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Seeing the forest through the trees: at the intersection of Forest Kindergartens and art-based environmental education

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ABSTRACT

This study investigates the interconnectivity between art and ecology within a Forest School model. The success of outdoor programming, like Forest Schools, suggests that other outdoor curriculum art-based environmental education could provide valuable learning experiences. Within this article, the author dispels myths surrounding a romanticized connection between children, nature and artmaking. The findings revealed that the symbiotic relationship between art and ecology within the Forest School model empowered the children in three distinct ways: (1) they became scientists/artists, (2) they made discoveries through collaborative efforts and (3) they infused art and science as they shared sketches and explored their environment.

KEYWORDS

Art-based environmental education; Forest Schools; play-based; child-centered; nature; early childhood; outdoor learning

This study was conducted during a weeklong art-based environmental education camp, called Camp Create (pseudonym), during the summer of 2017 at a property that belongs to a moderately sized university in the Southeastern United States. The non-traditional learning environment and the children's intrinsic curiosity appeared to spark unique and engaging learning opportunities. The setting was similar to Forest Schools, which have been successful in Germany, the United Kingdom, Sweden, Denmark and the Netherlands, as innovative models for outdoor learning. In these schools, nature is the catalyst for exploration, and children take the lead while the educators operate as facilitators. This model suggests that when children are given autonomy to direct their education, they become curious learners and may be more invested in their learning (Hetland, 2013; Skinner & Belmont, 1993). In Forest Schools, one key way students learn is potentially through the art they create (Hartle, Pinciotti, & Gorton, 2015). Through this study I investigate the following research question: How do children respond to a Forest School inspired learning environment that encourages the interconnectivity between art and ecology? In this article I first discuss the literature found on Forest Schools and arts-based environmental education (AEE), and challenge myths surrounding a romanticized connection between children, nature and artmaking. Following the literature review, I describe the methods, analyze the data and results, and discuss the intersection of the pedagogical models of Forest Schools and AEE.

Literature review

Forest schools

Forest Schools found in Germany, the United Kingdom, Sweden, Denmark and the Netherlands, embrace outdoor learning environments and allow students' curiosity to lead instruction (Davis, Rea, & Waite, 2006; Powers-Costello, 2015). Forest Schools are held almost exclusively outdoors. Forest Schools at the

early-childhood level (ages 3–6) are often called Forest Kindergartens. In all weather conditions, children are encouraged to learn through play out of doors (Schäffer & Kistemann, 2012). These immersive experiences in nature are potentially critical for helping young people develop the ability to build intimate and lasting relationships with their outdoor learning environment (Hicks & King, 2007). The underpinnings of Forest Schools are primarily focused on place-based, play-based, and child-centered pedagogical practices (Knight, 2009; Leather, 2018). Place-based education immerses children in local cultures, environments, and experiences and uses this as a springboard for learning subjects across the curriculum (Leather, 2018; Tuan, 1977). In a child-centered approach to learning, teachers become facilitators and guide children through the learning process based upon their interests. This structure provides an important opportunity for children to gain access to nature on a regular basis while learning academic and practical skills through autonomy and play (Leather, 2018; O'Brien & Murray, 2007).

Nature experiences can provide both cognitive and psychological benefits such as lower stress, higher energy, and a greater sense of well-being (Roe & Aspinall, 2011; Wells, 2000). Additionally, Forest Schools have been shown to have positive impacts on children in terms of confidence, social skills, language and communication, motivation and concentration, physical skills, and knowledge and understanding (Fjørtoft, 2001; O'Brien & Murray, 2007). Such outdoor experiences can inspire educators to find non-traditional methods of exploring and understanding the world. Music, dance, drama, and visual arts are often considered vital parts of Forest Schools because the arts are foundational to meaning making in early childhood education (Hartle et al., 2015). The success of outdoor programming, like Forest Schools, suggests that other outdoor curriculum art-based environmental education can provide valuable learning experiences.

Art-based environmental education

There is an effective blend that can occur when incorporating the different facets of art education, ecological concerns, and other educational subjects (Graham, 2007). Art-based environmental education (AEE) is a pedagogical method that blends art education and environmental education. Using AEE, students learn about the environment through an artistic approach or through aesthetic experiences (van Boeckel, 2015). AEE does not exploit the arts as a prop, and it does not simply add the arts as an element to make learning fun. The arts are used as an entry point where students can connect to the environment through observations, interpretations of phenomena, and data reporting methods (Jokela, 1995; Morse & Morse, 2019).

AEE is not a new concept. In the 1960s, a similar pedagogy to AEE was called eco-art education. Eco-art education was a way to 'integrate art education with environmental education as a means of developing awareness with environmental concepts and issues, such as conversation, preservation, restoration, and sustainability' (Inwood, 2008, p. 58). Incorporating elements of Eco-art, Anderson and Guyas used clever wordplay to generate an approach to learning called *Earth Education*. *Earth Education* makes a connection between the inner-being (self) and the environment, but with an emphasis on art. Celedonia and Rosenthal (2011) explained how the connection between art and ecology can work together to enhance learning: 'with art as a primary tool for fostering stewardship and a land ethic, the eco-psychology goal of an expanded sense of self was pursued by emphasizing experiential, hands-on learning, and collaborative creative work' (p.254). The *Earth Education* approach 'embraces the repositioning of the self in opposition to consumer culture and actively seeks harmony and balance for the biosphere' (Anderson & Guyas, 2012, p. 241). In this way, art paired with ecology might provide students with a social justice perspective. Art education, then, within a social justice framework can 'engage imagination and interactions that cultivate aesthetic interactions between children and the spaces where they live' (Trafi-Prats, 2009, p. 19). While there are commonalities between AEE and Forest Schools' pedagogies, such as place-based learning and play, there is minimal research focused on art education and environmental education within the context of Forest Schools. Before this relationship can be further explored, some myths about the relationship between children and nature need to be considered.

Challenging myths

Within many Western cultures, there is a perceived image of an innate connection between children and nature, and the relationship is often idealized (Latour, 2004; Taylor, 2013). Leather (2018) states that historically, 'British colonial imperialistic ideals have influenced cultural concepts of nature and the outdoors, positioning them as something to be conquered and romanticized' (p. 3). However, recent studies have challenged these romanticized beliefs about children and nature. For example, researcher Africa Taylor (2013) reconfigures this conventional way of understanding the relationship between nature and childhood using queer theory to deromanticize nature and childhood. Childhood and nature have been inherently connected for a long time, and releasing that pairing of nature and childhood could open up the potential for a coexisting relationship between diverse children and their diverse worlds (Harraway, 1994; Latour, 2004). Indeed, there is an emerging concept that combines the words together forming childhoodnature, with the understanding that combined, they are symbiotic, while separation suggests a binary existence (Cutter-Mackenzie-Knowles, Malone, & Barratt Hacking, 2019). It is important to recognize that when a curriculum is based in nature, like the Forest Schools, there can be no single focus, just as there is no single definition of childhood.

Children are social beings; they are not just small adults in training (The United Nations, 1989). Some research draws upon postmodern assumptions that children are social agents with rights, and they should be treated as humans, not future adults (Barker, Kraftl, Horton, & Tuckers, 2009). This view is unbounded and open, therefore, childhood should be regarded as a state of being rather than a state of becoming (Rautio, 2013). Children interact with nature in a way that is different from adults, and this is critical when designing an environmental curriculum. Pedagogies are entangled with the environment, and children experience it multidimensionally through the tangible and the sensorial (Pink, 2013; Rautio, 2013). As such, children's meaning making from each other is different because they have different ways of seeing, being, and experiencing the world from their individual perspectives (Pacini-Ketchabaw & Pence, 2011). Children's geographical complexities incorporate their culture and ethnocentrism in conjunction with social and spatial experiences (Trafi-Prats, 2009). Alternative educational spaces, such as outdoor learning areas, challenge the conventional ways of viewing childhood and can foster children to be environmental stewards (Kraftl, 2014; Malone, 2004). These examples suggest, it could be advantageous for children to be given autonomy and independence when participating in an alternative learning environment like Forest Schools. In such learning spaces, children might then be able to experiment, explore, and make meaning through art.

Finally, it is important to challenge myths regarding children creating art. Grounded in modernist theory, children's art can be viewed as merely a romantic expression of inner emotional paths (Sunday, 2015; Sunday, McClure, & Schulte, 2014). As a result, children's art is viewed through a restrictive lens that characterizes it as either pure expression or a movement through stages toward visual realism (McClure, 2011). Children's art making is a social practice, and as such, each child brings his or her local and personal narrative to the artwork which moves beyond the modernist view (McClure, Tarr, Thompson, & Eckhoff, 2017; Schulte, 2011). As a social performance, children's meaning making through art untangles the learning process and has the capacity to expand limits and can help adults rethink what they once considered ordinary (Sunday, 2015). The idea that adults can have the ability to see children's artwork as meaningful and not just senseless scribble shifts the perspective of children's art as being a romantic expression of emotion to a legitimate form of meaning making.

Methodology

The activities and student engagement at Camp Create were investigated using qualitative methods of intrinsic case study. An intrinsic case study is carried out because the case itself is of interest (Stake, 1994). This case is particularly of interest because, 1) children in the United States are falling behind other countries academically (OECD, 2019), and 2) children in the United States

are spending less time out of doors with an average of five to seven minutes of outdoor unstructured play a day (National Recreation and Parks Association [NRPA], 2019). This study gives insight to the phenomenon found in a non-traditional learning environment. A significant amount of time during the weeklong camp was dedicated to collecting qualitative data, from field notes, artifacts and interviews. The connectivity between art and ecology was investigated on site to better understand the connection itself rather than using the case as an instrument to understand a larger, generalizable issue (Creswell, 2013). Using the intrinsic case study approach allowed inquiry to focus on the phenomenon while it took place in its context (Hancock & Algozzine, 2001). The characteristics of this art-based environmental educational summer camp were explored including the regular use of outdoor space, the inclusion of significant time for free play, the exploration in nature, and the opportunity to make art within the camp day. I used symbolic interactionism theory (SIT) to focus on a small-scale perspective of the group of students. SIT explains the interactions between the children, objects, events, and other people within the environment (Denzin, 2008). SIT is founded on three basic concepts: 1) people construct meaning differently, 2) action depends on meaning, and 3) meaning can change (Blumer, 1986). SIT in educational research focuses on the interaction in the class, or in this case, in nature where the interaction is between each other and the environment. As this group of children interacted with(in) nature, they shared stories, created symbols and ideas, and interpreted what they encountered. When they arrived at camp, the children were apprehensive towards nature and an unfamiliar environment. This changed throughout their interactions with nature during their time at camp. The animals, insects, rocks, leaves, or anything the children found in nature had no fixed status or preconceived meaning; instead, meaning was created through definitions that children assigned to them. The data from field notes, artifacts, and interviews were used to describe the context of this camp, how this model embraced nature, and the pedagogical practices used. The in-depth data provided a rich description of the camp modeled after Forest Schools, how the arts and sciences were blended together, and how the children made meaning from their experiences. Despite adopting a traditional qualitative case study approach, I also attempted to keep in mind a post-anthropocentric lens with regard to spatial/social justice assumptions (Lloro-Bidart & Semenko, 2017; Malone, 2004). The post-anthropocentric perspective understands the relationship between humans and the environment, rather than viewing humans as the central focus of everything .

In qualitative research, triangulation is used to maintain the validity of a study (Merriam & Tisdell, 2015). This study was triangulated through multiple methods of field notes, artifacts, and interviews. Thematic analysis of the data enabled me to capture a deeper understanding of how non-traditional learning environments combine art and ecology, as I looked for emergent themes and patterns. The data provided information that illuminated the interconnectivity between art and ecology and how a non-traditional learning environment could enrich children's learning possibilities.

The participants

The participants of this study were 20 children ranging in the ages of 8–10 from a school with a low socio-economic status with 100% of the students receiving free or reduced cost for lunches. The population of the school is diverse with a makeup of 32.6% African American, 30.8% Hispanic, 34.2% White, 2.3% two or more races, and 0.2% Asian (School Digger, 2019). This particular school was chosen for its proximity to the camp location. The researcher presented the idea to the principal, teachers and parents of this school. Due to the size limitations of the Camp Create facilities (a single building), 20 children was the maximum of participants that this research could involve. All children participated, however, attendance varied each day.

The location

Camp Create was a weeklong program for children in a low socio-economic community, and the goal was to give the children a jump-start for the new school year. It was created as a partnership between a mid-sized university in the Southeastern United States and a local non-profit art organization. For eight hours a day during a one-week period, the camp provided an art-based environmental program for students in grades three and four at the university's 864-acre Lily Property (pseudonym). This camp had a total of five counselors who planned connecting lessons that were facilitated in the daily activities. Inspired by the Forest Schools of Germany and Denmark, the children spent a majority of their time exploring hiking trails through the forest and paths near the waterways of Lily Property. They were encouraged to explore ideas through hands-on learning in nature. The children were attracted to the arts, and they expressed themselves and developed crafts through hands-on learning while inventing their own methods for scientific observation and data collection. These two concepts, exploring nature and learning through art, were the basis for the curriculum of Camp Create. A unique feature of the camp was the implementation of a field sketchbook, where students would draw, write, and capture ideas and experiences throughout the day. While a field sketchbook is not unique for an adult scientist or an artist, it is unusual for children at a summer camp. This sketchbook was issued on the first day along with colored pencils, a magnifying glass, a water bottle and a rucksack to carry it all with them throughout the day. During camp, the children created art as they learned about science and ecology. They painted, sketched, took photos and used technology as part of their experimenting and interaction with nature. Campers engaged with their surroundings as they explored ideas that were interesting to them. Since the children were free to explore playfully, they could reach beyond usual restrictions and embrace opportunities to learn from mistakes. The use of art created a bridge between difficult science concepts and the explorative nature of play; this appeared to allow children to learn in a way that was interesting and engaging to their own curiosities.

Data collection

Field notes

The field notes were taken throughout the duration of the camp. This included observations during the full day of camp as well as the pre and post camp time with the counselors. Notes were taken to record specific behaviors, lessons, activities and other evidence of interest. This information was descriptive and provided an account of what was happening and how children reacted.

Artifacts

The artifacts that were collected for this study included photographs of children's activities, and their interactions with each other. Other artifacts included their artwork which were photographed as evidence. These images provide a documentation of what occurred during the camp and the products the children created. The artifacts provide a visual representation that accompanies the written word provided by the field notes and interviews.

Interviews

The interviews that were used for this research were very short and informal. There were five small group interviews at the end of the camp to provide summative information. Most of the interviews were spontaneous personal interviews regarding a child's interaction with nature or response to a lesson. This provided specific information from the participants in the moment to help record their experiences.

Data analysis

For the data analysis, I used three types of coding: open coding, axial coding, and selective coding (Strauss, 1987). Open coding was used in the initial stage of analyzing data by identifying emerging themes from the literature review, field notes, artifacts and interviews. Axial coding was then used to examine connections between the existing themes organized during open coding. Lastly, selective coding was used to identify instances that illustrated themes and to perform comparisons and contrasts between themes.

During the first stage of analysis, the literature was revisited to look for similarities and pedagogical methods that align Forest Schools and AEE, as shown in Table 1. Through careful analysis, patterns began to form and revealed three guiding components representing the symbiotic relationship between these two pedagogical models. The three guiding components were (1) child-centered learning, (2) using the senses to develop an understanding and appreciation of the environment, and (3) regular contact with nature. These pedagogical components were used as the foundational pillars for data analysis of the field notes, artifacts, and interviews, to highlight the connections found between the two models.

During the second stage of analysis, the axial coding stage, I used the three guiding components to classify data while applying SIT. Field notes, interviews, and artifacts were examined for interactions between this small group of children, and it appeared in this study that nature was an influential factor in engaging and creating meaning-making for the children. Dewey (1981) argues that human beings are best understood in a practical, pragmatic, interactive relationship to their environment. The children in this study appeared to make sense of the world through their social interaction and discovery within nature as associated dimensions emerged.

The nuances were further distilled as successive passes were made to refine the results through the selective coding stage. The refining process also involved reorganizing the data and reworking groupings so the category structures and the way themes were defined adequately represented

Table 1. Comparative chart of forest schools and AEE.

Forest Schools	Art-Based Environmental Education
<ul style="list-style-type: none"> ● Exploring is child-centered and autonomous ● Learn from senses ● Experience regular contact with nature ● Experience nature daily ● Unplug from the Internet ● Learn through observations using senses ● Play with rudimentary toys such as sticks, stones, and pinecones (no commercial toys) ● Use nature to explore cross-curriculum learning ● Appreciate nature and human connection ● Develop environmental understanding ● Learn outside rain or shine ● Learn in a real-world context ● Encourages imagination ● Addresses the whole child, not just the academic side ● Engineer and build shelters or other structures from objects found in nature ● Create art from found objects ● Sing and make up stories for language development ● Build independence and self-esteem ● Encourages spatial awareness and motor development (Bond, 2007; O'Brien & Murray, 2007; Powers-Costello, 2015; Researcher X, field notes, 2017; Schäffer & Kistemann, 2012). 	<ul style="list-style-type: none"> ● Exploring is child-centered and autonomous ● Use senses to explore connections to nature ● Use all the senses to perceive more than just with the human eye ● Unplug from the Internet ● Investigate through the senses to increase connectivity to the natural world ● Find tools, medium, and inspiration in nature ● Learn cross-curricular subjects with ecology & art ● Express a human relationship between the Earth and art. ● Develop environmental understanding ● Explore and create outside or bring objects from outside inside to explore & create ● Observe using artistic methods ● Offers a fresh perspective on learning ● Achieve personal pleasure by creating art while perceiving the world around them ● Articulate environmental experiences through artistic documentation ● Understand the environment through aesthetic experiences ● Create powerful messages through art, such as social activism and environmental advocacy ● Encourage learning art through ecology and ecology through art (Fattal, 2017; Jokela, 1995; Researcher, field notes, 2017; van Boeckel, 2015).

primary trends in the data. As the data was analyzed, the research question was continuously considered, and how children respond to a Forest School inspired learning environment that encourages the interconnectivity between art and ecology.

The data revealed that the symbiotic relationship between art and ecology within the Forest Schools model empowered the children in three distinct ways: (1) they became scientists/artists, (2) they made discoveries through collaborative efforts, and (3) they infused art and science as they shared sketches and explored their environment. These three relationships form the categories of the discussion below.

Findings

Considering the research question, How do children respond to a Forest School inspired learning environment that encourages the interconnectivity between art and ecology?, this section will revisit the research question and discuss the initial interaction between the children, nature, and the field sketchbooks. I will then highlight the three ways in which the children were empowered by art and ecology. Lastly, the symbiotic relationship between art and ecology will be discussed.

Field notes revealed that the children were most engaged when they were outdoors exploring on their own as opposed to when they had to be indoors or following a planned lesson. However, the children's initial reactions to nature and the field sketchbooks were largely negative. The environment was either too hot or too cold, there were too many bugs, and some children were afraid of the animals that could be on the property. One child asked, 'Did you put all the animals away in their cages?' Another nervously asked, 'Are there snakes? It looks like snake city. Are we going to see snakes?' Later, as the children became more comfortable in the woods, they felt comfortable exploring off-trail looking for new things to discover (see [image 1](#)).

Additionally, the children did not initially respond well to the sketchbooks. They were cumbersome, and the children complained that they had to carry them everywhere. However, once they learned how to use the sketchbooks, it became the fastest, most expressive way for these children to record their thoughts and theories. They would sketch out their ideas in their field sketchbooks, and then they would research their ideas or discoveries back in the lab. They would look, observe, sketch, record, and research time and time again, while always showing the deepest respect for their surroundings.

Scientist/artist

In regards to the first pedagogical component, child-centered learning, it was found that both models of Forest Schools and AEE allowed for children to take charge of their learning through autonomous explorations. Carl Rogers, a psychologist who first introduced the notion of a child-centered approach to learning, suggests that in such an environment children can have increased trust, confidence, openness to experience, feel empowered and be can more creative (Rogers, 1961). These concepts were evident during the summer camp. On the first day, the children's main concern was the dangers of the property, and they wanted to know what nature had in store for them. Nature was considered the 'other' in this case; it was an unknown, and to some degree feared. Fieldnotes stated, 'The camper's fear [of nature] is being reinforced by the counselors. They are very concerned with the camper's safety [alligators, snakes, spiders, and fire ants are a real danger on the property] and do not want them to wander too far; in doing so, counselors keep interrupting the campers and trying to reign them in. The more they are outside, the more comfortable they all become.'

The initial fear of nature was an obstacle to overcome, but as the counselors began to relax, so did the children. As they interacted with nature more and observed and sketched their findings, they began to embrace the sights, sounds, and smells of the property. By emphasizing inquiry as practice, a shift occurred and students moved from questioning *who* is an artist or scientist to *when* is a person an artist or a scientist (Kingwell, 2005). Soon the group, including the counselors, was comfortably

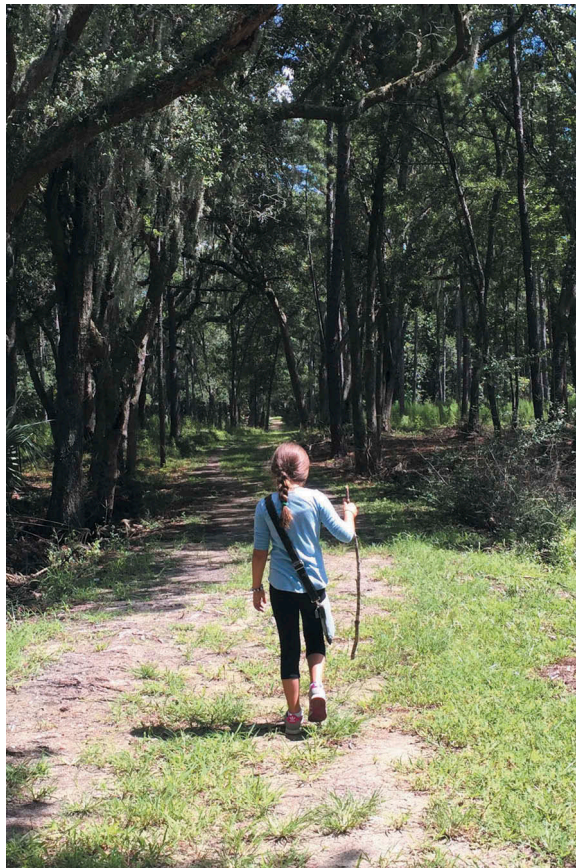


Figure 1. Child exploring the property.

walking beneath the canopy and learning through observations and self-guided experiments. While I observed and took notes about the discoveries taking place, the students seemed unaware they were learning. One camper responded when interviewed, 'We are just looking at stuff. We are playing.' Another stated, 'Well, we are just pretending to be like scientists.' The notion that they were scientists and artists was a statement brought to the children during the morning meeting before the activities started. The lead counselor explained that before this location was part of the United States, scientists who recorded information as sketches or paintings. Therefore, when the children were exploring, they were scientists and artists, because they were observing and recording what they saw through words and drawings. The children embodied the notion of being scientists/artists as they became leaders of their own inquiries and discoveries. The scientist/artist example is not unlike A/r/tography where being an artist, researcher, and teacher (A/r/t) occur simultaneously (Irwin, 2013; Springgay, Irwin, & Wilson Kind, 2005). One camper exemplified this by exclaiming, 'We were just looking at marks in the sand; we followed it and found out it was a dung beetle,' (researcher fieldnotes, 2017). In this case, the outdoor environment provided not only inspiration for art but also the tools of a laboratory to blend science and art in a transdisciplinary fashion. Through a child-centered approach the children were empowered to think of themselves in the role of a scientist or an artist blurring the lines of subject areas and considering a transdisciplinary way of learning.

Discoveries: a collaborative effort

The collaborative effort was not just human to human but also about being immersed within nature. As the children progressed through the week there was an ongoing exchange as they learned in, about and with nature. The experience encompassed a post-anthropocentric notion that the campers were part of nature, exploring it, not controlling it. The campers were encouraged to experience and record their environment using their five senses rather than relying on just their eyes. The traditional curricular model often leaves disciplines competing for time; however, this reciprocal association scaffolds ideas, concepts, and possibilities that work in tandem. While the campers were discouraged from tasting items they found in nature, they could touch and smell items such as tree bark and moss, and then they could sketch their findings. They would hear a bird's call or a woodpecker on a tree and speculate what the bird would look like in a drawing. 'Within a 20-yard radius children are exploring their surroundings, one [child is] in the bushes looking at a spider web, two [children are] looking at the ants on the ground, some [children] are on the hunt for animal tracks (some deer hoof prints were found earlier), three [children] are poking a stick at a bright red toadstool. Each time something new is found, a child calls out and the rest come running' (researcher fieldnotes, 11 August 2017). From the data, the children confided in each other. 'The campers seem to rely on each other more than the counselors when they first discover something. Rarely do they call an adult first. They share with their friends first then maybe the adult.' (researcher fieldnotes, 11 August 2017). The counselors facilitated the exploration by engaging the students deeper with overarching questions and encouraging them to sketch what they saw and write down their observations. Experiencing nature was not an isolated event; all children experienced it together as a collaboration of understanding. As they sketched, they discussed and designed theories, assisted each other with drawing, and reinvented ideas simultaneously.

Infusion of art and science

Throughout the day, science and art learning occurred simultaneously; the learning was so entwined it could not be made into separate subjects. Since the children were unplugged from the Internet, there was no swiping on smartphones, so they had to rely on their field journals and magnifying glasses to explore the world around them. They were outside most of the day playing with sticks and rocks, making sculptures, and making human connections to nature. From my field notes I observed, 'It seems as though the more the counselors leave the kids alone to free play, the more they discover and become interested in their surroundings. They add more detail to their drawings and talk to each other' (researcher fieldnotes, 13 August 2017).

As the camp progressed, the children filled their field notebooks with sketches, notes, and labels (see [image 2](#)). The children made music using found objects in nature, an innovative engineering kit, and a computer. They also designed and created forts using some manmade objects and some objects found in nature. The campers identified and classified leaves, pinecones, and rocks prior to making a nature sculpture (see [image 3](#)). Every activity had an observed and intentional crossover between art and ecology that was enhanced by the Forest School model. As the children interacted with nature, they developed their ideas as they collaborated concurrently in multiple subject areas.

It was observed during this study that the students interacted within the natural world and with each other in a manner that enhanced the meaning making of their experiences. Children called other children over to share discoveries, whether it was a hoof print, a dung beetle, or ripples in the water (see [image 4](#)). The children shared stories, discussed and debated what they found, and added information to their field sketchbooks. Sometimes they took turns sketching, and other times the children all cracked open their field sketchbooks and recorded information together. Each interaction had different meanings for each child, and each child's previous interactions appeared to contribute to subsequent meanings. Interestingly, the meaning sometimes changed depending on the conversations between the children and how they drew their images. When new ideas were



Figure 2. An example of a child's field sketchbook with imagined insects sketches as part of their research.



Figure 3. Campers identifying and classifying leaves, pinecones, and rocks to make a nature sculpture.

sketched and shared, other children changed their own sketches to include other thoughts, ideas, and theories brought up in the group. There was not a competition for importance between art and nature, because art and nature coexisted to support learning together. Much like an aerophyte, a plant that grows on another plant but is not parasitic, art and ecology in this learning environment had a symbiotic relationship that engaged learning.

Conclusion

This single case study cannot be generalized to speak for all learning environments, but it is worth considering some key findings of this study that may be applied in other contexts. I argue that the symbiotic relationship between art and ecology experienced by the students during exploration in nature would not be possible in the same way within the constraints of mortar walls. Within a traditional classroom, children rarely interact with nature; they are confined to their desks, or other



Figure 4. Deep exploration as scientist/artists.

spaces in their classroom, or throughout the school. Experiences with nature may occur during recess, but not envelope the students throughout the school day. Combining the Forest School model with field sketchbooks provided opportunities for artistic freedom and autonomous exploration. The use of aesthetic involvement helped children experience and observe nature. In this case study, the experience was reciprocal and provided a platform that encouraged autonomy and critical thinking. Children appeared to engage with/in nature when there were fewer planned activities and they could choose what to explore. This is important considering the potential benefit for students in terms of their relational way of being with(in) the world in terms of understanding that they can learn in, with and through, rather than just about nature. Combining the pedagogical models of Forest Schools and art-based environmental education provided children the opportunity to deeply examine both art and ecology freely in an outdoor experiential environment.

This approach to learning requires curriculum designers to rethink traditional methods of teaching and consider a nature lead/play model of embracing nature and the arts. Given the findings, in order to provoke further discussion and investigations of implementing Forest Schools and the arts, I suggest the following questions for future research: To what extent do the Forest Schools utilize the arts? Is it possible to replicate a Forest School inspired curriculum in another country that strongly embraces an anthropocentric mindset? What is the socio-political contextualization of these schools, why are they valued and supported, and how can other countries' public schools get buy-in from the community? How does an outdoor environment serve as an aide for open teaching practices? How can a Forest School model be applied to a traditional learning environment?

This model illuminated a melding of children, art, and nature. This notion is well explained by the renowned idiom, 'Can't see the forest for the trees.' In other words, if educators are micro-focused on individual aspects of the curriculum, they may lose sight of the potential creative, non-linguistic and nature-based opportunities that can actively engage and inspire learners. If educators step back and learn how to look and see the forest through the trees, they will recognize the endless possibilities of teaching a holistic curriculum.

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Notes on contributor

Dr Tracey Hunter-Doniger is an Associate Professor in Teacher Education at the College of Charleston, in the United States, specializing in Visual and Performing Arts and Creativity. She began her career in education as a visual arts teacher in elementary and secondary schools for 15 years. Currently she is the Interim Elementary Program Director for the School of Education and the director of two summer STEAM focusing on arts integration and environmental issues. Tracey has presented her research in STEAM and arts infusion at local, regional and national conventions and published a book designed to help non-arts educators infuse the arts through STEAM.

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