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Playful Learning Landscapes

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Children are always learning. Innovative initiatives that offer opportunities for learning and skill building in environments outside of school are as important as ones designed for the classroom.

Research suggests that over 70% of the world's children will be living in cities by 2050. In response, cities are rallying to create family friendly environments—making parks where ribbons of asphalt once divided communities and creating community gathering places all can enjoy. Playful Learning Landscapes is part of this broader initiative. It is the very first project to marry the science of how children learn with the ambition to make cities more livable. At that intersection of science and placemaking, we are creating a new kind of architecture that sparks curiosity and learning while at the same time heightening the beauty of the cityscape.

Playful Learning Landscapes was born from two ideas—the emphasis on playful learning as a way to enhance how children develop the skills required to meet the workplace needs of today and tomorrow and the Conscious Cities Movement for enhancing livability in ways that support healthy lifestyles. The first designs and projects began rolling in 2010; now, for the first time, we have the evidence that these projects do invite precisely the kinds of caregiver-child interactions that promote strong learning.

Playful Learning Landscapes seeks to transform our everyday spaces into innovative ones that provide children intuitive opportunities for learning and skill building. Playful Learning Landscapes installations and programming infuse otherwise mundane moments—waiting at the bus stop, walking through supermarkets, or sitting in libraries—with opportunities to increase social interaction and exposure to activities that are foundational to later success.

Assembling the Pieces: Architecture Meets Learning Science

Conscious Cities. The Conscious Cities Movement is the architectural centerpiece of Playful Learning Landscapes. Inspired by forward thinking architect, Itai Palti, the initiative is interdisciplinary in its reach. Rather than focusing on building the most efficient cities, the Conscious Cities Movement uses psychology and neuroscience data to create environments that are tailored to the needs of the population. For example, older populations often feel lonely in city environments despite being surrounded by population density. An architectural, psychology-based solution would be to build a park with shaded areas where folks can convene and form community.

The goal of Playful Learning Landscapes is to infuse neighborhoods with opportunities for children and adults to interact around mentally stimulating architecture. For example, we refashioned the familiar outdoor game of hopscotch, enhancing it with more opportunities to exercise impulse control. By playing hopscotch on the sidewalk rather than rushing home from school, children are engaging in a playful learning activity that fosters higher-order cognitive skills and self-regulation. If other children are also gathered on the sidewalk, opportunities arise for fostering social skills and even teamwork.

The Conscious Cities Movement dovetails with UNICEF's Child Friendly Cities Initiative, creating environments where children's safety and well-being is key. Playful Learning Landscapes considers the importance

of building cities, neighborhoods, and public environments where children have opportunities to thrive. And our designs adapt to fit the culture we are in, whether that be Philadelphia; New York City; Nairobi, Kenya; or Venice, Italy.

Developing 21st-Century Skills. Playful Learning Landscapes is crafted to complement skill building often addressed in school. This is done first and foremost by creating organic opportunities for children and caregivers to interact where interaction seldom occurs. A simple sign in the dairy aisle of the grocery store can prompt caregivers to ask their children “Where does milk come from?,” starting contingent conversations in moments that otherwise would be filled with silence. In lower-income neighborhoods, these prompts boosted communication by 33%, raising it to levels already occurring in upper-income neighborhoods. Starting with a foundation of social interaction tied to evidenced-based science about how children learn best, Playful Learning Landscapes activities invite visitors to practice the foundations of 21st-century skills: collaboration, communication, confidence, content learning, creative innovation, and critical thinking.

Communication—being able to express ideas clearly in a variety of contexts and to multiple audiences—and collaboration—working productively with others to achieve a goal—are both vital for developing social relationships and becoming an effective learner. Critical thinking—evaluating information and synthesizing it toward a more focused goal—and creativity—putting ideas together in new ways—are imperative for problem solving and innovation. Confidence means taking risks, persevering toward a goal, and having a growth mindset, which allows creative innovation to flourish without the fear of failure. Finally, content knowledge—knowing the ABCs, numbers, history, geometry, and science—as well as the all-important learning-to-learn skills—memory, attention, and flexible thinking—are all necessary components for later school success. These deeply intertwined

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skills build off one another and, importantly, can be fostered anywhere, including informal public spaces such as parks and bus stops.

Playful Learning, a Pedagogy. Playful learning embraces the concept that children and adults learn from play, and learn best when play includes intentional learning goals—what we call guided play. In school settings, playful learning curriculum often mirrors the Montessori and Reggio Emilia approaches, in which children learn best from hands-on, minds-on discovery activities they can guide themselves.

Laboratory work and theory provide monumental support that playful learning pedagogy is beneficial for young children. Playful learning pedagogies help develop higher-order cognitions, self-regulation, and social skills. Playful learning activities, such as building blocks with a partner, playing chutes and ladders, and solving puzzles require children focus their attention, think critically and plan ahead, behave flexibly, constructively react to social partners, and build STEM skills. Similarly, children have also been found to learn mathematics from board and card games and geometry from role playing, and to develop self-regulation during competitive and team activities. Finally, playful learning activities have also been shown to bolster vocabulary and language learning.



Photography by Sahar Coston-Hardy

In the U.S. public education system, opportunities for playful learning are rare. With emphasis on high-stakes testing, rigorous rote learning lessons are being pushed on children at younger and younger ages, and are more recently showing up in kindergarten and preschool classrooms. Playful learning opportunities for both preschool and primary school—such as recess, art, music, or explorative play—are, in some cases, disappearing from schools altogether. Therefore, Playful Learning Landscapes adopts an out-of-school approach to providing skill-

building opportunities that capitalize on children's waking hours when not in school. Playful learning should drive both learning and community culture.

Moving From the Idea and the Science to Implementation. Have you ever noticed exercise equipment in a park, which invites us to put down our bags and try a few repetitions on the elliptical before we go on our way? In Playful Learning Landscapes, we seek to offer mental gymnastics through light-touch interventions. By placing the installations in public spaces, they are accessible to everyone.

It is important that Playful Learning Landscapes installations be appropriate and adapted for each community—both in concept and in design. Thus, our team generally starts by listening to the community needs. We then sketch ideas and seek the community's feedback. Based on that feedback, we tweak the designs and work together to ensure we are developing something that the community wants to own and is proud of, and that reflects evidenced-based research about how children learn best. We seek to discover the *how* and *what* for each installation. Is the installation fun, active, engaging, socially interactive, and meaningful? Do the installations support collaboration, communication, confidence, creative innovation, critical thinking, and content learning? We detail this process in our playbook (playfullearninglandscapesphl.org).

The result is a strong, evidence-based, culturally sensitive, and architecturally interesting installation that belongs to the community. Cultural sensitivity is sometimes as simple as making sure all text is in both English and Spanish, or placing an image of Dr. Martin Luther King, Jr. on the street corner where he gave a monumental speech in 1965.

Seeing an Example: The Case Study of Urban Thinkscape

What does all of this look like in action? Take a peek at Urban Thinkscape, a bus stop in West Philadelphia where Playful Learning



Photography by Sahar Coston-Hardy

Landscapes collaborated with the community to create a new way to think about public spaces where people wait.

We brought the idea to members of the West Philadelphia Promise Zone, a two square mile portion of the United States designated by the Obama Administration in 2014 as high priority for improving education and career opportunities. The 35,315 residents in the Zone includes represent an overall poverty rate of 50.8%, double the city's 25.7% poverty rate. When we first asked what the community wanted, the answers were straightforward—something playful that will help children, something beautiful in the blighted neighborhood, and some reason for children to want to stay rather than flee. Community members attended multiple meetings to sketch their image of the project in more detail. They chose a lot on a street corner where Dr. Martin Luther King, Jr. gave a significant speech in 1965, drawing 10,000 visitors; the site is near and dear to the hearts of the community. Ultimately, the community input contributed to design of an Urban Thinkscape with four installations creating a cluster of playful

learning opportunities to engage children and caregivers while they wait for the bus. Each installation has specific curriculum goals, and address needs identified by the neighborhood. Icons prompt storytelling that develops literacy skills; spatial puzzles develop skills that are predictive of later mathematics skills; abstract artwork builds critical thinking, curiosity, problem solving, and inquiry skills; and a modified version of hopscotch promotes



higher-order cognition by exercising cognitive flexibility, inhibitory control, and working memory.

Community participation did not end with choosing the site location, needs to address, or designs. We partnered with a local workshop that thrives on mentorship, training, and youth participation, and they organized an effort for the community to literally build aspects of Urban Thinkscape. Over 100 youth were involved. To conduct research on the impact of Urban Thinkscape, we hired local community residents to be Community Data Ambassadors. The residents endured the rigorous training of academic researchers and collected naturalistic observational data on Urban Thinkscape at pretest and posttest, and at control sites.

We found adult-child interaction and conversation increased about 25% from pre- to post-installation, and the instances of families using language in the intended curriculum areas increased by 34%. This project demonstrates the impact of merging architectural design and science that embeds well-established activities for promoting child-caregiver interaction via literacy, mathematics, scientific, and cognitive skills. It also demonstrates the role that an active community can and should play.

Because of the success of Urban Thinkscape, in terms of both research demonstrating improved child-caregiver interaction and relationships with communities, our community partners in the neighborhood are leading the effort and applying for large-scale funding to build new installations and structures. They are taking the initiative to continue transforming their neighborhood in ways that otherwise would be left to the slow-moving city government operations. Similarly, the community is continuing to request our science team to partner on smaller “pop up” Playful Learning Landscapes events and installations to continue energizing the neighborhood.

Once you recognize the potential of melding science and architecture in public spaces,

you come to realize that even a bench can be morphed into something more exciting, like a puzzle that can support science, technology, engineering, and mathematics learning. The opportunities are limitless.

Suggestions for Educators

Playful Learning Landscapes thrives on developing new activities steeped in the science of learning and making tiny tweaks to established ideas. What if you replaced the hopscotch on your playground with one fashioned after a task that exercises body and mind? What if children were encouraged to jump with only one foot where they saw two footprints, and jump with two feet where they see one-foot print? This idea tweaks an existing and popular activity and merges it with evidence on how to develop children’s higher-order cognitions to result in a Playful Learning Landscapes installation.



Classrooms and child care programs stocked with colored paper and markers offer countless opportunities for building temporary Playful Learning Landscapes installations. For example, our partners at the We Are Play Lab in Switzerland created a mobile version of Parkopolis: The Human-Sized Board Game for the Math and Sciences. We developed Parkopolis at a children’s museum in Philadelphia, which displayed it as a museum exhibit. Parkopolis provides opportunities for mathematics skills development through child-led activities. The activities engage children and caregivers with patterns by asking children to find, repeat, or create patterns of shapes or animals; numeracy by counting and completing simple math problems, and spatial



skills and geometry by considering alternative perspectives. The game also incorporates measurement with fractions that are built into the tiles on the game board and dice.

In advance of the museum exhibit, the We Are Play Lab tested the ideas and activities of Parkopolis in summer camps throughout Switzerland. Using colorful non-slip mats as a gameboard, paper footprints, foam dice, and laminated game cards, the We Are Play Lab created an extremely low cost and exciting playful learning experience that prompted children to engage in math lessons in a fun way.

What about etching a number line with fraction tick marks on the sidewalk or blacktop during recess? Children will naturally create countless activities in front of a large number line, such as measuring how far they can

jump. With a little guidance from a caregiver, children may start integrating fractions into their active play.

Conclusions

Join in the movement and explore how you might fill mundane moments of life with exciting opportunities for families and children. How can we create beautiful spaces that have science built within? How can we help caregivers solve interesting thought problems *with* their children rather than merely *watching* their children? Playful Learning Landscapes is a new vision that re-imagines cities and offers increased opportunities for all to do mental gymnastics in the public spaces they visit each day.

Visit: playfullearninglandscapesphl.org for more information and inspiration.