



Playful Learning Landscapes

Promoting Literacy Through Youth Engagement and Culturally Relevant Design

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High-quality language interactions not only support children's language development but also promote better long-term academic outcomes (Hirsh-Pasek, Adamson et al., 2015; Huttenlocher et al., 2010; Pace et al., 2019; Storch & Whitehurst, 2002). Interactions in the form of frequent back-and-forth conversations between caregiver and child predict language growth in children (Adamson et al., 2014; Hirsh-Pasek, Adamson et al., 2015), regardless of whether families are from highly resourced or under-resourced environments (Masek et al., 2020).

Language learning is the single best predictor of later growth in language, literacy, mathematics, and social development (Dickinson & Porche, 2011; Pace et al., 2019). However, many families do not have access to educationally enriched spaces that spur high-

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quality language opportunities. This issue leads us to ask what educators and policymakers can do to expose children to high-quality interactions that promote literacy skills.

A great deal of literacy instruction takes place in school, where children in Western countries spend only about 20 percent of their waking time (Meltzoff et al., 2009). Up to 80 percent of children's time is available for special moments with family, friends, and neighbors, as well as for afterschool activities. Activities after school take varied forms—not only participating in organized afterschool programs but also playing in public parks and playgrounds, visiting libraries or recreation centers, and going to local museums or science centers. While these community educational assets enrich neighborhoods, they are not available or accessible to all children. Communities with high poverty rates and high percentages of minoritized racial and ethnic groups are significantly less likely than more affluent White neighborhoods to have play spaces (Mowen, 2010). Reduced opportunities for play make it difficult for children to tap into their communities' funds of knowledge (Moll et al., 1992) and cultural expertise as familiar literacy resources (Dyson, 2006; Wohlwend, 2018).

The Playful Learning Landscapes (PLL) initiative was founded on the premise that children from all communities should have access to beautiful, enriching, and culturally relevant play environments that help them thrive. Working with community members, we co-designed public spaces that promote the kinds of adult-child conversations that lead to literacy learning.

Playful Learning

Playful learning lies on a spectrum that encompasses free play, guided play, and games (Zosh et al., 2018). In *free play*, children set up and engage in their own play without a learning goal. *Guided play* maintains the exploratory nature of free play but fosters a particular learning goal through the design of the environment, gentle adult scaffolding, or both (Hassinger-Das et al., 2017; Weisberg et al., 2016; Zosh et al., 2018). Critically, the child still drives the learning. For

example, a children's museum installation is curated to facilitate child discovery within the bounds of a well-designed and enriched space. Similarly, a teacher might create an exploratory learning activity in which children discover the solution to a problem or create a new device from old maker parts (Weisberg et al., 2016). Adults can support guided learning through caregiver-child conversations that support a variety of outcomes, such as language development, school readiness, and achievement (Hadani et al., 2021; Hirsh-Pasek & Hadani, 2020). Finally, *games* that integrate content can, like guided play, be used when adults are aiming for a particular learning goal (Hassinger-Das et al., 2017).

Playful learning encompasses all three types of play. However, the scientific literature suggests that guided play best improves child outcomes when adults have a particular goal in mind (Fisher et al., 2013; Weisberg et al., 2016). Increasing guided play opportunities increases caregiver-child interactions in which both partners use the types of language known to support learning outcomes (Hanner et al., 2019; Schlesinger et al., 2020) and literacy development (Cavanaugh et al., 2017; Farrell, 2019; Han et al., 2010; Tsao, 2008).

Playful Learning Landscapes

PLL began as a community-research partnership initiative in Philadelphia. Originating at Temple University Infant and Child Lab, it was driven by local community-based organizations and largely supported by the William Penn Foundation. As the initiative evolved, support for project implementation across the country shifted to the Playful Learning Landscapes Action Network (PLLAN), an initiative of the Ultimate Block Party, a national nonprofit organization. PLLAN is partnering with community-based and nonprofit organizations, city agencies, and marketing firms to expand PLL to such locations as Omaha, Nebraska; New York City; and Santa Ana, California.

The mission of PLL is to reinvent everyday spaces and experiences as fun, intentional, evidence-based learning opportunities that organically prompt interactions that support children's literacy development. PLL rests on three assumptions:

- Changes in public spaces can foster human behavior change.
- The latest findings from the science of learning can be baked into the design of spaces in ways that spark intergenerational family engagement, which, in turn, builds social capital.
- Change in public spaces resulting from co-design with communities can elevate neighborhood voices and showcase cultural relevance.

There is rich precedent for thinking that the design of public spaces can both enrich neighborhoods and support the common good. Physical tweaks to public spaces can fundamentally change how individuals behave. For instance, planting trees near commercial areas increases usage and prompts people to return to the area (Wolf, 2007), adding green spaces to an environment reduces aggressive behavior (Younan et al., 2016), and putting exercise equipment in public parks increases activity levels (Cohen et al., 2012).

Whether at bus stops, in parks, on sidewalks, or in supermarkets, all PLL projects adhere to criteria based on the research on how children learn through play. The best learning environments are:

- Active, not passive (Chi, 2009)
- Engaging, not distracting (Han et al., 2010; Zosh et al., 2018)
- Meaningful and connected to previous knowledge or experience (Hudson & Nelson, 1983)
- Socially interactive (Chi, 2009)
- Iterative, not static (Bonawitz et al., 2011; Weisberg, 2016; Zosh et al., 2018)
- Joyful (Hirsh-Pasek, Zosh et al., 2015; Zosh et al., 2018)

Such environments can help children learn in a variety of content areas, from learning new words (Han et al., 2010; Zosh et al., 2013) and remembering stories (Hudson & Nelson, 1983) to exploring causal relationships (Bonawitz et al., 2011). Learning environments with these characteristics support social and linguistic growth (Berk, 2006; Howes et al., 1992), cognitive flexibility (Isen, 2001; Isen et al., 1987), and integrative thinking (Kahn & Birch, 1968)—all of which are important to developing literacy skills, including reading and writing.

These principles suggest that community co-design

of public spaces to foster evidence-based playful learning opportunities might increase the quantity and quality of child–caregiver interactions to support literacy, mathematics, and spatial learning development (Bustamante et al., 2019; Hanner et al., 2019; Hassinger-Das, Zosh, et al., 2020; Hassinger-Das et al., 2021; Ridge et al., 2015). Just as families become more physically active when outdoor exercise equipment is introduced into city parks and walkways, we expected that they would become more mentally active when co-designed playful learning structures were introduced in public spaces.

Building with Communities

All playful learning designs can be crafted to create fertile ground for child–caregiver conversations that support children’s literacy outcomes. However, community participation is central to PLL’s mission to capture community members’ goals and make spaces culturally relevant. Rather than simply installing pre-fabricated structures, PLL initiative leaders transform community spaces through intergenerational community co-design, using methods from community-based participatory research (Collins et al., 2018). When interventions integrate the science of learning *and* are culturally competent (Chen et al., 1998), they can spark meaningful, high-quality interactions. Four PLL projects illustrate these and related principles.

King Puzzle Bench

Using the co-design approach to engage community members of all ages, PLL projects have successfully supported both literacy and other foundational skills. For instance, community members in West Philadelphia co-designed a bench that displays a large three-dimensional puzzle of Martin Luther King, Jr. Observations documented that the puzzle prompted conversations about the civil rights leader, who gave a speech at that very spot; it also set the stage for caregivers and children to use spatial language such as *above*, *below*, or *align* (Hassinger-Das et al., 2020). Spatial language fosters the development of representational structures that not only support spatial-relational understanding but also facilitate mental processing (Lowenstein & Gentner, 2005).

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Play Captains

Successful community co-design depends on engaging both adults and youth. Sutton and Kemp (2002) argue that bringing young people into design processes can heighten their social and environmental awareness while helping them gain a sense of control over their surroundings. Community-based organizations also benefit youth by providing them with safe places to develop independence, community identity, social competence, and social responsibility (Hung, 2004). In turn, creating processes that involve youth in producing social and physical environments can foster community development.

To promote opportunities for youth engagement, PLLAN and Temple University Infant and Child Laboratory researchers collaborated with Fab Youth Philly—a Philadelphia organization that provides teenagers with opportunities for employment and civic engagement—to infuse its existing Play Captains Initiative with training in playful learning and to assess the efficacy of the project (Schlesinger et al., 2020).

The Play Captains Initiative ran alongside the city's Play Streets program, in which community members agreed to close their street to traffic between 10:00 am and 4:00 pm to allow children to play freely. The teenage play captains were hired for five weeks during the summers of 2018 to 2021 to facilitate playful activities and games and to collect data in play street locations. The play captains kept “Bex decks”—small notebooks with playful learning tips and games—for easy reference. To promote literacy development, we pointed the play captains to tactics for transforming play street activities into literacy activities. For instance, jumping rope became a spelling contest under play captains' guidance. Jumpers spelled the name of an animal of their choice, one letter per jump, ending their turn when they had spelled the name correctly.

An evaluation of the Play Captains Initiative found that children who played alongside play captains demonstrated increased interaction and use of targeted learning-related language. In addition, play captains significantly increased both their self-confidence and their understanding of the links between play and learning (Schlesinger et al., 2020). The project suc-

ceeded due both to the foundation built by Fab Youth Philly as a well-respected and experienced community partner and to the engagement and enthusiasm of the play captains themselves. Projects like the Play Captains Initiative enable neighborhood youth to imagine themselves as more than token participants and to realize their roles as agents of community change.

Urban Thinkscape

The iterative and participatory designs of PLLs evolve in response to community feedback before, during, and even after construction. Although the iterative process may lengthen a project's timeline, this approach has significant value because iteration often leads to design improvements (Xu et al., 2015). Even seemingly small or subtle details can affect a design's cultural relevance (Arcia et al., 2016). In one study, when culturally relevant and familiar literacy-enriched objects and activities were placed in urban daycare centers, children were more likely

to engage in reading and writing behaviors (Neuman & Roskos, 1992). Similarly, PLLs approach can yield a new generation of playful learning interventions that will resonate with their primary audiences and be disseminated broadly (Adam et al., 2019).

Project evaluations can help researchers and communities determine how community members are interacting with PLL installations and whether these spaces are engaging children and families in high-quality interactions to build language and essential skills. Typically, community-led evaluations are conducted using naturalistic observation, in which community researchers examine the use of the space before and after a PLL project is implemented (Bustamante et al., 2020; Hassinger-Das et al., 2020).

For example, alongside Temple University Infant and Child Lab researchers and in collaboration with local designers and architects, the president of a neighborhood association in West Philadelphia created a new kind of bus stop that turned a waiting space into a playful learning plaza known as Urban Thinkscape (Hassinger-Das, Palti et al., 2020). During the design process, the president convened the neighborhood association to choose learning goals to integrate into the designs. Urban Thinkscape's four designs—Puzzle

Rather than simply installing prefabricated structures, PLL initiative leaders transform community spaces through intergenerational community co-design, using methods from community-based participatory research.

Wall, Jumping Feet, Stories, and Hidden Figures—are actively engaging, meaningful, socially interactive, iterative, and joyful. Each targets specific language outcomes, such as spatial, literacy, and mathematics talk. For example, Stories allows children to be physically active as they climb across the installation from one narrative cue to another, creating a story as they go. This design thus targets the development of narrative skills, which improve children’s literacy outcomes (Tabors et al., 2001).

As Urban Thinkscape was being designed and implemented, community members voiced their interest in being involved in the evaluation research. As a result, the project employed and trained neighborhood residents to collect data (Hassinger-Das, Palti et al., 2020). Results demonstrated that caregivers and children interacted more and held more conversations at Urban Thinkscape than they did before installation. When compared to a control site playground, Urban Thinkscape demonstrated a significant effect on adult–child interaction and language use—with large effect sizes suggesting sizable and meaningful differences (Hassinger-Das, Palti et al., 2020).

Library Projects

Support and engagement from local partners can have a strong effect on successful design and integration of PLLs (Hadani et al., 2021). In collaboration with the Free Library of Philadelphia, PLLAN collaborated with an architectural firm, a park playground organization, and a nonprofit devoted to children’s play to create the next generation of libraries in North, West, and South Philadelphia (Hassinger-Das, Zosh et al., 2020). The project reimagined children’s library spaces to enhance the quality and quantity of caregiver and child visits. During several community events, project staff captured ideas from library staff members about play materials in the library. They helped library patrons envisage how they would like to play and learn and then empowered them to express their visions. Then the project staff synthesized the community input to inform the libraries’ redesign plans. One library installed a 10-foot climbing wall with letters that children could use to create words. In others, reading nooks feature large Tangram-style blocks, or a curtain-clad stage encourages children to engage in sociodramatic and narrative play. Observations showed that use of these play-and-learn spaces was associated with increases in caregiver–child conversations of the kinds known to foster literacy and STEM skills (Hassinger-Das, Zosh,



Figure 1. Creating a Playful Learning Environment in 11 Steps

et al., 2020). Working with local partners to reimagine libraries as a play space where people can interact and thrive can increase not only the frequency of library visits but also opportunities for rich, playful interactions that support language and literacy achievement.

11 Steps to a Playful Learning Landscape

PLL has evolved since its beginnings to become much more adept at centering the community during all stages of design, implementation, and evaluation, thanks in large part to the patience and input of communities that have participated in PLL projects.

Interest in enriching everyday spaces to enhance caregiver–child interactions is growing among researchers, educators, community leaders, organizations, families, and funders. Figure 1, captured from PLLAN's *Playbook* (2020), outlines our community-centered process. These 11 steps integrate our best practices and provide a roadmap for PLL projects, regardless of their magnitude or sponsorship. PLLAN's *Playbook* and information about the initiative, including sample projects, can be found at <https://playful-learninglandscapes.fun>.

Playful learning landscapes can enhance the 80 percent of children's waking time that is not spent in school. Public spaces, freed from past boundaries around their functions, can be the most critical out-of-school places a community has. They can be even more powerful when they include culturally relevant components and intergenerational engagement. If cities can embrace the difference between an ordinary bus stop and a PLL bus stop, they can enhance the quantity and quality of child–caregiver interactions. PLL is not merely an initiative. It is a movement to create accessible, culturally relevant learning opportunities for every child.

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