

# Potential Inclusion of Outdoor Preschool in State Funded Programs

Alex Kilander

May 2022

## Abstract

Outdoor preschool education is increasing, particularly in the United States where it has been less common than in some other countries. Proponents claim a variety of benefits from the approach, including that it allows children to explore and play in nature much more than in traditional classrooms. In the context of a pandemic with high rates of indoor transmission, outdoor preschool has an obvious additional appeal. However, few outdoor preschools in the United States are licensed or meet regulatory standards that permit them to receive public funding from either child care subsidy systems or state funded preschool programs. Outdoor preschools differ from traditional indoor programs in ways that require significantly different regulatory standards. Based on a pilot program, the state of Washington recently developed standards for licensing outdoor preschools. Washington's standards offer a model for other states and provide insights into key issues for including outdoor preschool as an option for state-funded preschool and subsidized child care.

## Origins and Concept

Outdoor pre-K is a concept that was popularized in Germany and Scandinavia several decades ago. Known as *Waldkindergarten* or "Forest Kindergarten," there are about 1,500 such sites in Germany alone.<sup>1</sup> These programs are widely accepted and subsidized by the government in tandem with more traditional models. It has spread across the United States over the past few decades, with almost 600 in operation in late 2020.<sup>2</sup>

In the United States, the popularity of this curriculum stems from Richard Louv's 2005 book, *Last Child in the Woods*, which alleged that American students were suffering from "nature deficit disorder."<sup>3</sup> He described this as the set of behavioral problems like ADHD or anxiety that arise from spending too little time outdoors. To remedy this problem, outdoor pre-K seeks to connect children with nature, where they may be able to learn better than in a traditional classroom. The curriculum focuses on allowing children to explore and play in nature, with lessons incorporating the things they see around them. One lesson might focus on experiencing nature through imaginative use of sticks or leaves, while another might simply allow the child to explore a quiet forest and experience nature's yearly rhythms. There is less focus on direct instruction and more on allowing children to creatively engage the world through natural settings. The teacher, rather than leading a class, typically acts more as a chaperone to assist students. However, in some programs, they do occasionally engage in structured lessons that incorporate the nature around them.<sup>4</sup>

Aside from curriculum, these sites also differ from traditional pre-K or childcare in the licensing they can obtain, and thus the standards they operate under. Often, they are unlicensed by the state, operating on a small-scale. One such school in Colorado operated with two groups of four children to avoid childcare regulations designed for an indoor space, which it could not technically meet as a result of its outdoor programming.<sup>5</sup> As a result, they are unable to operate with many children, unable to operate full-day programs, and unable to accept

most childcare vouchers from the state. This makes access very difficult for most parents, especially low-income or working parents.

### **Benefits of Outdoor Pre-K**

Advocates believe that this type of outdoor education offers children a litany of benefits over the traditional model, allowing kids to develop where they believe typical early childhood education (ECE) in the United States has fallen short. The claimed benefits include, but are not limited to, increased physical activity, greater social-emotional development, improved mental health, and improved academic performance.<sup>6</sup>

In line with many of the advocates' claims, there is research literature indicating that exposure to nature is beneficial for children's learning and development. A growing body of work has examined the potential educational impacts of nature-based curricula on young children. According to one extensive review of research findings from the previous decades, there have been many benefits identified that correlate with nature-based curriculum, with theory suggesting a likely causal relationship. Some of these benefits are given below.<sup>7</sup>

- **Improves learners' attention, levels of stress, and self-discipline,**
- **Increases interest and enjoyment in learning, physical activity and fitness.**
- **Provides a calmer, quieter, safer context for learning**
- **Develops autonomy and fosters developmentally beneficial forms of play**

### **Limitations in our Current Understanding of Outdoor Pre-K**

While the benefits to engaging more frequently with nature have a strong base in the literature, more work is needed to examine the concept alongside a high-quality traditional program. Only a few studies have to date examined nature-based curriculum side by side with more traditional schooling, and none focused on ECE.<sup>8</sup> Further research is needed to better assess advocates' claims that their approach is superior to the traditional model, despite the wide benefits that might accrue to children.

The research also gives only a partial picture of the benefits that may relate to enrollment in a nature-based program. Many questions remain unanswered that are useful in determining the exact benefits of a program.<sup>9</sup> For example, it is unclear how specific environmental features — including landscape qualities, tree and plant cover, biodiversity, ambience, and size — influence benefits. It is also unclear how the adults' presence and professional approaches shape program benefits. Lastly, due to many issues with access, children in outdoor programs tend to be middle class and white.<sup>10</sup> More research is needed to investigate how the benefits of nature-based programs might vary with gender, race, and socioeconomic characteristics of the family.

### **Outdoor Pre-K in Washington State**

As noted above, one of the barriers to outdoor pre-K in the United States is the lack of licensing or standards for such programs. This prevents outdoor pre-K from operating full-day programs, receiving childcare subsidies, and participating in state-funded preschool programs. The development of appropriate standards for outdoor pre-K is necessary step for a substantial expansion of the approach in the United States.

In 2017, Washington began a pilot program to do exactly that, experimenting with licensing outdoor pre-K programs in the state. The state of Washington licensed five programs and developed pilot standards for them to implement. While the pilot produced some early signs of positive results for children's kindergarten readiness, the Covid-19 pandemic derailed the pilot program evaluation.<sup>11</sup> Nonetheless, Washington legislators considered the program to be a [success](#) and soon pushed for permanent licensing. In 2021, Governor Jay Inslee signed SB5151 into law, allowing widespread licensing to outdoor preschools and adopting most of the pilot standards into law.<sup>12</sup>

Washington is the only state to license and regulate outdoor pre-K or childcare centers. However, this licensing has opened up possibilities for greater recognition, and provided outdoor pre-K with its own set of [permanent standards](#). These standards are comprehensive and differ from more traditional center-based child care standards in several ways.<sup>13</sup> The most relevant differences are described below.

- **Ratio and Group Size:** The outdoor preschool standards require a 1:6 staff to child ratio with a maximum group size of 16. For comparison, center-based early learning programs have a ratio of 1:10 with a maximum group size of 20. This difference aims to ensure appropriate active supervision of children in the outdoor preschool environment.
- **Benefit-Risk Assessments:** Outdoor preschool providers must complete a benefit-risk assessment and create a risk management plan for all regularly used locations and nature-based activities (e.g., climbing natural features, foraging and encountering wildlife). Activities or locations with increased risk must have policies and procedures to mitigate that risk. Such activities include: encountering pets or wildlife, interacting with strangers, the shared use of public space, campfire activities, water activities or activities near bodies of water, and several more. Lastly, all children must remain actively supervised by at least one staff member at all times.
- **Teacher Qualification in Outdoor Education:** Outdoor preschool program directors or supervising staff must have experience or training in environmental or outdoor education in addition to the same early childhood certificate requirements as center-based early learning programs.
- **Curriculum Requirements:** Outdoor preschools must provide a nature-based curriculum, using natural materials and processes to enhance learning for program participants. The lessons must incorporate natural settings as a means of learning. This curriculum must also utilize developmentally appropriate techniques to teach children about boundaries and self-regulation for outdoor play. For example, instead of having fences, teachers use visual cues, such as cones, and review the boundaries with children.
- **Proper Clothing:** Outdoor preschools operate outside every day and must ensure that children have the proper clothing and gear to remain healthy and safe. Programs must partner with parents to understand the importance of providing proper clothing and must support children who do not have such clothing. If needed, they must loan children the proper clothing to wear.
- **Weather-Related Policies and Emergency Procedures:** Programs must also have policies and procedures for closure in the case of poor or emergency weather conditions. In Washington, such weather conditions include heat in excess of 100 degrees or cold less than 20 degrees, lightning storms, tornados, hurricanes, flooding, strong winds over 25 mph, or an air quality emergency ordered by a local or state authority. In the event of such an emergency, the program must close or enter a nearby emergency shelter.
- **Required Indoor Space:** Providers must have a building for children in the event of a closure. The use of these buildings varies depending on program type and curriculum. Some are used as part of the curriculum for educational purposes, while others are simply emergency shelters. In Washington, if these buildings are used for “educational purposes,” then they must also follow additional standards laid out for childcare or pre-K, including space requirements. If they are used solely as an emergency shelter and for children’s “biological needs,” then they need only follow state and local building codes<sup>14</sup>. In the event of an emergency, it does not appear that the regulation allows unlicensed shelter buildings to serve as temporary classrooms. These buildings can only be used as shelters, or as a space for “transitional activities” while other students’ “biological needs” are being met.

## Considerations For Other States

### Potential Benefits of including Outdoor Pre-K

As states expand their pre-K programs—and perhaps particularly for states implementing universal pre-K—outdoor pre-K programs could be a worthwhile addition to the mix of program options. The lower cost of outdoor pre-K facilities means that they can lessen capital costs and decrease the time required to add capacity. And while the concept is unorthodox compared to traditional indoor models, there is enough evidence backing nature-based curriculum to warrant at least a pilot program with unique standards and licensing. States should consider the potential benefits outlined below when deciding whether to develop an option for outdoor pre-K.

- **Low-Cost:** Licensing and implementing outdoor pre-K may be less expensive than center-based models. They often do not carry the same capital costs for facility construction that center-based models do. In addition, outdoor pre-K programs incur fewer operating costs related to being indoors, like paying for utilities. The final report of the Washington legislature, prior to establishing permanent standards for outdoor pre-K, estimated substantial cost savings from nature-based programs. The cost of adding one class for an outdoor pre-K program was estimated to be roughly \$100,000, compared to \$223,000 for a center-based classroom.<sup>15</sup> Even when fully outdoor pre-K is not a possibility, there might still be cost-savings from utilizing nature-based curriculum. By allowing for it to be incorporated into existing center-based programs, the state could create a hybrid model that shares existing spaces over the course of a school day.
- **Benefits of Nature-Based Curriculum:** While further research is needed regarding the relative efficacy of indoor and outdoor pre-K, the literature points to several benefits that nature-based curriculum can bestow on children. These include improved attention, self-discipline and physical activity for nature-based students<sup>16</sup>. While it is unclear that nature-based curriculum is superior to alternatives, the potential benefits are sufficient to warrant the addition of the program into many states' ECE landscape with pilot evaluation.
- **Can be Implemented Quickly:** Outdoor pre-K has the potential to quickly add enrollment slots for children through rapid implementation. Identifying spaces in parks or forests that could be utilized for programs has the potential to be a faster process than financing and developing new centers, especially in more rural areas. Once unique standards are developed for outdoor pre-K, some outdoor pre-K programs might be able to go into operation relatively quickly. This would also permit existing outdoor pre-K programs in states to expand enrollment slots for children and offer full-day programs.

### Potential Challenges for Licensing

Despite the potential benefits, states should recognize several potential barriers to licensing and implementation. Many of these issues are similar to those dealt with by Washington state, which provides an important model for others to mirror in their own efforts. The following issues are essential to keep in mind when developing standards.

- **Weather:** The most obvious barrier to implementing outdoor pre-K is concern that weather would substantially impact program operations. Given the emphasis that the curriculum places on being close to nature, these programs typically do not close unless there is a weather emergency. Drawing the line between poor weather and weather emergencies is important in developing a state's standards to ensure safety and ensuring the program is consistently open and operating. While concerns about weather are certainly understandable, they will not impact every state equally. In Washington's pilot program, the only reported closures from inclement or extreme weather came from poor air quality as a result of widespread wildfires in the west.<sup>17</sup> According to one study of outdoor time for existing indoor programs, some states may be prone to more adverse weather conditions, especially in the winter.<sup>18</sup> However, it should not deter a nature-based

program from at least being tested for viability. As was the case in Washington, pilot programs will be able to determine if weather is a large obstacle in any given state.

- **Mitigating Natural Risk:** Outdoor pre-K, being in a less-controlled natural environment, means that parents and standards must accept greater risk as part of the program. Indeed, some of this risk is often imperative for program benefits, as a means to let children explore. State standards must strike a balance between permitting sufficient child supervision, and allowing them to explore natural environments. The benefit-risk assessments employed by Washington state offer a model for other states to strike this balance. In the two years that Washington’s pilot program operated prior to the COVID-19 pandemic, there was only one serious injury amongst over several hundred children, a broken finger resulting from something being dropped onto the child’s hand. No serious injuries or incidents were reported from either poor weather or climbing natural features. This was a lower rate than traditional childcare models in Washington during the same period.<sup>19</sup>
- **Requiring Indoor Space:** The standards from Washington state included a requirement for some form of indoor space to act as an emergency shelter or for children to exercise “biological needs.” However, the regulations on these buildings were far more relaxed than other centers if they were not used for educational purposes. If states want to take advantage of cost savings, they need to ensure that indoor space regulations do not substantially raise costs by over regulating buildings that operate solely as temporary shelters.
- **Access to Outdoor Spaces:** Standards in Washington required that outdoor pre-K have at least 4,000 square feet per child. While this is readily available in many parts of the state, urban centers may have greater difficulty in accessing outdoor spaces. State lawmakers should recognize this problem as an obstacle for some areas, and encourage ways to work around the problem. Parks and other public spaces may offer a substitute for other natural environments, but the use of these spaces would require agreement with the city or local government to implement. In addition, some programs have chosen to solve the problem through transporting children to more distant natural settings, where space is not a problem.
- **Training Qualified Teachers:** Employing a nature-based curriculum requires that teachers and staff be trained in its unique features. The state would need to work with stakeholders, advocates and teacher educators to develop or adopt preparation programs credentialing processes for staff. In Washington state, added requirements for training to participate in nature-based curriculum ranged from three hours for assistant teachers, to 30 for a program director.<sup>20</sup>



## Appendix I: Review of Outdoor Pre-K Literature (excerpt from Kuo et al. 2019).<sup>21</sup>

We now know that...	How this advance came about and why it matters
Nature-based instruction (NBI) is, on average, more effective than traditional instruction (TI).	Early research often compared outcomes before and after NBI, showing that students benefited from nature-based instruction but not whether there was anything particularly helpful about NBI as compared to any other instruction. More recently, studies have begun comparing outcomes for NBI vs. TI, showing that incorporating nature adds value to instruction (e.g., Ernst and Stanek, 2006; Camassao and Jagannathan, 2018).
The advantage of NBI over TI does not simply reflect a tendency for better teachers, better schools, or better students to choose NBI.	Early research often compared learning in classrooms offering NBI vs. matched classrooms offering TI. But matching does not address the likelihood that teachers (or schools) who choose to offer NBI may be more innovative, energetic, or well-funded than teachers (or schools) who do not, even if they serve similar students. Similarly, comparisons of students who choose extracurricular NBI vs. students who do not will reflect pre-existing differences in the kinds of students who sign up for extra instruction. Recently, researchers have begun using “waitlist controls” – identifying teachers, schools, or students interested in NBI and then randomly assigning some of them to NBI and the rest to TI (e.g., Wells et al., 2015). Guarding against pre-existing differences between the teachers, schools, and students being compared lends greater confidence that any gains are due to the instruction itself.
The effects of NBI on academic learning are real; they do not simply reflect the rosy assessments of biased observers.	Early research often relied on subjective assessments of outcomes by persons who believe in NBI. Advocates, practitioners, and parents or children who choose NBI may perceive benefits in the absence of any real effects, whether consciously or unconsciously. More recent research guards against such bias by employing objective measures or assessments made “blind to condition” – without knowing which students were in which condition (NBI or TI) (e.g., Ernst and Stanek, 2006). In these studies, an advantage of NBI over TI cannot be attributed to wishful thinking.
NBI shows a “dose-response relationship” – as the magnitude of the treatment (the dose) increases, so does the outcome.	Early research relied on binary comparisons between learning settings with and without nature, or “low” and “high nature,” leaving more room for alternative explanations. For instance, if students learn more outdoors than indoors, the difference might be due to either differences in vegetation or other differences between the settings. More recent research has compared multiple levels of nature (e.g., schoolyards with 0–40% tree cover, Sivarajah et al., 2018) or multiple levels of NBI (Wells et al., 2015). When the response is proportional to the dose, that lends confidence that the effect is attributable to the level of vegetation. Although a “dose-response relationship” does not prove causality, it strengthens the case.
The nature-learning connection holds up across topics, learners, instructors, pedagogies, places, and measures of learning.	As researchers have continued to conduct studies, the body of studies testing the nature-learning hypothesis has grown larger and more diverse (e.g., Faber Taylor et al., 2002; Maynard et al., 2013; O’Haire et al., 2013; Ruiz-Gallardo et al., 2013; Fremery and Bogner, 2014; Lekies et al., 2015; Swank et al., 2017; Kuo et al., 2018a; McCree et al., 2018; Sivarajah et al., 2018). A robust association persisting across different contexts lends greater confidence in a cause-and-effect relationship (Hill, 1965, p. 8).
The relationship between nature and learning holds up across different research designs.	Over time, a greater variety of study designs have been employed, including true experiments (e.g., Wells et al., 2015), quasi-experiments (e.g., Faber Taylor and Kuo, 2009; Benfield et al., 2015), large-scale correlational studies with statistical controls (e.g., Kuo and Faber Taylor, 2004), and longitudinal studies (e.g., McCree et al., 2018). Findings persisting across diverse study designs strengthen the case for causality.
The advantages of NBI over TI may stem from both setting and pedagogy.	Previous reviews drew only upon studies examining the effects of NBI on learning. In this review, we expanded our reach to include research on both the setting and the pedagogy of NBI, respectively. Educational psychologists working in the classroom have found that active, hands-on, student-centered, and collaborative forms of instruction outperform more traditional instructional approaches (Granger et al., 2012; Freeman et al., 2014; Kontra et al., 2015). Environmental psychologists have found better learning in “greener” settings – even when the instruction does not incorporate the nature (Benfield et al., 2015; Kuo et al., 2018b). These additional bodies of evidence converge to support and perhaps explain the advantages of NBI over TI.
Nature experiences may promote learning via at least eight distinct pathways.	Again, previous reviews drew only upon direct tests of the nature-learning hypothesis – studies in which nature was the independent variable and learning was the dependent variable. In this review, we also examined studies in which nature was the independent variable but the dependent variable was a precursor to learning (for example, Li and Sullivan, 2016, examines impacts of classroom views of nature on attention, which has long been established as an important precursor to learning, e.g., Rowe and Rowe, 1992). Evidence of mechanism lends greater plausibility to a cause-and-effect relationship between nature and learning. The multiple mechanisms identified here may also help explain the consistency of the nature-learning relationship, as robust phenomena are often multiply determined.

*In recent years, the evidence for a cause-and-effect relationship between nature experiences and learning has advanced considerably. Some advances can be traced to the adoption of more rigorous research methods in individual studies (in green), others can be traced to the maturation of the field (in blue), and still, others stem from broadening the kinds of evidence considered in reviews (in purple).*

## Appendix II: Additional Certifications Required in Washington Pilot<sup>22</sup>

Position	Qualification Requirements for Early Learning Program Staff (WAC 110-300)	Recommended Additional Training Requirements for Outdoor Child Care
Assistant Teacher	CCB; ECE Initial Certificate by Aug. 1, 2026	Three hours (level 1 competencies)
Lead Teacher	CCB; ECE Initial Certificate and ECE Short Certificate by Aug. 1, 2026	10 hours (level 1-3 competencies); and two years of experience if no supervisor on-site
Director, Assistant Director, Program Supervisor	CCB; two years of experience; ECE State Certificate by Aug. 1, 2026	Three credits or 30 hours (level 1-4 competencies)

## Appendix III: Sample Cost Comparison from Washington Pilot Program<sup>23</sup>

Table 1.1 Additional Outdoor vs. Additional Indoor Class		
	+ Indoor	+ Outdoor
# Classrooms	1	1
# Children	17	12
Child/ Teaching Staff		
Lead Teacher, \$20/hr. (5.5)	41,600	41,600
Assistant Teacher, \$18/hr. (7)	37,440	37,440
Benefits	26,313	26,313
Program Expenses	18,000	5,000
Occupancy		
Rent/Mortgage	52,000	2,000
Utilities, Custodial	24,000	1,800
Admin	23,363	23,363
<b>Total Additional Operating Expenses</b>	<b>222,716</b>	<b>100,353</b>
Estimated Revenue per year (50% subsidy + 50% market rate)		
Profit/Loss	<b>1,786</b>	<b>58,119</b>



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## Endnotes

- <sup>1</sup> Gregory, A. (2017). Running Free in Germany's Outdoor Preschools. *The New York Times Magazine*, The New York Times.
- <sup>2</sup> Deines, T. (2022). "Outdoor Preschools Grow in Popularity but Most Serve Middle Class White Kids." *The Hechinger Report*.
- <sup>3</sup> Gregory, A. (2017). Running Free in Germany's Outdoor Preschools. *The New York Times Magazine*, The New York Times.
- <sup>4</sup> Deines, T. (2022) Outdoor Preschools Grow in Popularity but Most Serve Middle Class White Kids. *The Hechinger Report*.
- <sup>5</sup> Einhorn, E. (2020). As Outdoor Preschools Spread, States Debate How to Keep Kids Safe. *NBC News*
- <sup>6</sup> Brown et al. (2021). Outdoor Preschool Policy Action Framework. The Willamette Partnership.
- <sup>7</sup> Kuo et al. (2019). Do Experiences With Nature Promote Learning? Converging Evidence of a Cause-and-Effect Relationship. *Frontiers in Psychology*.
- <sup>8</sup> Camasso, M & Jagannathan R. (2017). Improving Academic Outcomes in Poor Urban Schools Through Nature-Based Learning. *Cambridge Journal of Education* 48(2).
- Ernst, J & Stanek, D. (2006). The Prairie Science Class: A Model for Re-Visioning Environmental Education within the National Wildlife Refuge System. *Human Dimensions of Wildlife*. 11(4).
- <sup>9</sup> Gill, T. (2014). The Benefits of Children's Engagement with Nature: A Systematic Literature Review. *Children, Youth and Environments*, 24(2).
- <sup>10</sup> Deines, T. (2022) Outdoor Preschools Grow in Popularity but Most Serve Middle Class White Kids. *The Hechinger Report*.
- <sup>11</sup> Outdoor Preschool Pilot Final Legislative Report. (2020). *Washington State Department of Children, Youth, and Families*.
- <sup>12</sup> Washington State Passes Outdoor Education Bill. (2021). *North American Association for Environmental Education Blog*.
- <sup>13</sup> Outdoor Preschool Pilot Final Legislative Report. (2020). *Washington State Department of Children, Youth, and Families*.
- <sup>14</sup> Biological needs are defined in the regulation as department approved toileting, handwashing, eating, sleeping or resting.
- <sup>15</sup> See Appendix III for these cost estimates.
- <sup>16</sup> Kuo et al. (2019). Do Experiences With Nature Promote Learning? Converging Evidence of a Cause-and-Effect Relationship. *Frontiers in Psychology*.
- <sup>17</sup> Outdoor Preschool Pilot Final Legislative Report. (2020). *Washington State Department of Children, Youth, and Families*.
- <sup>18</sup> Boyle et al. (2022). Physical Activity Opportunities in US Early Child Care Programs. *Pediatrics*.
- <sup>19</sup> Outdoor Preschool Pilot Final Legislative Report. (2020). *Washington State Department of Children, Youth, and Families*.
- <sup>20</sup> This was training that was added onto existing requirements for childcare professionals and teachers. See Appendix II for further details.
- <sup>21</sup> Kuo et al. (2019). Do Experiences With Nature Promote Learning? Converging Evidence of a Cause-and-Effect Relationship. *Frontiers in Psychology*.
- <sup>22</sup> Outdoor Preschool Pilot Final Legislative Report. (2020). *Washington State Department of Children, Youth, and Families*.
- <sup>23</sup> Outdoor Preschool Pilot Final Legislative Report. (2020). *Washington State Department of Children, Youth, and Families*.



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## **About NIEER**

The National Institute for Early Education Research (NIEER) at the Graduate School of Education, Rutgers University, New Brunswick, NJ, conducts and disseminates independent research and analysis to inform early childhood education policy.

## **Suggested Citation**

Kilander, A. (2022). Potential Inclusion of Outdoor Preschool in State Funded Programs. Policy Brief. New Brunswick, NJ: National Institute for Early Education Research.