Kids and Soil: A Perfect Match

by E. Britt Moore

A few summers back, while travelling the length and breadth of my adopted home state of Iowa, I met a farmer named Mary. At that point I had only been a denizen of Iowa for several days, and as an initiation into this new chapter of my life I eagerly signed up to participate in a sustainable agriculture travel course, which is how I ended up at Mary’s quaint farmstead. Mary and her husband live on a picturesque farm in Northeast Iowa, replete with crops, trees, and nearly every type of iconic farm animal imaginable. Mary — learning that I was one of the few city folk in the group — discreetly asked me what it was like to be on her farm after coming from a city like Chicago.

Needless to say, I was in awe of the beauty and tranquility of the idyllic farmstead and the pastoral landscape surrounding it; however, the fact that I was not fully comfortable in this environment was not lost on Mary. Perhaps she observed me closely watching every step I took to carefully avoid the cowpies randomly strewn about the pasture, or maybe it was my meticulous avoidance of the low-lying muddy depressions that dotted the landscape. Whatever the reason may have been, it was obvious that although I was truly awestruck by the natural beauty of the farm, I saw it as a dirty place, which made a city boy like me feel a little uneasy.

Mary seemed to immediately pick up on my uneasiness. In fact she, too, was originally from a larger city; after retirement she and her husband bought the farm as a way to live healthier and get closer to nature. Her own city upbringing gave her a sixth sense for how this muddy farm, with all its critters and buzzing insects and pervasive odors of manure and decomposition, felt a little intimidating to someone who was accustomed to city life.

Mary shared with me that she had toddler-aged grandchildren who occasionally visited the farm during the summers. Although her grandchildren lived in the city, they loved to play in mud, and lucky for them, there was no shortage of it on the farm. Mary remarked that her grandchildren were much healthier than the grandchildren of some of her close friends. She proudly claimed that her grandchildren didn’t get sick as much and that they didn’t have nearly as many of the allergy problems that afflicted many other children their age. She made a point to mention that her grandchildren maintained a healthy weight and would actually go out of their way to ask for fresh apples.

E. Britt Moore was born and raised on Chicago’s South Side. During high school he became interested in agriculture and the environment and decided that his passions lie in using science to preserve the environment while ensuring adequate, nutritious food for all. He has spent most of his adult life pursuing these passions in the United States and abroad. Britt is currently a PhD student at Iowa State University, where he studies soil physics and sustainable agriculture. His areas of research include water use efficiency, ecosystem services, climate change adaptation, and development of urban youth food and gardening programs in vulnerable communities of color.
and noted that fresh sweet corn was one of their favorite summertime treats. Mary ended her anecdote by simply telling me that she believed “a little bit of dirt is good for everybody.”

Mary’s anecdotes about her grandchildren playing in the mud stuck with me after I left the farm. Was it possible that by simply being on a farm and playing in mud that those children were actually healthier? I have to confess that I initially dismissed her claims as pure coincidence, or maybe even just selective bias on Mary’s part; after all, what grandparent doesn’t think the world of their grandchildren? Even though I was skeptical, I decided to research the subject a little further, if only to confirm my own doubts.

I was surprised at the number of anecdotes, observations, and scientific studies that supported the fact that outdoor hands-on play — and more specifically, exposure to healthy soil — can play an important role in a child’s development. Some of these benefits come from priming the immune systems of young children,\(^1,3\) while other benefits include improved brain development and emotional development.

Cleanliness is next to godliness, as the old saying goes. As educators we may be inclined to value sterile, controlled learning environments, and why wouldn’t we? These environments are predictable and they are clean. They are, in a word, safe, and no one would argue that cleanliness and safety are not objectively good qualities. It is only natural that our perception of what counts as a clean environment — and by implicit extension what counts as a safe environment — becomes transposed onto the learning environments of our most valuable resource, our children.

Children are seldom shy about playing in the dirt, and as usual, children’s age often belie their wisdom. When it comes to getting their hands dirty and engaging firsthand in the type of kinesthetic outdoor learning that so many of us adults have long abandoned in favor of conference room lectures and webinars, there is a lot that adults can learn from watching children.

Kids and dirt, or more precisely kids and soil, have long been a perfect match. The connection could almost be described as instinctual. Regardless of differences in culture, language, and ethnicity, regard-
There is a significant body of scientific research that demonstrates the benefits of healthy soils on children's development and well-being. Not only do healthy soils foster healthy immune systems by exposing children to environmental allergens and microbes, they also promote physical health by exposing children to a multitude of physical health benefits. Children who play in healthy soils develop problem-solving skills, other intellectual capacities, and tactile motor coordination, problem-solving, and other intellectual capacities.

A child who does something as deceptively unremarkable as making a mud pie is, in fact, engaging in tactile scientific learning that differentiates soil physical properties and correlates soil water properties to soil texture. If the prior statement seems exaggerated, then take a moment to think about how often a child will adjust the water-to-soil ratio in a mud pie until she finds the perfect balance. What is that if not the scientific process of experimentation, trial, and error at work?

Across the playground, a child digging for worms is, in fact, engaged in the complex process of analysis and prediction of habitat that characterizes an animal ecological assessment. Again, if it seems as though this statement is an over-exaggeration, we need only to recall our own experiences of watching children at play. The child who digs for worms doesn’t dig in the dry sandbox, nor does he peel back tree bark, or search a bucket of standing water; his learning experiences have taught him that the best place to find worms is moist soil, so that is where he looks. The child who digs for worms has taught himself these advanced concepts, even if he lacks the vocabulary to articulate it.

Not only do healthy soils foster healthy tactile motor coordination, problem-solving skills and other intellectual development, they also promote physical health by exposing children’s immune systems to a multitude of environmental allergens and microbes. There is a significant body of scientific literature\(^{1,2,3}\) that supports the theory that healthy soils and healthy children is irrefutable.

**Top five reasons to play in the mud (and how it is a metaphor for all regular and uninterrupted time in nature):**

- **Sensory:** Mud is best explored with your whole self, using all of your senses as tools. It feels good, smells good, and can even sound good! The deeper you “jump in” and push yourself beyond your comfort zone, the more you discover.

- **Timeless:** Mud can be played with over and over and never wear out. Our ancestors likely played with the same mud our children play with. Experiences with mud can help children develop a sense of being connected with something bigger than themselves.

- **Messiness:** Playing in mud is messy. When you invite messiness into learning, it increases the complexity and opportunities for children to solve problems and figure out how the world works.

- **Flexibility:** There is no right way to use mud. It can turn into anything your imagination can conjure up. The longer and more often you play with it, the more delighted you are with what you discover and create. As Britt Moore noted, leading scientists are even studying dirt. One recent discovery is that in addition to some harmful bacteria, there is also beneficial bacteria that may boost our immune systems.

- **Universal:** All over the world children play in mud. The more we know about the things we have in common and share with people everywhere, the more likely we are to understand and care about each other.

Looking for ways to join in celebration of mud? Here are a few ideas from past celebrations.

**Mud Painting:** Use mud instead of paint. Needed are easels, cups of mud, sponges and/or brushes.

**Huge Field of Mud:** Go for it!

**Mud Face Painting:** Apply with cotton swabs from cups of mud. Be sure to have hand mirrors handy so children can see the results or guide the painter.

**Barefoot Walk:** Using roll paper, lay a long sheet on the ground. Mud Walkers dip their feet in mud (made in a tub or some other similar container), and walk the walk.

**Mud Splatter Painting:** Throw small mud-balls at paper hung on a wall, or throw mud-balls in the air to land on paper lying on the ground.

**Mud Texture Table:** Spread mud on a tabletop and make designs as in finger painting.

**Dirt Shirts:** Soil can be used as a natural dye. Use old white t-shirts and follow traditional tie-dying directions. Nothing makes a better fashion statement!

**Mud Bricks:** Mix soil with water and straw, then pour it into recycled plastic containers you have collected to use as molds. Let it dry in the sun. When the bricks are dry, you can use them to build all sorts of things.
that these early exposures bolster and enhance children’s immune systems and better equip their bodies to fight off future allergens and illness.

The examples are myriad, and the point is undeniably clear. Children who have the opportunity to play in soil are re-enacting a process of learning and discovery that is as old as humanity, and in doing so they are improving their physical and mental capacity. As adults and educators it is incumbent on us to provide as many opportunities as possible for children in our care to have the opportunity to self-explore and self-teach in an environment where healthy soils are readily accessible. Moreover, we as adults can exercise a little bit of humility and take the time to learn from children’s examples by getting our own hands dirty every once in a while. It’s just like Mary told me while I was on her farm: “A little bit of dirt is good for everybody.”

Endnotes


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Tips for Getting Kids into Soil

- Participate in activities at a local farm. Berry, apple, and pumpkin picking are fun harvest-time activities to get kids outdoors and interacting with soil. Shopping at farmer’s markets is a great way to meet producers in your area and learn more about local farm events. (Be careful which farms you visit; remember that visiting low chemical input farms reduces the risk of exposure to potentially harmful chemicals. Don’t be afraid to ask your farmers what, if any, chemicals have been sprayed on their farm.)

- Hike, camp, or visit a state or national park. This is a great way to interact with natural soils.

- Create a garden.

- Provide children with a trowel and bucket. Using plastic trowels will help prevent injuries that metal trowels may cause.

- Play “Treasure Hunt!” Adults can bury ‘treasures’ (e.g. small toys) in an area with exposed soil. Children can make a game out of digging and finding the treasure.

- Create a time capsule with your kids. This is a great way to preserve precious memories and get your kids digging into soil.