Using Outdoor Learning as an Instructional Strategy

Mary Schoeb
Minnesota State University, Mankato

Mary Schoeb

Mary Schoeb grew up in Minneapolis, Minnesota and although she attended the University of Minnesota right out of high school, it was not until she returned to school later in life to graduate from Western Governors University with her degree in Elementary Education in December 2017. Mary was lucky enough to find a position teaching 4th grade at the School of Engineering and Arts (SEA), a S.T.E.A.M. magnet school in the Robbinsdale Area School District in Minnesota. She lives close to school with her husband and two young sons. She recently completed her Master's degree in Elementary Education, with an emphasis in Science, Technology, Engineering, and Math (S.T.E.M.) from Minnesota State University, Mankato. When Mary is not teaching or wrangling her energetic children, she is either reading or spending time outdoors. She is grateful for the incredible knowledge she has gained while at Mankato. Mary is dedicated to creating a space where student voices are amplified, and social justice ideals are integrated into the culture of the class. She is excited to take her passion and knowledge to create learning opportunities that further engage and inspire her students.

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Abstract

Spending time in nature or an outdoor environment is a healthy practice that can provide many mental and physical benefits. Thus, outdoor learning is an instructional strategy that can capitalize on these benefits and that is engaging for students. Outdoor learning can encourage student engagement in the content, while offering authentic learning opportunities. Outdoor learning can positively impact students' learning and intrinsic motivation, their social and behavioral needs, as well as improve their problem-solving and critical thinking skills. Teachers may face a variety of potential barriers when attempting to facilitate outdoor learning. These obstacles are described and addressed by providing strategies for teachers to promote and integrate outdoor learning into their instructional practice. Developing and nurturing a school culture that encourages outdoor learning experiences is discussed.

Keywords: outdoor learning, experiential learning, nature-based learning

Using Outdoor Learning as an Instructional Strategy

Imagine falling snow in the middle of the winter season. The excitement is barely contained as students prepare for the upcoming lesson outside. In their mittened hands, they carry a magnifying glass and a field guide for snowflake identification. As the students step outside, their learning environment transforms immediately, and the excitement is hushed as the snow blankets the ground. They work collaboratively in small groups to catch the falling flakes and to identify them using scientific vocabulary and their knowledge of weather conditions. Students only just left the front doors of the school, when they stepped into an entirely different classroom. This is what outdoor learning looks like.

Outdoor learning provides a way for students to connect directly to the environment around them and to the natural world (Carrier et al., 2013; Coyle, 2010; Louv, 2008). Many teachers believe that "nature is important to elementary-age child development, such as fostering feelings of stewardship, learning from nature, and increasing calmness and relaxation" (Shume & Blatt, 2019, p. 1,363). Exposure to nature-based activities like school gardens, nature walks, and general nature-based curricula affect the learner because the learner often experiences more engagement and increased movement (Kuo et al., 2019; Shume & Blatt, 2019). Learning in a nature-based or outdoor setting allows for increased autonomy, fresh air, social interactions, collaboration, and less human-made white noise (Kuo et al., 2019). Engaging students in an outdoor learning setting, teachers can significantly impact social, behavioral, and academic outcomes, including increased retention across all content areas; increased critical thinking and problem solving; increased connection to nature and understanding human effects on nature; and an increased desire to positively impact the environment (Kuo et al., 2019; Louv, 2008; Shume & Blatt, 2019).

Engaging students in experiential learning can give them the opportunity to play an active, rather than passive, role in their own education. This type of learning often results in a greater understanding and retention of content because it helps the students connect the learning to concrete and real-life situations (Farnham & Mutrie, 1997; Kolb & Kolb, 2018; Louv, 2008). Outdoor learning methods embody the experiential learning approach and provide significant benefits for student cognitive skills and social and behavioral needs (Ernst & Monroe, 2004; James & Williams, 2017; Jose et al., 2017; Khan et al., 2010; Piaget, 1964/2003).

Outdoor learning is student-centered, inquiry-based learning (Ernst & Monroe, 2004). This correlates to Piaget's (1964/2003) assertion that learning occurs when participants are the active subjects engaged in authentic learning contexts. When students are active learners, they often take more initiative in solving problems and increase thinking creatively about alternate solutions (Piaget, 1964/2003). These are life and career skills that are often deemed necessary for student success (American Association of Colleges for Teacher Education, 2010). Mirra and Garcia (2020) claim that modern students require an educational setting that focuses on interest-driven content, production-centered assessment, and integrating multimodal communications. An outdoor, hands-on, experiential learning environment can support these skills and educational concepts, because it engages students' critical thinking and problem-solving skills and develops their disposition towards metacognition strategies (American Association of Colleges for Teacher Education, 2010; Ernst & Monroe, 2004; Louv 2008). Using outdoor learning as an instructional approach can have a positive impact on students' cognitive domain, can support their social-emotional needs, and can increase motivation (Ernst & Monroe, 2004; Louv 2008). Therefore, the purpose of this paper is to explain the importance of outdoor learning in education and to provide strategies for teachers to integrate it into their practice.

Benefits and Barriers to Outdoor Learning

Nature-based learning gives students the opportunity to be an active learner in an authentic environment and it can give students deeper understanding and meaning (Fägerstam & Blom, 2013; Jørgensen, 2017; Montero, 2018). Benefits and potential barriers to outdoor learning exist and should be addressed before implementing as an instructional strategy.

Benefits

Teachers use a variety of instructional approaches in their practice. They strive to adhere to standards and rigorous standardized tests and it is critical that those educational approaches are effective (Ernst & Monroe, 2004). The following section focuses on the specific ways that outdoor learning is a valuable approach.

Cognitive Impact

Critical thinking and problem-solving skills are necessary components of instruction (NEA, n.d.). The National Education Association (n.d.) defines critical thinking as the ability to reason effectively, to analyze cause and effect of events, to make connections and interpret all available information to make sound decisions, and to solve problems by asking questions and identifying possible solutions. Ernst and Monroe (2004) draw parallel conclusions for cognitive skills at the core of outdoor learning: interpretation, analysis, evaluation, and explanation. Students who are actively engaged in repeated outdoor learning increase these skills, along with problem-based and inquiry-based learning (Ernst & Monroe, 2004; Montero et al., 2018; Rios & Brewer, 2014).

Students demonstrate critical thinking and problem-solving skills through their participation in outdoor learning tasks. For example, a group of students studied the water quality of a local river. They compared their data with other rivers and investigated their findings (Ernst

& Monroe, 2004). This type of inquiry encourages students to question what they are experiencing and to explore different possible answers (Ernst & Monroe, 2004; Fägerstam & Blom, 2013; James & Williams, 2017).

Students can make meaning of the content by interpreting and analyzing observations and findings in an authentic setting (Ernst & Monroe, 2004). One example of this is comparing environmental themes and how they affect an ecosystem (Jose et al., 2017). The hands-on context of outdoor learning provides increased opportunities for retaining the content (Fägerstam & Blom, 2013; James & Williams, 2017) and applying the content knowledge to new understanding and analysis (Becker et al., 2017).

Social & Behavioral Needs

Some students, particularly those with special needs, often have difficulty in a traditional classroom and struggle with social interactions (Farnham & Mutrie, 1997; Price 2019; Szczytko et al., 2018). Outdoor learning can increase student collaboration with their peers, engagement in group discussion, and willingness to ask questions publicly (Farnham & Mutrie, 1997; Price, 2019; Szczytko et al., 2018). When outdoor experiences continue regularly, relationships, self-management, and social awareness also increase (Becker et al., 2017; Jørgensen, 2017). Students are likely to develop more collaborative relationships with their peers (Khan et al., 2019; Montero et al., 2018; Price, 2019). Whereas, when they are in the classroom, they are more likely to work alone or seek to disrupt others (Khan et al., 2019).

Increasing Motivation

Teachers are continuously seeking ways to help motivate students in their learning. Intrinsic motivation, or motivation that is a result of internal factors, is shown to increase when simply being surrounded by nature (Becker et al., 2017; Kuo et al., 2019). Therefore, it would

make sense for teachers to engage their students in outdoor lessons whenever they have the opportunity. An example of this is evident in the results of a gardening study where surveyed students described their own motivation before and during outdoor activities (Cameron & McGue, 2019). The students discussed how the setting alone helped motivate them to want to work harder than they normally do in the classroom (Cameron & McGue, 2019). When directly engaged in the experiential context of outdoor learning, students exhibit more on-task behavior and demonstrate an increase in their desire to participate and learn (Price, 2019; Szczytko et al., 2018). Their active involvement can result in increased attention and a decrease in disruptive behavior (Price, 2019; Szczytko et al., 2018). These outcomes can affirm the efficacy of outdoor education practices for students who find the conventional classroom setting and learning methods challenging and unmotivating.

Potential Barriers

When teachers consider the benefits and address the potential obstacles to an outdoor classroom setting, they can begin to incorporate this instructional method into their practice. The breadth and scope of outdoor learning can be daunting to educators (Khan et al., 2019; Rios & Brewer, 2014). Teachers may encounter several barriers prior to using this strategy: a fixed teacher mindset as it relates to outdoor learning, the time, space, and money associated with conducting lessons outdoors, and possible unfavorable weather conditions.

Teacher Mindset

The research describes teacher confidence as one element that prevents educators from engaging in outdoor learning (Rieckenberg, 2014; Scott et al., 2015). Because outdoor learning facilitates more authentic experiences, students will likely face different challenges than they may typically face in the traditional classroom (Szczytko et al., 2018). A teacher's mindset is

critical to providing outdoor learning because their attitude towards the instructional method will affect how a student embraces the experience (Carrier et al., 2013; Rios & Brewer, 2014). Teacher confidence or comfort in outdoor learning instruction, based on their lack of knowledge of the content or methods of delivery, can be significant barriers (Carrier et al., 2013; Scott et al., 2015). When teachers do not have the knowledge of how to implement outdoor learning into their practice, they can be hesitant to try it or to change their attitude towards it (Carrier et al., 2013; Rios & Brewer, 2014; Scott et al., 2015).

Time, Space, and Money

Even with a mindset that embraces the nuances of experiential learning, teachers identified concerns, such as time, space, or funding, as barriers to outdoor learning (Rieckenberg, 2014; Scott et al., 2015; Shume & Blatt, 2019). Additional obstacles could be resistance from administration, either in the building or district, and the expectations of adhering to mandated curriculum (Carrier, et al., 2013; Rios & Brewer, 2014; Scott et al., 2015; Shume & Blatt, 2019). This could be considered a direct reflection of the school climate and how the school culture promotes experiential learning (Scott et al., 2015).

Many teachers believe it is more efficient and cost-effective to conduct lessons in the classroom (Carrier et al., 2013; Scott et al., 2015; Shume & Blatt, 2019). The time and associated costs to modify the outdoor learning environment or transport to a new location is often considered to be too great a burden (Carrier et al., 2013; Scott et al., 2015). Planning time is another potential barrier; outdoor lessons must be thoughtfully planned and aligned to standards (Carrier et al., 2013; Shume & Blatt, 2019). For example, teachers planning an outdoor lesson for the first time will need to take time to ensure it meets the needs of the learners and then take additional time to reflect and adapt the lesson for future use.

Unfavorable Weather Conditions

Another potential barrier for teachers to employ outdoor learning is adverse weather (Rieckenberg, 2014, Shume & Blatt, 2019). In some regions, winter weather is thought to present obstacles for facilitating outdoor experiences (Ernst, 2014; Rieckenberg, 2014; Shume & Blatt, 2019). In other regions, extreme heat and humidity can impact the length of time students should be outside (Texas School Safety Center, 2021). The primary concern is students not having the appropriate clothing or supplies available for different weather situations (Ernst, 2014; Rieckenberg, 2014; Shume & Blatt, 2019). Examples of appropriate clothing and supplies are winter and rain apparel, sunscreen, and proper footwear (Shume & Blatt, 2019).

Strategies to Address the Barriers to Outdoor Learning

In a traditional classroom setting, teachers plan and use a variety of instructional strategies to engage and motivate their students. Using outdoor learning requires teachers to step out of the comfort of their indoor classroom (Rieckenberg, 2014). By doing this, students have the chance to practice problem-solving and critical-thinking skills (Ernst & Monroe, 2004; Montero et al., 2018; Rios & Brewer, 2014). Students may see their motivation to try new things increase (Becker et al., 2017; Kuo, et al., 2019). For some students, asking questions in a public setting or collaborating with peers may seem like a risk (Price, 2019). However, in outdoor learning, engaged in an authentic task, students may find themselves more willing to try doing new things (Farnham & Mutrie, 1997; Price, 2019; Szczytko et al., 2018). Therefore, it is important for teachers to model and encourage a growth mindset, to foster student interest in nature, to facilitate authentic learning opportunities, and to address time, space, monetary, and weather constraints to effectively integrate outdoor learning into their classroom culture.

Modeling and Encouraging a Growth Mindset

For outdoor learning to be successful, teachers must demonstrate a can-do mindset as confidence may affect their ability to embed outdoor learning as a regular occurrence (Rieckenberg, 2014). If teachers lack confidence in a specific area, working to develop a growth mindset can help (Dweck, 2006). Teachers often want to be considered the expert and do not want their students questioning their knowledge (Scott et al., 2013). This kind of mindset needs to be examined, reflected upon, and finally, discarded, as it exemplifies a fixed mindset. A fixed mindset is the belief that intelligence or abilities are static (Dweck, 2006). The fear of the unknown is a common thread for teachers who want to add outdoor learning to their practice (Rieckenberg, 2014). A fixed mindset can be detrimental in education for both students and teachers as it fosters a fear of making mistakes (Dweck, 2006). A culture of experiential learning should embrace failure and mistakes as growth (Kolb & Kolb, 2018). This culture can be started and nurtured by the teacher.

By contrast, adopting a growth mindset can help teachers feel more comfortable with making mistakes. They do not need to be the experts in environmental education content to take students outside and engage in outdoor learning. Although it is natural for a person to ebb and flow from fixed to growth mindsets depending on the situation (Dweck, 2006), teachers can apply different strategies to develop their growth mindset, particularly for teaching outdoor learning.

One strategy for teachers to use when working on growth mindset is to make a plan to model the Experiential Learning Cycle (Kolb & Kolb, 2018). The cycle has four components: experiencing, reflecting, thinking, and acting (Farnham & Mutrie, 1997; Kolb & Kolb, 2018). To implement this cycle, teachers will plan a short outdoor lesson, just as they would plan an indoor lesson with learning objectives, activities, and assessments, either informal or formal, formative

or summative. After initial planning (acting stage), they teach the lesson (experiencing stage) and observe what the students are doing and how they are engaging in the lesson (reflecting stage). Teachers then take those observations and think about what changes to make (thinking stage). The next step is to create another outdoor lesson that includes thoughtful adjustments from the previous lesson (acting stage) and then teach that lesson (experiencing stage), continuing the cycle (Kolb & Kolb, 2018).

Fostering Interest in Nature

Slow pedagogy, a relatively lesser-known instructional approach, can help foster student enthusiasm for nature (Chang, 2020; Jørgensen, 2017). As cited by Chang (2020) and Jørgensen, (2017), Payne and Wattchow's (2009) theory of slow pedagogy is the antithesis of often-hurried instruction and a fast-paced classroom environment. Slow pedagogy requires educators to adapt their expectations of time constraints and encourages students to not rush their time connecting with the environment and learning content (Chang, 2020). This type of strategy encourages learners to connect to the world around them (Jørgensen, 2017). To start, teachers can implement slow pedagogy to introduce a *sense of wonder* with their students. A sense of wonder relates to feeling awe or being fascinated with nature and wanting to question the incredible and ever-changing facets of the natural world (Chang, 2020; Jørgensen, 2017). Outdoor learning provides an ideal situation for educators to practice teaching slow pedagogy and encouraging students to connect to nature.

Using the Buddhist practice of *suchness* to complement outdoor learning instruction can help to provide a foundation to planned activities and content-driven lessons (Chang, 2020). Suchness is the ability to appreciate and value what is in front of them for what it actually is (Chang, 2020). Louv (2008) mentions a similar approach to nature-based learning and that is

spirit of place. This approach draws on the ideas that people enjoy the feeling of being in a natural space and they connect their minds to it as their bodies experience it (Louv, 2008). These philosophies highlight the peacefulness and quiet contemplation students may encounter as they experience outdoor learning (Chang, 2020; Jørgensen, 2017; Louv, 2008). Teachers can cultivate suchness, spirit of place, or wonder with students by going outside to make observations of clouds. Teachers can ask the students to sit for a period of time and watch the clouds, thinking about how they move, and change shape. Teachers can embrace whichever philosophy works for them and their students - suchness, spirit of place, finding wonder or another idea to help connect the students' sense of self to their sense of the natural world.

Facilitating Authentic Learning

Outdoor learning is a way to provide students with action-based and concrete experiences that are at the heart of modern instructional practices (Akamca, 2017; Becker et al., 2017; Bensten & Jensen, 2012; Jose et al., 2017). Cultivating or maintaining a school or local garden is a common strategy used to facilitate outdoor learning (Becker et al., 2017; Cameron & McGue, 2019; Khan et al., 2019; Louv, 2008). These activities provide a broad spectrum for educators to explore when planning science, math, and literacy lessons that connect to experiential learning. For example, students can use planting and gardens to study the water cycle or the life cycle of plants. Students can encourage community involvement by using gardening to understand the food chain and the societal impact of producing food for others. Gardening can invoke a sense of collaboration and community for the students (Louv, 2008).

Another real-world experience is to explore the environmental impact of the school's grounds on the ecosystem (James & Williams, 2017). The teacher may have the students focus on the effects on the school or on their local watershed district. Teachers can engage students in a

variety of activities in this kind of exploration: collecting water, observing water runoff and possible erosion, collecting trash from school grounds, or cleaning a storm drain. Teachers can connect these activities to content in the classroom (Becker et al., 2017; Ernst & Monroe, 2004; Fägerstam & Blom, 2013; James & Williams, 2017). Students can conduct water quality experiments and compile data for their own analysis. Reading complex texts related to the content can provide depth to the outdoor learning activity (James & Williams, 2017). Teachers could present current news articles that describe the importance of water quality around the world to help connect literacy to the experiential learning.

A third authentic learning opportunity for teachers to use outdoors is to incorporate a more artistic approach that involves students creating, designing, or innovating. One way to do this is to ask students to draw an ecosystem or a habitat prior to visiting one, based on what they already know (Jose et al., 2017). Once they have the opportunity to experience the space – whether it is on-or-off school grounds, they will draw or map it out again. The students can compare their previous knowledge with new learning. This connection will give students a voice as they create the artistry, while demonstrating to the teacher what they have learned (Jose et al., 2017).

Although many learning opportunities can take place on school property, there are several experiences that can engage learners in a location away from school. If teachers are able to plan experiential field trips, they can make an incredible impact and extend the lesson back into the classroom setting. Some of these experiences include camping, hiking, orienteering, sailing, being on a working farm, or visiting a state or national park (Becker et al., 2017; Price, 2019). With each of these learning opportunities, teachers can set objective goals for students, give guidelines for learning, and then allow them the freedom to engage in their learning in a

natural setting. The skills that may be developed on these excursions are mutual agreement, contributions by all, strategic planning, critical thinking, coping with difficult situations outside of individual control, and listening to alternate perspectives (Becker et al., 2017; Price, 2019).

Addressing Space and Monetary Constraints

Teachers can regularly engage their students in outdoor learning when they have a growth mindset and are willing to use instructional methods for slow pedagogy and content-based instructional components. However, teachers describe time, available space, and money as constraints to outdoor learning (Carrier, et al., 2013; Rieckenberg, 2014; Rios & Brewer, 2014; Scott et al., 2015; Shume & Blatt, 2019). Many examples of outdoor learning found in the research demonstrate elaborate and potentially costly experiences. However, there are ways teachers can adapt the lessons to be more cost-friendly, use their available space, and incorporate them into a daily routine.

One example of an elaborate outdoor learning experience is when a group of students experienced field study at a delta preserve (Jose et al., 2017). Potential costs associated with this type of field experience are cost of admission and transportation. During this all-day experience, students actively studied and engaged with the ecosystem, focusing on the living and non-living species in the water and surrounding areas (Jose et al., 2017). A low-cost alternative to this specific experience could be walking to a local water source, such as a pond, a river, or a lake. Students could bring small buckets to collect any macroinvertebrates to analyze the health of the water source. Teachers could facilitate the students observing the ecosystem and drawing a habitat map before arrival and then after the experience to compare and contrast what they knew and then what they learned. If a water source is not nearby, any ecosystem could inspire

discussion around animal habitats, what living and non-living things are native to the system, or how the geographic features are affected by people.

Finding Time for Outdoor Experiences

One way for teachers to address time constraints is to find times that students are already outside. Teachers can meet students at the main entrance at the start of the day and begin observations of the morning weather patterns or they can meet their students outside after recess since the students are already dressed for the weather and in the space where learning will be taking place.

Another way for teachers to address time constraints is to plan an outdoor learning time with another class or group. Teachers can coordinate with a younger or older grade and establish an outdoor buddy program or they can work as a grade-level team. This can address the time concerns as teachers can divide up the different aspects of planning the lesson to help ease the burden. This type of partnership can be advantageous for both or every teacher involved in the planning as they will be collaborating, while increasing the presence of an outdoor learning culture in the school (Scott et al., 2015).

Attending to Adverse Weather

Weather is an important consideration for planning; rain, snow, and extreme hot and cold temperatures can impact outdoor learning. Many school districts provide extreme weather safety guidelines for the time students spend outdoors (Saint Paul Public Schools, n.d.; Texas School Safety Center, 2021). Teachers should follow the guidelines and ensure students are not outside in dangerous weather conditions. These guidelines may also include a list of appropriate clothing and necessary supplies for cold weather in Minnesota, a Midwestern state (Saint Paul Public Schools, n.d.) or for a warm weather state, like Texas, that may have heat advisories (Texas

School Safety Center, 2021). "Operating with a mantra of 'there is no such thing as bad weather, only bad clothing,' most teachers and students continue to get outdoors regardless of the weather and temperatures" (Rieckenberg, 2014, p. 122).

Teachers can overcome this barrier by following three steps prior to expected winter weather months. Step one is communicating to families about outdoor learning expectations and what outdoor clothing, footwear, and supplies will be needed. This gives families time to gather the necessary gear. The next step is asking students to bring in their clothing and supplies so teachers can ensure everyone has what is needed. If students are missing items, teachers can coordinate with families and administrative support in the building to procure them. The third step is to ensure students can be independent in dressing for snowy or rainy weather or applying sunscreen if they will be out in the sun. Teachers can incorporate practice sessions at the beginning of the year or season to get students in the habit of preparing themselves for a safe outdoor learning experience. This type of practice can also positively impact time restraints as teachers establish an outdoor learning routine and making preparation for outdoor learning more efficient (Ernst, 2014).

The sooner teachers can begin incorporating these some or all of these strategies to help connect more to nature, more to their own learning, and more to their peers, the faster they will likely see marked improvement in student motivation, critical thinking, and socialization.

Discussion

For many educators and schools, a culture of outdoor learning must be created. This cultural shift can start with just one teacher (Rieckenberg, 2014). One teacher who recognizes that wonder and suchness are not restricted to only children (Chang, 2020). One teacher who believes that helping students find motivation will help them be more successful in their learning

(Becker et al., 2017; Cameron & McGue, 2019). One teacher who recognizes that traditional classroom strategies are not always effective in preparing students for future success (Mirra & Garcia, 2020). When teachers start to witness the positive influence that outdoor learning can have on their students, other teachers will likely be inspired to follow their lead.

"In the outdoor classroom, there is a presence of tacit knowledge which is very hard to describe, such as the stinging sensation from touching a stinging nettle, the taste of a sun-ripe raspberry, or the smell of autumn in the wet grass" (Bensten & Jensen, 2012, p. 208). Outdoor instruction can provide a unique learning environment for students that they cannot experience indoors in a traditional classroom sitting at a desk completing a worksheet. This is demonstrated as true throughout a variety of learning contexts. Some may consider that outdoor learning should only apply to elementary-age students. However, the research shows a much broader spectrum of ages that can benefit from instruction in a natural setting (Becker et al, 2017). High school students engage in field data research of local water sources (Jose et al, 2017). Preschool children find outdoor learning allows them to learn through natural play (Akamca, 2017; Cameron & McGue, 2019). Middle school students actively work with engineering design, use hands-on methods to interact with natural materials, and perform rigorous data collection (James & Williams, 2017; Price, 2019). Fourth grade students describe their first experience in the Muir Woods as life changing (Montero et al, 2018). Twelfth grade students who are immersed in environmental education consistently throughout their four years of high school are recognized by an increase of environmental stewardship and awareness (Ernst & Monroe, 2004). Intermediate elementary students have the daily opportunities to engage in outdoor learning with a school commitment to natural grounds and teacher preparation (Khan et al, 2019). Outdoor learning as an instructional strategy is a method that has been proven to be effective for all

students' critical thinking and problem-solving skills, as well as their social and behavioral needs. The benefits of outdoor learning can be generalized to fit the needs of all students, from preschool to high school graduation. It is imperative that educators of any age group recognize the value of outdoor education and work to integrate it.

Teachers can implement one, some, or all of the activities presented in the previous section into their own practice when they are prepared with the knowledge of how outdoor learning can benefit students and an understanding how to overcome potential barriers. Educators should seek to grow in their own learning, while promoting unique and authentic learning opportunities for their students. Engaging them in outdoor learning provides an educational platform to do this.

One implication for teachers is if their district does not offer training to help establish an outdoor learning culture, teachers should seek professional development on evidence-based strategies to teach outdoor experiences while integrating standards-based curriculum (Louv, 2008). In his book, *Last Child in the Woods*, Louv (2008) presents an entire section dedicated to teachers and how to incorporate outdoor learning. One of the recommendations by Louv (2008) to further a love of nature in children is to create a nature club for teachers. This can be formal or informal, sponsored by the school or district or simply created by like-minded educators. It can be a collaboration of teachers and administrators who share ideas and knowledge in a natural setting (Louv, 2008). As an added benefit, outdoor experiences can also improve the mental health of educators (Louv, 2008). This benefit can help inspire the teachers to add new methods of outdoor learning experiences within their classroom.

Another one of the important implications for educators at all levels – teachers and administrators – is engaging the community through a school culture that embraces outdoor

learning (Louv, 2008; Scott et al., 2015). Teachers can ask the grown-ups in children's lives to volunteer their time helping work in the garden (Louv, 2018). Administrators can seek local environmental experts to come and share their knowledge with students (Louv, 2008). Principals or Curriculum Specialists can establish a Junior Naturalist Club at school that provides students with extracurricular connections to their outdoor spaces (Louv, 2008; Rieckenberg, 2014). These community-driven initiatives add to a rich culture of natural spaces and outdoor learning.

To the teachers who want to observe students experiencing suchness by catching snowflakes and to expose their students to this type of learning, the teachers who want to work towards a school climate of embracing the unknown, the teachers who want to nurture a culture of growth mindset and authentic learning in themselves and in their students: you can do it. Lean into the uncomfortable. "It just takes one to start a movement" (Rieckenberg, 2014, p. 163).

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