

**Incorporating Environmental Education within Montessori Environments;**

**A Call for Educational Change**

Isabelle Flack

Loyola University Maryland - Graduate School of Education

ED 625 W01- Montessori Capstone

Dr. Victoria A. Elasic

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### **Abstract**

Environmental education, a growing field, is recognized as a crucial element in combating climate change for current and future generations. Although environmental education seeks to offer children a holistic worldview of nature while striving to inspire young thinkers, it is missing from most classrooms, specifically Montessori schools. The Montessori method is one that recognizes each individual child's interconnectedness with the natural world while offering guidance as they discover their role. This is a brief overview of literature and case studies which speak to the various benefits of incorporating nature-based learning within classrooms. Specific benefits in regards to child development, sustainable actions and children with exceptionalities are discussed. The aim of this review is to support the notion that environmental education should be incorporated in Montessori schools, specifically Primary age Environments.

An education capable of saving humanity is no small undertaking; it involves the spiritual development of man, the enhancement of his value as an individual, and the preparation of young people to understand the times in which they live (Montessori & Lane, 2018, p. 30).

## Introduction

The Montessori Method is often described as a ‘Cosmic Education’. This method of education aims to recognize the interconnectedness of all beings. Each entity in this life has a role to fulfill. However, one cannot function without the other, each depends upon the others to fulfill their own duties. These cosmic agents include: the Sun, Earth, Land, Water, and Air. In organic form, these cosmic agents make up the biosphere including plants, animals, and humans. The aim of Cosmic Education is to encourage children to discover the interrelations that exist within our world, how each one functions and their significance. As children learn to understand how the cosmic forces interact, they develop a deep appreciation for the collaborative relationship of the Universe. Dr. Montessori, the innovator of this education model, believed that by encouraging this all-encompassing perspective within children, they would adopt the responsibility to maintain order and harmony within nature (Grazzini, 2013). According to the North American Association for Environmental Education, Environmental Education, or EE, “is a process that helps individuals, communities, and organizations learn more about the environment, develop skills to investigate their environment and to make intelligent, informed decisions about how they can help take care of it” (*About EE and Why It Matters*, 2021). As Montessori educators, we aim to prepare our students for success in the world beyond the classroom walls. In alignment with Dr. Montessori’s Cosmic Education, Environmental Education aims to inspire young thinkers to intentionally look beyond themselves; To become aware of our place and role in the world while we work collaboratively towards a more peaceful world. Respect develops from discovery. There are several benefits to combining these methodologies within the Prepared Environment including the positive impacts on child

development and overall well-being, promoting and encouraging sustainable action, and supporting students with exceptionalities.

## **Child Development and Overall Well-Being**

### *Personal Growth & Well-Being*

Due to an explosion of scientific and social studies in recent years, it has become recognized that spending time in nature has significant benefits. According to studies, specifically nature-based education has been proven to promote emotional, academic, social, and personal growth among students of all ages. As the number of students affected with mental health conditions increases, educational institutions have begun to intentionally integrate various practices within the classroom in an effort to support their students' well being. The term 'well-being' can feel broad in its description. A concise definition agreed upon among psychologists for 'well-being' includes a sense of purpose, belonging, and an overall enjoyment of life. NSLOC, or Nature Specific Learning Outside the Classroom, is becoming a popular approach among some educators to support their students. NSLOC includes both curricular and non-curricular activities that can occur on or off school-grounds in natural surrounding areas (Mann et al., 2022).

### *Developing 'Soft Skills'*

In studies of primary age students, 3-6 years of age, the most common outcome of students who participate in outdoor curricular lessons is their development of 'soft skills'. This refers to a child's Intrapersonal and Interpersonal capabilities. Intrapersonal skills have to do with the internal behaviors of the individual, the child's self-construction and concept of themselves. This includes the student's self-confidence, resilience, self-assurance, self-discipline, and ability to

communicate. Interpersonal skills refer to abilities beyond the self including, expressing self-awareness, non-verbal communication, respect and empathy towards others and effective communication (Mann et al., 2022). In the Primary environment, a child has ample opportunity to engage and develop both interpersonal and intrapersonal skills. As Montessorians, we link independence to confidence. Within the environment, as the Guide demonstrates the skills required, the child becomes increasingly independent and thus increases his self-confidence. Guided by their intuition, the child navigates their inner world while learning key skills necessary for socializing with their peers. Incorporating NSLOC within Primary Montessori curriculum would provide the child ample opportunity to further develop and implement their soft skills in and out of the Prepared Environment.

#### *Academic Enhancement*

Children who participate in nature-based education also showed improvement in their academic progress. Students who engaged in NCLOS showed significant growth in their reading/language, math and critical thinking skills (Mann et al., 2022). Montessori methodology recognizes that for a child to develop these abstract abilities, there must first be a concrete experience (Shortridge, 2003). Children who participate in NCLOS are able to have diverse experiences within nature that allow them to make greater connections within the classroom. These experiences also encourage an interest in environmental knowledge, attitudes and stewardship particularly among Primary students. They became more attune with and aware of the various animal and plant species that exist in their surrounding area. Not only did they desire to learn more about them, but they also began to develop deep feelings of attachment and responsibility of taking care of them (Mann et al., 2022).

## **Promoting Sustainable Action**

### *Climate Crisis*

Our climate is currently in a state of crisis. The fate of our planet will soon become our children's largest responsibility. While this ultimately affects everyone, children, those in low socio-economic standing, and future generations will be impacted the most by an increase in disease, poverty and lack of accessibility to essential resources. Every year, the education of 38 million children is disrupted due to the climate crisis. (Save the Children, 2022). As our world becomes increasingly digital and indoor-focussed, our society, especially children, are disconnected from the natural world. Our 'Nature-Deficit' population lacks the experience, respect and understanding necessary to combat our climate crisis (Louv, 2008). Under the overarching sense of urgency, we as educators are tasked with a critical responsibility.

### *Developing an Environmental Identity*

The early years of child development are essential. From birth to age 6, the developing child has what Dr. Montessori described as an Absorbent Mind. Moving from unconscious to conscious, the child is absorbing everything in his surroundings. The Absorbent Mind of the child aims to orient and adapt the child to their specific space and time, while allowing the child to construct themselves (Shortridge, 2003). During this time, children are also developing their environmental identity. This environmental identity refers to the child's confidence level while in a natural setting and the draw or lack of draw to be outdoors. Developing this identity lays the foundation for their call to sustainable action. With significant influence from the relationship adults in their life have with nature, it is important for parents, family members, and teachers to encourage a sense of wonder, curiosity and respect for the natural world. At a Primary level,

these experiences could range from exploring nature, finding and gathering rocks and flowers, talking about observations made outside or telling true stories about nature (Chawla, 2009). Engaging in positive experiences in nature as young children, increases their comfortability and curiosity. These experiences lead to a deep love and connection with the natural world, while building upon one another to develop a child's environmental responsibility.

### *Environmental Stewardship*

As children age, they begin to develop and become stewards of the earth. With their foundation of positive experiences, they can begin to explore more serious topics such as climate change and the impact of sustainable and unsustainable actions. Empathy is at the heart of caring for nature. Studies show that those who have positive experiences in nature feel a stronger connection and are therefore more inclined to commit to protecting it (Chawla, 2009). As children grow and develop, they internalize what is deemed important by those around them. If we, as educators and adults, demonstrate our love and respect for nature, our children will follow.

### **Supporting Students with ADHD**

#### *Prevalence of ADHD in the U.S.*

Incorporating Environmental Education practices within the Primary Montessori experience benefits all children, especially those with exceptionalities. Studies show that spending time in nature improves cognitive performance within all students, but specifically children with ADHD. In the U.S., 5% of children and 2.5% of adults have ADHD. Studies have shown that children who are exposed to nature are less likely to develop ADHD. Children who live within proximity of a natural environment could reduce developing it up to 33%. Children with ADHD show



patterns of inattention, hyperactivity and impulsivity (Faber Taylor & Kuo, 2009). This makes staying on task, completing school work and concentration extremely challenging. Children with ADHD have to expel much more time and energy in order to keep up with their peers, resulting in mental exhaustion and frustration among students. Children with ADHD are at high risk for social impairment, developing substance abuse and an increased risk of dropping out of school (Faber Taylor & Kuo, 2009). Children with ADHD have much to gain from incorporating nature-based curriculum.

### *Attention Restoration Theory*

Through a process called, ‘attention restoration’, symptoms of ADHD decrease after activities in outdoor or natural settings. Attention Restoration Theory, or ART, is a growing practice within schools to support learners with ADHD. ADHD is directly related to fatigue. As the school day continues, students’ symptoms typically worsen or become more severe as they work to restore their attention. Different environments also have various effects on their attention. Effortful environments require more attention from the individual which then must be applied to a task. This results in mental fatigue. Other environments are gently absorbing, drawing on involuntary attention, therefore restoring energy and awareness. Natural environments draw upon this involuntary attention and help children overcome mental fatigue. A study conducted in 2009 had children complete several challenging puzzles in a quiet indoor setting in order to cause mental fatigue. The children, a sample with and without ADHD, were then taken on a 20 minute walk with an adult in a nearby natural area. The walk was conducted at a relaxed pace, with minimal conversation. The children returned to their quiet indoor setting and were asked questions in regards to their observations and feelings while on this walk. The children reported feeling calm,

relaxed and happy on their walk. The children were then tested on their concentration levels and impulse control. The results concluded a successful increase in concentration and better impulse control in students with and without ADHD. (Faber Taylor & Kuo, 2009). All students have something to gain from incorporating nature-based education within the school day. Reducing mental fatigue in students allows more energy for discoveries to be made in and out of the classroom.

## **Goals & Interventions**

### *Personal Reflection*

Studying the connection between nature and humans, specifically children, is a sincere passion of mine. My own relationship with nature is one that is very sacred. My fascination has only grown since I was a child. Growing up I felt torn between Montessori and Environmental Education. In my mind, the two felt synchronous. The natural environment is our greatest teacher. It deserves our attention, respect, and protection. Aligning with the principles of Dr. Montessori's methodology, stewardship of the Earth is essential in creating a more intentional society and harmonious world. The research I have reviewed energizes my desire for educational and environmental change. I intend to continue with this research and as I gain more knowledge and experience within the classroom, I hope to collaborate with others to enact change within classrooms globally. I have shared most of my findings with my Primary Montessori cohort, as well as family, friends and other educators.

### *Practical Applications within the Primary Environment*

Based on the literature I have reviewed and my own interest, I have created a list of Environmental Education implementations that I believe have the power to create change at a local level. I strive to incorporate these elements within my own Primary Montessori Prepared Environment, curriculum and school community. While I anticipate changes and development of this list over time, it will serve as a foundation for the future. In creating this list, I hope that other educators, Montessori and traditional, are inspired to include elements of nature-based education within their own classroom practices and goals.

### *Opportunities for Environmental Education within the Prepared Environment:*

- Active relationships with composting and recycling at school
  - Students should be active participants in learning these processes, outcomes, as well as helping with physicalities.
- School garden/farm
  - A possibility that depends on several factors not limited to school structure, place and budget. If feasible, this could involve the entire school and local community. Works in tandem with the composting program.
- Green area(s) inside the classroom
  - Could take a variety of forms. Ex. a soft, quiet spot in the Environment with various nature literature and a large window facing a natural area. Perhaps a small work that incorporates some nature elements.
- Nature Large Group Lessons

- Could take a variety of forms including true stories, Classified Picture Cards, nature literature, songs, games, etc.
- Nature Songs: <https://www.songsforteaching.com/earthdaysongs/>
- Nature literature
  - <https://www.montessorinature.com/30-amazing-books-for-children-on-nature/>
- Field Trips
  - This could include local natural areas. Dependent upon on location, school budget, administration and parent permission. Partner with local community organizations.
- Nature Art
  - Various opportunities that could be incorporated with items children gather in their surrounding natural environment.
  - <https://montessori-art.com/category/montessori-nature-art/>
- Nature Research projects
  - Encourage students to research species that they are interested in and share with the class during Group Time! This is beneficial for the individual child, the parents, and the other students.
- Guided nature walks
  - Depending upon location, take a walk with your students while pointing out several species and facts about them. If a child is interested in a particular element of nature, do research and speak with them about it.
- Sensory experiences with Nature

- This could be paired with Guided nature walks. Focus on one of the senses and attempt to draw your students' attention to it. This could also involve meditation, yoga or other body exercises.
- Johnson, K. (2018). *Wonder and wander: An early childhood nature connection activity guide*. Wings Worms, Wonder.
  - This book is a wonderful resource written by one of the women who worked at my Primary school! Full of incredible ideas and beautiful illustrations about combining nature within early childhood experiences.
- Unstructured time in nature
  - Dependent upon administration, location and other factors. Allow time in a natural environment for students to make discoveries and practice their soft skills!
- School/Community wide events
  - Partner with local and global organizations to support sustainability, environmental advocacy, environmental education, etc.
- Sustainability Meetings for Staff
  - To encourage the school community to not only incorporate EE within all classrooms across all ages, but also school wide projects. These meetings should equip educators and administration with the knowledge and tools to feel excited to incorporate EE into Montessori. This could be in a variety of forms.

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