in academia can be socially constructed rather than evidence based.

These concepts are very much relevant to the current state of elementary education which focuses on skills such as literacy and math devoid of context and place. When subjects are devoid of practical application and aren't situated within firsthand experiences opportunities for true learning are lost.

Community Science

Community science, formerly referred to as citizen science, is another current pathway to place based outdoor education. The community science movement seeks to harness the power of the public to collect scientific data. The data collected by the community helps scientists answer research questions.

Community science can be integrated into instruction for math, literacy and social studies standards. In my first grade classroom, my students have been working on the Journey North Tulip Test Garden Project. This community science project collects data to track change in seasons and climate around the globe (University of Wisconsin, Madison, 2023). In the fall students planted a patch of Red Emperor tulip bulbs, and in the spring we watched for them to emerge and reported that emergence data to a community data collection website. We also reported the first bloom time.

Our learning experiences that integrated the tulip test garden were rich. Students journaled in their writing notebooks about the tulips beginning with fall planting, wrote

about the changes taking place in the spring. They wrote poems about tulips and calculated how much the tulips had grown between each observation.

EcoJustice

An ecojustice approach merges social justice and environmental justice and examines how environmental issues are created by cultural mindsets (Martusewicz, et al. 2021). Ecojustice approaches acknowledge the interconnectedness of environmental issues and social justice.

In *Laudato Si' On Care For Our Common Home*, an encyclical letter by Pope Francis, The Pope explores the interrelationships between “throwaway culture” in our industrialized world and global human inequalities:

“This is due partly to the fact that many professionals, opinion makers, communications media and centers of power, being located in affluent urban areas, are far removed from the poor, with little direct contact with their problems. They live and reason from the comfortable position of a high level of development and a quality of life well beyond the reach of the majority of the world’s population. This lack of physical contact and encounter, encouraged at times by the disintegration of our cities, can lead to a numbing of conscience and to tendentious analyses which neglect parts of reality. At times this attitude exists side by side with a “green” rhetoric. Today, however, we have to realize that a true ecological approach *always* becomes a social approach; it must integrate questions of justice in debates on the environment, so as to hear *both the cry of the earth and the cry of the poor.*” (Francis, 2015).

When an ecojustice approach is applied to the urban teaching environment, we can see how it is often perceived through a deficit model lens. Urban areas are seen as lacking connection to natural wilderness. Consequently, the people living there are viewed as not caring about nature. Viewing urban areas as inherently deficient can prevent utilization or creation of outdoor spaces such as community gardens. Ecological movements that are too romantically attached to notions of wilderness neglect concepts of connection that reach beyond these limitations.

Culturally Sustaining Pedagogy

In order to fully understand ecojustice education, it is helpful to look at the culturally sustaining asset based frameworks that contribute to best practice in this area. Culturally sustaining pedagogies give special consideration to the purpose of education in the first place, and promote the idea that education and learning should be an additive process—not one that dismantles culture and promotes assimilation (Alim & Paris, 2017). This pedagogy is mindful of the health of communities and seeks to promote integration without assimilation.

In education, discourse about culturally sustaining pedagogy takes the form of culturally responsive teaching (CRT). Studies in neuroscience have shown that our minds are always searching for connections to make sense of new information. Looking at education from a culturally responsive lens helps teachers provide their students with more opportunities to build these connections between the subject matter and themselves.

Culturally responsive teaching and brain based learning strategies have been viewed in the past as separate and unrelated branches of educational practice, but Zorretta Hammond outlined the natural intersection between the two in her book *Culturally*

Responsive Teaching and the Brain: Promoting Authentic Engagement and Rigor Among Culturally and Linguistically Diverse Students. This intersectional approach sheds light onto the potential that place based learning has to contribute further to this type of integration (Hammond & Jackson, 2015). When students make educational connections to the place that they live and go to school their learning is more personally meaningful and less abstract. Their world and community are honored as the place from which learning begins.

Community Connections

Teachers and students both benefit from a school environment that is connected to the surrounding community. This is not a new radical concept. In fact, John Dewey noted the importance of this connection as justification for the creation of his Chicago Lab School at the end of the 19th century. Dewey said:

“From the standpoint of the child, the great waste in the school comes from his inability to utilize the experiences he gets outside the school in any complete and free way within the school itself; while, on the other hand he is unable to apply in daily life what he is learning at school. That is the isolation of the school, its isolation from life. When the child gets into the schoolroom he has to put out of his mind a large part of the ideas, interests, and activities that predominate in his home and neighborhood. So the school, being unable to utilize this everyday experience, sets painfully to work, on another tack and by a variety of means to arouse in the child an interest in school studies” (Smith, 2002).

Summary of Current Discourse

Current discourse in the area of outdoor integrated education brings many voices and perspectives into the conversation and introduces some of the elements that are essential components of current best practice in the field. Place based integrated outdoor learning connects students to their communities and the land. It also interweaves a student's culture and perspectives into these new connections to nature. It engages with themes of social justice and ecological justice creating a holistic framework learning. It draws on ideas from the past and brings them into our dynamic present.

Implementation

This portion of the capstone will investigate the factors that affect implementation of outdoor education integration. It will examine the factors that affect teacher use of outdoor spaces and some of the barriers that teachers face to integrating outdoor learning opportunities. This section will also examine a few common themes in successful implementation such as community connections and support, and touch on best practice for shifting mindset regarding outdoor education through high quality professional development.

Even when teachers know about the benefits of teaching students outside, it doesn't consistently happen. Many research studies have been done to investigate the barriers that teachers face, or perceive to face in teaching outdoors (Glackin, 2016) (Feille, 2017). Factors such as time and testing, teacher education, and motivation and beliefs affect implementation.

Time and Testing

The current landscape in education places a great deal of emphasis on accountability in the form of test scores on basic skills. This is largely a result of the No Child Left Behind Act of 2001. In his 2002 speech President Bush said that the intention of the act was to ensure that “every child in every school must be performing at grade level in the basic subjects that are the key to all learning, reading and math” (Hayes, & Urbanski, 2008). Through this act standardized tests were tied to school funding, ushering in an era of high stakes testing. This high stakes testing environment stems from deficit models in education that view students, especially those who come from low SES backgrounds as behind. Teachers feel pressured by time and curriculum that needs to be taught in order for students to perform well on standardized tests. This pressure to stick to the curriculum inhibits creative integration in designing learning experiences for students. For example, teachers who perceive outdoor learning as something “extra” are less likely to effectively implement integrated outdoor learning experiences for their students (Glackin, 2016).

Teacher Education and Beliefs

Teacher beliefs about how children learn can also influence the success of outdoor education programs (Glackin, 2016). For example, if teachers believe that not much planning is needed to take a lesson outdoors because the novelty and fun of the experience will be enough to enhance learning—opportunities for deeper learning are missed. These core beliefs that teachers hold—that outdoor learning is a “risky but fun treat”, or an opportunity for deeper learning can be difficult to change over time (Glackin, 2016).

In order to change teacher perceptions, educators need opportunities to explore and express existing beliefs in order to integrate and construct new ones. Teachers also need to be educated about the difference between viewing outdoor education as an authentic learning opportunity as opposed to a novel teaching strategy (Glackin, 2016).

Teacher Motivation, Confidence, Self efficacy

Related to teacher education and beliefs are the concepts of teacher motivation, confidence, and self-efficacy. Teacher motivation and confidence are influenced by an educator's knowledge and values (Pajares, 1992). So what an educator believes about the value or effectiveness of outdoor education directly impacts how integration is, or is not applied.

Educational research shows that teacher self-efficacy is developed through cognitive challenge, metacognition, and opportunities for practice. It has also been shown that a school's collective efficacy influences individual teacher self efficacy (Klassen, 2010). Recognising that teacher self-efficacy in outdoor education can be improved through a collective schoolwide effort that offers a learning environment for educators that carefully plans time and space for this growth to take place is encouraging.

Supporting Educators

Establishing support for teachers by involving other community members helps to reduce feelings of isolation and help develop new visions for teaching (Feille, 2017).

Research suggests that support for practicing teachers should be a community effort with mentorship support for integration of outdoor education concepts with culturally relevant pedagogy (Anderson et al., 2022). In practice this looks like a support network of

teachers within a building that can support each other in development. It also can include community support outside of the building involving other community organizations.

Conclusion

In this chapter I have given an overview of the research that points to the numerous benefits of outdoor education such as mental and physical wellbeing and the development of environmentally engaged and connected citizens. This chapter also looked at the history of the outdoor education movement in the United States which helps to inform our understanding of the current state of outdoor education or lack thereof in public schools. I have also outlined what the current discourse in the field looks like as well as some of the factors that affect implementation of best practices by educators.

In the next chapter I will propose a solution to implementation barriers in the form of high quality professional development opportunities for classroom teachers. This professional development will educate teachers about place based pedagogy as an action oriented approach to empower students to be a positive force in their own communities. It is also a culturally sustaining practice that integrates asset based pedagogy so it will complement and enhance existing positive trends and initiatives in urban public education.

CHAPTER THREE

Project Description

Introduction

This chapter will introduce pathways for advocacy through professional development resources for urban elementary teachers who do not have background in the area of integrated outdoor education. These resources are a response to the results of the investigation of the research question *How can urban elementary educators take advantage of schoolyard resources for integrated place based learning experiences?*

These resources are intended to create empowered, connected, and confident teachers who are aware of the benefits of time spent learning outdoors. This professional development was designed specifically with my colleagues in mind, but could be used at other urban schools with similar general education teacher audiences. It also honors the place my colleagues are coming from, especially since this is not something that has been offered to them before.

In this chapter I will describe the creation of my project, methodology, project timeline, and implementation. I will also explain the development of materials and resources, as well as the defined curriculum outcomes and program assessment resources that were created. I will also elaborate on some of the site specific considerations that were made as this project was developed.

Project Overview

The final product for this capstone is a professional development program that immerses teachers in the wonders of outdoor integration. It educates them on the benefits

of integration and gives some concrete strategies for implementation. It follows a workshop model, where general education elementary teachers will be presented with a mini-lesson and then have workshop time to apply skills, and then debrief (Scarparolo & Hammond, 2018). This workshop model was chosen in part, because teachers in my building are already familiar with professional development delivered in this way. This learning opportunity is designed to take place three times periodically over the course of a school year and give educators a chance to gradually develop confidence in applying practiced outdoor integration skills with students—and revisit the concept over time.

Learning is designed to take place both indoors and outdoors at the school site, and educators will have opportunities to experience outdoor learning in a place based fashion. Teachers will also be given time during each workshop to discuss focus questions in a talking circle. In my current teaching assignment, talking circles are the norm for staff meetings and our classrooms, so I chose to maintain this strong community element. We use the book *Circle Forward* as a guide for this process so I used elements from this resource as I designed these learning opportunities (Boyes-Watson, & Pranis 2015).

Methodology

In order for outdoor experiences to be integrated in the elementary classroom, there is a need for improved exposure and teacher development to change teacher perceptions about outdoor learning and its value. This workshop will use the elements of high quality teacher development. Elements of high quality professional development for teachers can be encompassed in three main overarching components: attitudes, knowledge, and practice.

In this professional development sequence, teacher attitudes will be explicitly explored and discussed in circle conversation at each session. Attitudes will also be examined through self reflection in pre and post surveys. Teacher attitudes have a wide range of effects on teacher practice including thinking, motivation, and behavior (Chen, & McCray, 2012). Positive teacher attitudes contribute to perseverance, and resilience in the face of adversity. It also affects how much energy and effort a teacher will put into a lesson (Chen, & McCray, 2012).

In this workshop, pedagogical knowledge will be conveyed through presentation slides, oral instruction and discussion, and hands-on experiential learning outdoors. Teacher pedagogical knowledge is the what, how, and who of professional development. It is the content knowledge, instructional methods, and knowledge about students (Chen, & McCray, 2012).

Improving and changing practice is the primary goal of any professional development for educators. In 2012, Chen and McCray explained the importance of time to implement and reflect on new practices:

“As they apply knowledge and methods learned in PD programs, teachers inevitably encounter unexpected challenges that require adaptations to make the practice effective. Developing new practices immerses teachers in both knowledge-construction and knowledge-internalization processes. When implementing new practices, teachers deepen their understanding through constructive processes of elaborating and integrating knowledge. Reflecting on the implementation of new practices, they begin to internalize them, seeing them in relation to their existing practices (p10) ”

This helps to illustrate how giving teachers space and time to integrate their new skills is a key component to effective development. It is part of the rationale behind choosing to have this workshop take place throughout the course of the school year, and not just in one isolated one-off session.

This workshop will apply the qualities that make teacher development most impactful, meaningful, and effective, with a greater focus on formation of new beliefs and self efficacy. For example, research supports teacher development that allows teachers the opportunity to examine preexisting beliefs, in order to reform and construct new beliefs (Glackin, 2016). Furthermore, self-efficacy in teaching is developed through a process of cognitive challenge, metacognition, practice (Glackin, 2016). In order to translate this into a high quality learning experience, I relied on multiple pathways for teacher engagement and processing, such as independent self reflection, slide presentations, circle conversations and hands on experiences.

In order to further target the beliefs and self-efficacy of classroom teachers, this project aims to authentically engage educators in a search for meaning that is supported by the community. This design is a response to the fact that teacher practices are most impacted by professional development opportunities that provide time for teachers to enter into a search for understanding and meaning, and where they can begin to construct a framework for moving forward (Feille, 2017). High quality professional development should also address the need for community (Feille, 2017). To this end, guiding questions were chosen as opposed to learning goals. Learning goals are provided but are only for the use of the workshop facilitator; they serve as an answer to the guiding questions to

help the facilitator guide conversation and reflection. This search for meaning is honored as a process that takes time, space, and connection to develop.

Project Timeline and Implementation

This capstone project was created over many months of research and development and is influenced by my own public school teaching experience and current professional setting. Some of the contributing research used was collected over the course of my Natural Science and Environmental Education program at Hamline (NSEE) beginning in August of 2021. Further research was collected as a draft and outline for the project was constructed in April 2023. Further development of the workshop took place over the summer of 2023 with final completion of slides, facilitator notes, and assessments in August of 2023.

School and community implementation is designed to begin at the start of a school year in September beginning with volunteer participant recruitment, and takes place three times periodically throughout the school year, fall, winter, and spring, with the final program evaluation taking place at the end of the school year in June.

Development of Materials and Resources

Materials were developed based on The Whole Teacher Approach (Chen, & McCray, 2012). This framework takes into account teacher attitudes and beliefs as well as content knowledge and skills. Google slides with facilitator notes were created for three workshops occurring periodically throughout the school year. Guidelines for facilitating sharing circles and guiding teachers through a restorative practice framework were integrated into these resources and materials.

The materials were developed with my colleagues in mind—thus the audience for this professional development is general education urban elementary school teachers who do not have a background in outdoor education or natural science. The group size for this professional development is limited to 10 teachers, allowing for fruitful circle conversations and hands-on participation. These experiences are designed to take place in a morning or afternoon session on designated PD days. In order to keep things streamlined, these three lessons will focus on literacy and math integration, the two main subject areas for which classroom teachers are responsible for.

Defined Curriculum Outcomes

Professional development outcomes were designed based on the results of the research in the literature review and the research on the needs of adult learners. I also designed this learning experience to align with the initiatives within my large urban school district. The alignment specifically touches on my district's strategic plan initiative areas of systemic equity, positive school and district culture, effective and culturally relevant instruction, and family and community engagement (Saint Paul Public Schools, 2021).

- The educator will be able to explore existing beliefs about outdoor learning integration within the context of systemic equity.
- The educator will understand the history of outdoor education as well as the extensive research that supports outdoor education integration.

- The educator will be able to explore existing curricula and integration resources in a hands-on fashion, and choose three ways to incorporate outdoor learning that work for them.
- The educator will spend time outdoors in the schoolyard as a student and reflect on their experiences.
- The educator will become aware of community resources, mentorship opportunities, and further support for guided practice.
- The educator will become aware of opportunities to practice advocacy and engagement in the community.
- The educator will examine integration of new beliefs and practices with opportunities to reflect on self-efficacy and identifying and overcoming barriers.

Workshop Overview

Guiding Questions	Session One (Fall) What are my current views of outdoor education? How does outdoor integration enhance the learning experience for students? How is outdoor integration a systemic equity issue?	Session Two (Winter) What does outdoor integration look like in the urban elementary classroom? How can we overcome barriers to implementation?	Session Three (Spring) What new strategies or perspectives would you like to integrate into your practice? What are my systems of support for implementation?
Activities	Individual Self Assessment	Circle Conversation:	Circle Conversation:

	<p>Circle Conversation: Assess what beliefs we are starting with.</p> <p>Slide Presentation:</p> <ul style="list-style-type: none"> ● Benefits ● History ● Deficit Models in Education <p>Outdoor Practice: Hopscotch Math</p> <p>Share takeaways</p>	<p>Successes and barriers</p> <p>Slide Presentation:</p> <ul style="list-style-type: none"> ● Asset based Pedagogy ● Teacher self efficacy ● Removing barriers <p>Outdoor Practice: Winter Vocabulary Scavenger Hunt.</p> <p>Closure and sharing</p>	<p>Community Support and Integration, and advocacy ideas</p> <p>Slide Presentation:</p> <ul style="list-style-type: none"> ● Developing systems of support ● Exploring Resources <p>Outdoor Practice: Stroll and Read</p> <p>Reflection: written action plan. With time to share out</p> <p>Individual post assessment and program assessment.</p>
Learning Objectives	<p>1. The educator will be able to explore existing beliefs about outdoor learning integration within the context of systemic equity.</p> <p>2. The educator will understand the</p>	<p>1. The educator will spend time outdoors in the schoolyard as a student and reflect on their experiences.</p> <p>2. The educator will examine integration of new beliefs and</p>	<p>1. The educator will become aware of mentorship opportunities and additional support for guided practice.</p> <p>2. The educator will have opportunities to reflect on</p>

	history of outdoor education as well as the extensive research that supports outdoor education integration.	practices with opportunities to reflect on self-efficacy and identifying and overcoming barriers.	advocacy in the community. 3. The educator will be able to explore existing curricula and integration resources in a hands-on fashion, and choose three ways to incorporate outdoor learning that work for them.
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Assessment Development

Due to the nature of this project, the effectiveness of this workshop will be monitored by data collection before, and after implementation. Considerations for program assessment and data collection are research based and include a project evaluation using the RSA Model (Jeffery et al, 2015). This model was developed by Roberta Straessle Abruzzese (RSA), who's career involved staff development and continuing education (Desilets et al., 2010). The data collected by this method will be used to judge the effectiveness of the experiences to create change in teacher attitudes and practices. The RSA model has both process evaluation and content evaluation

measures. For process evaluation, participant reactions in narrative form will be collected. For content evaluation, teacher knowledge will be evaluated with a pre and post survey that takes place immediately prior to the first session and again at the end of the third session.

Assessment Outline

Participant Reactions and Satisfaction

In order to gather a baseline prior to collecting post workshop survey data, participants will be asked to describe their motivation or interest in choosing to attend this workshop. Then after the professional development comes to a close teachers will be asked to reflect on the overall value of the experience.

- Pre: Describe your motivation or interest in choosing to attend this workshop.
- Post: Was this workshop a valuable use of your time as an educator? Choices: yes, somewhat valuable, or not valuable.

Teacher Knowledge of Content

In order to evaluate the effectiveness of the professional development in the conveying of content knowledge, teachers will be asked a series of pre and post questions.

- Pre and Post: What do you know about outdoor integrated education?
- Pre and Post: What benefits do students receive as a result of participating in outdoor education experiences?

- Pre and Post: How can outdoor learning experiences contribute to racial equity?

Teacher Behavior and Practices

The effectiveness of the workshop will also be measured by how this exposure to new concepts affects the behavior and practices of teachers. This provides some qualitative data about the feelings beliefs that directly impact implantation.

- Pre and Post: What are your feelings and/or beliefs about outdoor integrated learning?
- Pre and Post: Will you be able to implement learning from this workshop in your classroom? Explain why or why not.

Project Evaluation and Impact

Measuring the effectiveness of the program overall will rely on some more quantitative data points. For example our school had the opportunity to participate in a program called Naturthon in the spring of 2023, but there was very limited staff participation. Participation data was collected through teachers reporting when they took their classes outdoors for learning by scanning a QR code to fill out a short Google survey. Participation data from this past spring can be compared to participation data next year.

Connections to community partnerships can also be measured. As of right now there are zero community partnerships, even though we have a youth oriented community organization with a greenhouse on site.

- Post: Did you make any connections or community partnerships as a result of this professional development? If so please explain.

Conclusion

This chapter has outlined the applied action of designing a researched based professional development opportunity for elementary educators. Teachers need time, community connections, and support to develop and integrate new skills. The goal of this workshop was to provide teachers with a time to evaluate their knowledge and beliefs about outdoor learning as well as find new enthusiasm and comfort in taking children outdoors. Special consideration was given to instructing teachers on the importance of building and maintaining community connections and support. It also makes direct connections to outdoor learning experiences as an issue of equity.

The next chapter provides further reflection on the creation and implementation of this project. I examined what I learned through this process of researching and developing a product for the purpose of integrated outdoor learning advocacy. I then discuss the implications the research has for the field of urban elementary education and its importance and relevance. Limitations of this project and recommendations for future research are discussed.

CHAPTER FOUR

Critical Reflection

Introduction

In this chapter I will reflect on the capstone project and research that was conducted to answer the question *How can urban elementary educators take advantage of schoolyard resources for integrated place based learning experiences?*

Throughout the capstone process I had the opportunity to explore an educational issue that I am deeply passionate about, getting children outdoors for integrated learning experiences. Upon critical reflection, I realized that my own individual efforts over the years in obtaining outdoor experiences for my students as a science specialist have had very little impact on the school culture as a whole surrounding place based outdoor integrated education, and had no effect at all on classroom teacher participation in these activities.

In light of this, I developed a research question and investigated outdoor integrated learning. I looked at the extensive benefits to health and wellbeing, the history of outdoor education, and the current social justice related dialogue on the topic. I also looked at implementation and elements of best practice in teacher development.

As a result of the research I developed an action plan and created a professional development workshop for my colleagues to educate them about the issue. The workshop simultaneously connects teachers with each other and to the land on which they teach as an active participant within a supportive community. This is education designed as

advocacy. Through this workshop I advocate for increased schoolyard learning opportunities for students. By educating teachers about the benefits of place based integrated education and giving them a chance to experience it firsthand they can see its relevance and potential.

In this chapter I will share my reflections on my learning through this process and explain what I learned about the importance of personal advocacy and being a leader, as well as the importance of continuing teacher education in general. I will also revisit the literature and highlight some of the key takeaways. Finally, I will reflect on the limitations of this project and suggest ways in which this advocacy pathway might be further explored and improved in the future.

Major Learnings

Personally reflecting on the process of the capstone journey has helped me to see the interplay between the academic research experience, and my lived experience as an urban educator. The synthesis of which has set me on a path towards understanding the importance of advocacy for integrated outdoor learning experiences.

The world of academic research on any given topic is like a conversation. To create a capstone project is to participate in that academic conversation and contribute to the field of study. My engagement with the topic of outdoor learning has been a lifelong pursuit, but until now I haven't had the chance to grow into a place where I felt like I had enough knowledge to instruct other adults, or truly effectively advocate on the behalf of students. Armed with well researched and reasoned facts and a final product, I have grown in confidence.

In summary, my greatest personal learning can be encapsulated as a newfound recognition of the importance of leadership and advocacy in this field of study, and a recognition of the importance of continuing education for teachers. I will expand on this in the next two subsections.

Importance of Leadership and Personal Advocacy

In my years as an urban educator I have made integrated outdoor education happen within my classroom and I have made great community connections through these experiences for my students, but there has persistently been a missing component of including other teachers in the process and in advocating for a greater level of implementation at the building level. I have deferred to building and district leadership instead of advocating for new initiatives myself.

Throughout this research project and my other Natural Science and Environmental Education coursework here at Hamline I have come to realize the importance of teacher leadership in the development of a teaching community that values and understands the importance of integrated outdoor education. Personally, I know how I have been inspired by those educators in my district within the science department who exemplify high quality outdoor teaching practices and take extra time to share that knowledge with other educators.

At Hamline I also encountered engaging professors who are experts in the field of natural science and environmental education—who not only convey their passion for the subject through extensive academic knowledge, but also by their lived example and advocacy. Through these supportive experiences and connections I have come to see the importance of leadership in this field and the importance of helping classroom teachers to

connect with role models to further their own education in this area. Stepping into this role as a teacher leader helps to bring this sometimes abstract academic conversation into a practical realm where teachers can then begin cultivating their own outdoor teaching practice.

Importance of Professional Development

Elementary general education classroom teachers in my district really aren't to blame for their lack of participation in outdoor learning, they simply aren't educated in the benefits of these experiences. Outdoor integrated education is not a focus for my district and it only currently exists in small pockets at a few schools. For classroom teachers, the district disseminated professional development focus is on math and literacy and the implementation of positive behavior strategies, but all in separate silos. Outdoor learning integration offers an opportunity to bridge the gap between these three separate focuses and create a more holistic and authentic environment for students and educators.

Teachers are not taught about how place based outdoor learning experiences can be used to improve systemic equity issues within schools. For example, district initiatives for teacher wellbeing and cultivating a culturally responsive and equity oriented community are a part of district wide initiatives in my urban school district (Saint Paul Public Schools. 2021). However, the availability of professional development that actually bridges those gaps and creates those partnerships is still lacking. There are no workshops or professional development opportunities that directly connect these concepts and none that model specific pathways for integrated outdoor methods. Outdoor integrated learning actually provides untapped opportunities and pathways to facilitate

these connections in our district strategic plan. It is exciting to offer a concrete strategy that nurtures these worthwhile initiatives.

Revisiting the Literature

In this section I will review and summarize the major themes of my research and describe the most important takeaways in this field of study. I will describe the elements that were most impactful to my professional practice and the creation of the professional development workshop. To this end, I will revisit wellbeing and connection, the extensive history of outdoor education, connections to systemic equity, and the hopeful promises of teacher education to improve the prevalence of outdoor integration practices.

Wellbeing and Connection

After researching the subject, one of my biggest takeaways is that the benefits of time outdoors for children and adults are even more extensive than I previously understood them to be. It is overwhelmingly clear that schools should provide access to outdoor learning experiences (Mann et al., 2022).

Spending time outdoors improves mental health and wellbeing, reduces stress, aids in emotional and mental processing, and contributes to physical health and positive academic outcomes (Bratman et al., 2010; Forgas et al., 2011; Largo-Wight et al., 2018; Hopwood-Stevens, 2013;). It improves engagement and attention and delivers positive outcomes for Attention Deficit Hyperactivity Disorder (Kuo et al., 2018; Kuo, & Faber, 2004; van den Berg, & van den Berg C.G., 2011). It also helps build connection and relationship to the natural world and fosters the development of pro environmental stewardship behavior (Loose et al., 2023).

Anecdotally, my personal experience as an educator working with children outdoors supports these findings. As I examined the research I made so many direct connections between research and my personal experience. For example, I can think of several students who struggled tremendously in the classroom who became joyful natural leaders in the garden or in the woods. I also know how I feel teaching and learning outdoors and the sense of wellbeing I have after taking a class outdoors for a lesson—even if some aspects of the outdoor lesson were difficult or challenging. It was enlightening to examine the scientific mechanisms of this sense of joy and peace.

A Strong History

Another element that impressed me as a whole about the literature on the subject is its vast well established cultural history. Integrated outdoor education is not something new or trendy, it is something that is and should be foundational to a high quality education (Ernst, 2013). Similarly, while it's easy to think of buzzwords like place based education as being currently popular—it's not a fad. The roots of the movement were sending shoots up within American education right alongside the development of the United States itself (Jackman, 1894; Stevenson, 2007). Outdoor integration has a history of strong support by many prominent influencers in education including Dewey, Froebel, Steiner, Montessori, Rousseau and Malaguzzi (Ernst, 2013).

This wealth of cultural history extends well beyond colonial concepts of nations and institutionalized education systems. For example, the Indigenous communities of North America also recognise the connection to place and advocates in this field have brought this conversation to new levels. In fact, the current prevalence of place based models owe a lot to the shift in academic intellectual discourse from that of western

colonialism to postcolonialism (Johnson & Larsen, 2013). Our relationship to nature is connected to our relationship with each other, and no one system exists in isolation.

A Component of Systemic Equity

Place based integrated learning stems from a culturally sustaining pedagogy that offers a pathway to bridge the gap between an educational system still entrenched in colonialism and communities that have been adversely impacted by these systems (Johnson & Larsen, 2013). Such culturally sustaining practices give emphasis to the purpose of education in the first place, and promote the idea that education and learning should be an additive process—not one that dismantles culture and promotes assimilation (Alim & Paris, 2017).

There is still a wide gap between the evidence of the benefits of outdoor experiences for students and the lack of its implementation. This is an issue of equity and social justice as the children who are most impacted by restrictive deficit models are not given equal access to place based opportunities. This gap was the foundation of my research question and it was reassuring to see that the literature confirmed what I had noticed.

Influencing Teacher Practices

The research supporting outdoor integration is of little use if all stakeholders are not a part of the conversation. What is encouraging is that the research supports that engaging classroom teachers in this conversation can produce positive results. Teacher perceptions and practices can be changed through continuing education. The research shows that teacher self-efficacy can be developed through opportunities for cognitive

challenge, metacognition, and practice. It has also been shown that a school's collective efficacy influences individual teacher self efficacy (Klassen, 2010). Establishing a community of support for teachers helps to reduce feelings of isolation and help develop new visions for teaching (Feille, 2017). Research shows that practicing teachers should be supported through a community effort for integration of outdoor education concepts (Anderson et al., 2022).

My own self-efficacy has grown so much through this process which has provided me with my own opportunities for metacognition and reflection. Examining what helped me to reach this level of understanding and trying to break it down into researchable elements that can be distilled into a simple message for other teachers was a worthwhile journey.

Implications and Benefits to the Field

The primary effect of this research based professional development model is that classroom teachers will become more aware of the benefits of time outdoors for their students. Teachers will be able to identify the gap between current common practice in public education and what the research shows is beneficial for children. The secondary effect that results from greater teacher understanding and engagement is the heart of this project—that children will directly benefit by getting to experience more time learning outdoors. Children will have educators who understand the value and importance of outdoor integrated learning, and have some tools to put it into practice.

As a community we can work together to remove a deficit model lens, influence conversation, and promote advocacy. Leadership and advocacy are needed to convey this message at various levels within the educational system. This workshop offers a pathway

for classroom teachers to enter into this conversation and become educated on its importance.

A more far reaching implication is that this community connection and momentum will influence the district and our society as a whole. As these connections are built a greater awareness of the connections between health, environmental justice, and social justice can begin to truly take root in our culture. This is a positive and constructive place of opportunity that can influence policy at multiple levels of our educational system.

The results of this process and project are also personally meaningful to me as the work was specifically focused on meeting the needs of my colleagues (and subsequently, the students) in my own building. It introduces the vast potential of integrated outdoor education to an audience that is not normally given opportunities to participate in these conversations. While this project is designed to be shared and implemented in other schools, it is also a simple means for me to share my own joy in teaching outdoors with others.

Limitations

In this section I will outline some limitations that are related to the scope of my project. While I would love to wave a magic wand and have everyone instantly understand the importance and value of outdoor integrated learning opportunities, I know that this is not reality. This project as a whole is limited in scope by its narrow audience of classroom teachers, the design for data collection and assessment, and a lack of needed layers of support within the current system. The timeline of this project also limited my

ability to test run the professional development and gather teacher feedback to guide revisions.

Audience

The overall impact of this project is limited in its narrow audience focus of classroom teachers. It does not include parents or community members at the onset. This decision was an attempt to keep the size and scope of the project in check and keep pace with a timeline. I think the work could be improved in the future by adding more layers of community voices and participation.

Furthermore, the voluntary nature of participation in this workshop also affects its potential impact. It would be more effective if this was supported at the district level as a required training. Since participation is voluntary the teachers who participated may already be more inclined to participate in outdoor integrated learning than teachers who choose not to participate. As a result, this may not reach everyone who would benefit from it.

Data Collection and Assessment

Some other limitations of this project are the design for data collection. I chose to only collect assessment data from participants in the training. Data collection could be more insightful if I additionally collected assessments from teachers who did not choose to participate in the training as a control. It is highly likely that opinions of volunteer participants do not reflect the community as a whole. The fact that there are no designs for baseline school data to be collected from non participating teachers could affect assessment results, and make them appear more positive. For example, a teacher who

chooses to volunteer for this professional development may already have a greater interest and proclivity towards integrated learning opportunities.

Layers of Support

The outcomes for this development are limited by the amount of personal support I can give to my colleagues throughout the school year. This project would greatly benefit from having other mentors and community partners available on site to partner with teachers as they work to implement these practices. In the workshop I attempted to address this by providing teachers with resources to make these connections, but there is no direct assistance or oversight to ensure that it continues.

Support is not yet established at the state and district level so it limits the amount of time and attention teachers feel free to give outdoor integration. This limits teacher perceptions of feasibility (Glackin, 2016). For example, going to a training or workshop on integrated outdoor education does not remove the top down pressures of time and testing. But hopefully it will create more advocates who see its importance and can work to advocate for change at all levels.

Timeline

This collection of materials and resources was developed without time for a test pilot—so it is without revisions based on teacher participant feedback. The materials were developed over the summer of 2023 to be submitted before the new school year began. Ideally this professional development would be piloted and evaluated before being shared and submitted to Hamline. As a result it should not be shared with other schools until it has been taught once, and any necessary revisions are made based on teacher responses.

This timeline also prevents student engagement data from being collected prior to the completion of my degree. Knowing how often teachers are actually taking their classrooms outdoors would help to measure the overall effectiveness of the workshop.

Future Research

Further work within this field is needed to produce more widespread implementation of best practices. I think some more quantitative research on this specific type of professional development would be a valuable contribution. For example, measuring the direct impact on students could be improved by developing a survey for students to complete. Another avenue would be to look at the behavior referral data our school already collects. Does increasing the amount of time outdoors decrease the number of behavior referrals? A more formal study could look at the amount of time spent outdoors, and behavior referral data (Merchie et al., 2018).

As I outlined in the limitations section, the data collection design is largely qualitative, and its voluntary nature does not provide a completely accurate baseline assessment of the school community as a whole and the perceptions of outdoor integration. I think there would be valuable insights gained from a paid or required training that could recruit more people with a wider range of beliefs and opinions at the onset. Assessment then could be further tailored to identify elements of the workshop that were most and least useful to each type of participant. This would help improve the effectiveness of this type of professional development.

In light of the current voluntary nature of this offering, I have reflected on other pathways that might also lead to greater participation. One thought is to expand the

program audience to include the participation of mental health professionals and support staff in the building with a focused emphasis on emotional regulation opportunities outdoors. Parents might also be interested in participating in development that includes a focus on health and wellbeing. Further research is needed to identify entrance points for different groups to increase community engagement.

In addition to these future research areas, my personal interests in future research also include looking at pathways to advocacy through greater levels of community participation. I am interested in researching elements of effective community organizing, effective community and school partnerships, and educational policy.

Conclusion

In this final chapter I have reflected on the capstone journey investigating *How can urban elementary educators take advantage of schoolyard resources for integrated place based learning experiences?* From this vantage point I can see the answer to the question involves continued teacher education, personal advocacy, and leadership to get this important educational message out there. I learned the hard way that the lone wolf strategy doesn't work. Working together as a community and building up a team that can support each other is a more effective way to implement change.

The creation of a tool to help bridge the gap between what research shows is best practice and current lack of implementation gives me and other classroom teachers concrete resources to get evidence based changes started. However, I can see the importance of my continued research and education in this field to further understand community organizing strategies, and other avenues to increase support for these practices. With this formal cycle of learning coming to a close, I see a new one beginning

as I look to learn more about education policy and advocacy at higher levels of the system.

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