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Philadelphia Playful Learning Landscapes:

Scaling strategies for a playful learning movement

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Universal Education
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EXECUTIVE SUMMARY

Playful Learning Landscapes seeks to transform everyday spaces into playful learning opportunities to maximize “the other 80 percent” of time that children spend outside school. It lies at the intersection of the growing Child Friendly City movement and a global development agenda that calls for access to high-quality early childhood education for all. A joint project of Temple University’s Infant and Child Laboratory and the Brookings Institution, Playful Learning Landscapes is a broad umbrella initiative that marries community involvement and learning sciences with placemaking in order to design carefully curated playful experiences in everyday spaces. As it focuses on learning outcomes, particularly for children and families from under-resourced communities, Playful Learning Landscapes offers a new way to involve families in the kinds of experiences that enrich relationships and enhance children’s development.¹

If trends continue, almost 70 percent of the world’s nearly 10 billion people will live in cities by 2050.² However, many cities lack play and learning outside the formal classroom.³ Although cities are experiencing growth and even revitalization, deprivation and social inequality persist.⁴ To address such gaps, policymakers have focused mainly on formal schooling. However, because children spend only an estimated 20 percent of waking hours in school,⁵ integrating playful learning into everyday spaces provides a powerful opportunity to augment school-based efforts, to increase learning outcomes, and to reduce inequities.

In Philadelphia, there is an opportunity to draw important insights and learning for Playful Learning Landscapes from a network of organizations that collaborate to create playful learning installations across the city, to establish proof of concept for those interventions, and to inform the broader Playful Learning Landscape initiative. Philadelphia aims to serve as an international model for how playful learning can be embedded into a city’s everyday spaces so it enhances children’s development and supports community-wide change for families.

The vision of Playful Learning Landscapes is to transform neighborhoods into learning communities, which are intentionally designed for play and learning.

This report documents the scaling journey to date of Philadelphia Playful Learning Landscapes (PPLL) and the lessons learned, to help inform further expansion in Philadelphia and with adaptation and adoption by other cities and countries. Lessons are targeted toward city-level actors—policymakers, implementers, researchers, and funders in Philadelphia and beyond—who wish to expand and sustain evidence-based approaches that foster learning and caregiver–child interactions in public spaces and everyday spaces where people regularly go and can be easily engaged. The aim is to move beyond supporting the replication of a single installation, to shaping the mainstream practices of business, government, and other organizations to incorporate playful learning principles and design into their own work.

Three groups of key insights emerged from Philadelphia, including efforts to apply learning from PPLL to other cities and reinforced by relevant lessons from scaling other social innovations.

Scaling Building Blocks

The first group of findings are organized around essential components—or building blocks—required for scaling and sustaining playful learning installations and activities across locations. Those findings include recognizing the importance of the following:

- Cultivating visionary leaders and public champions to inspire and accelerate the expansion of playful learning efforts while considering early on how leadership needs will evolve in transition to larger scale;

- Forging key alliances and partnerships with institutions that have the capacity for large-scale delivery, as well as with organizations that have deep roots in communities, thereby constructing a tent big enough to encompass the wide range of entities that are working on play and learning;
- Ensuring that community engagement remains core to the design, delivery, and monitoring of any playful learning installation or activity, along with having clear processes in place for ensuring their meaningful participation; and
- Using relevant data to motivate action, inform the design and implementation of any response, and sustain actions, all of which require clarity about how success is defined, how it will be measured, and—most important—how data will be shared and used.

Scaling Strategies

The second group of findings relates to different strategies and approaches to scale that appeared to be important when scaling playful learning efforts throughout Philadelphia and other cities. As with other scaling-related approaches, these are not mutually exclusive but are often pursued simultaneously:

- Pursuing flexible adaptation as the initiative continues to spread across Philadelphia and to other locations, thereby underscoring the importance of cities and neighborhoods to tailor playful learning installations and activities to their own context without losing a core set of scientific principles that lead to impact;
- Strengthening the overall playful learning field, which includes (a) growing the field by raising awareness and cultivating more partners to join and (b) building the capacity of existing players that are already committed to playful learning; and
- Integrating playful learning principles into existing goods and services that families and communities already use, with the aim of infusing playful learning principles so that using them while designing any public or everyday spaces will eventually become second nature.

Scaling Mindsets

The final set of findings relates to certain scaling mindsets that contributed to—and will continue to be important for—the ongoing expansion and adaptation of playful learning efforts. PPLL’s journey to date has underscored a need for the following:

- Encouraging flexibility and agility as scaling any playful learning initiative is far from a linear process and requires ongoing data-driven reflection, experimentation, and adaptations to existing strategies and plans;
- Maintaining a focus on place-keeping as part of any placemaking effort, given challenges across the board for maintenance of play-related installations in public spaces; and
- Considering unintended consequences early on as playful learning initiatives scale, some which might not appear to be issues during a pilot stage but could become obstacles once activities have reached a larger population.

Call to Action

These lessons inform a set of recommendations for policymakers, implementers, funders, and researchers to further expand and sustain playful learning opportunities in communities and cities around the world. More specifically, the following call to action is for actors that are fostering a playful learning movement. Those actors include but are not limited to ones involved with PPLL and with the broader Playful Learning Landscapes initiative:

1. **Generate robust evidence about playful learning to continue to build the evidence base and gather data that will enable continuous learning.** Given the critical role that data play in the scaling process, there is a need to better understand the impact of playful learning and how it is sustained over time. This includes developing a few shared metrics across playful learning initiatives that will measure both shorter- and longer-term improvements on child development outcomes, as well as community revitalization impacts. For funding partners, it is critical to focus

on the entire innovation–learning–scaling cycle as a coherent package to advance and sustain playful learning efforts city-wide.

2. **Capture and codify key elements and approaches to implement playful learning initiatives.** Transforming cities and towns into vibrant learning communities requires not only more information and evidence about *what* is working but also more guidance and support around *how* it is achieved. To cultivate and engage thought leaders and champions, lessons learned and evidence gathered must be codified and broadly shared in actionable ways. In addition to sharing more knowledge, the organizations and community groups involved with expanding playful learning opportunities also require support in designing, implementing, and monitoring playful learning activities. Such support can be in the form of design templates, guidelines, tools, and technical assistance. This type of targeted guidance in support of flexible adaptation can help other cities to create their version of Playful Learning Landscapes while still adhering to fundamental principles and maintaining quality as the movement spreads.
3. **Build a coordinated global movement around playful learning.** The task of improving children’s learning outcomes, urban renewal, and other complex social challenges requires the combined efforts of all. Given the importance of partnerships for sustaining impact, a strong, coordinated network of actors is needed to collectively pool expertise, resources, and skills around a shared vision and aligned incentives. A central hub is critical to strengthen the playful learning field, while helping to coordinate efforts, to connect partners, and to share the learning that emerges across various sites. The Sustainable Development Goals⁶ provide a common north star to focus attention across locations, electoral cycles, and levels of government, given its call for universal access to quality education and early childhood development and care.⁷

INTRODUCTION

Evidence is strikingly clear that learning begins at birth and that early life experiences have a significant impact that persists well into adulthood.⁸ Strong beginnings lay an essential foundation for lifelong learning and for healthy growth and development. Research demonstrates that critical brain development occurs from pregnancy to age three, when one million new neural connections are formed every second.⁹ Healthy brain development is influenced by the nutritional and health status of the mother and child, as well as by interactions with parents, other caregivers, and people and objects in the environment.¹⁰ Nurturing care and child health, nutrition, and stimulation are linked to (a) more consistent school attendance, (b) lower rates of repetition and attrition, (c) better test scores, and (d) higher grade completion.¹¹ Building children’s social and emotional aptitude (i.e., positive coping mechanisms, self-regulation, and interpersonal and decision making skills) at an early age is crucial for future academic success, including improvements in reading and mathematics outcomes.¹²

Play is essential for children’s cognitive and social development. According to the American Academy of Pediatrics, play improves executive functioning skills; promotes the formation of safe, stable, and nurturing relationships; and builds the breadth of skills that children need to thrive in the 21st century.¹³ Through playful learning, children develop critical competencies and skills needed throughout life, such as creativity, problem-solving, resiliency, collaboration, and exploration. Play can also enhance children’s educational development, because research demonstrates that young children learn best in active, meaningful, engaged, and socially interactive contexts.¹⁴ According to Hassinger-Das et al. (2018), “[D]uring active learning, children are ‘minds on,’ or actively participating in a task rather than passively observing, and they are thinking and reasoning rather than just mindlessly doing a task. Additionally, children learn more effectively when learning material is meaningfully connected to their lives, or is related to something they already know, rather than presented abstractly and out of context. Finally, a wealth of evidence suggests that children learn more when they interact with others than when they do not.”¹⁵

“Playful learning supports *joyful* interactions, an *actively engaged* brain, *iterative* thinking, and the power of *social interaction*.”

Source: Hassinger-Das, B., Zosh, J., Golinkoff, R.M., and Hirsh-Pasek, K. (2018). *The science of toys: A guide for the perplexed shopper*. Education Plus Development. <https://www.brookings.edu/blog/education-plus-development/2018/12/10/the-science-of-toys-a-guide-for-the-perplexed-shopper/>.

The increasing evidence behind the power of play is coupled with the fact that globally we are experiencing unprecedented rates of urbanization. According to current trends, by 2050 almost 70 percent of the world’s nearly 10 billion people will live in cities¹⁶—yet many cities lack opportunities for play and learning outside the formal classroom.¹⁷ While cities are experiencing growth and, in some areas, revitalization, issues of deprivation and social inequality persist.¹⁸ To address those gaps, policymakers have focused primarily on formal schooling. However, because children spend only an estimated 20 percent of their waking hours in school,¹⁹ integrating playful learning activities into everyday spaces provides a powerful opportunity to help augment school-based efforts that can increase learning outcomes and reduce inequities.

Playful learning exists on a continuum from free play (no direct adult engagement) to guided play (supported by adults toward a learning goal) to games (rule-based activities with targeted learning goals)²⁰ that aim to consciously build learning goals into children’s play (see Table 1. Play as a Spectrum). All forms of play leverage how children learn best—contexts that are active, engaged, meaningful, and socially interactive.²¹ However, “while children benefit from the unconstrained and social interaction and joy of free play, evidence suggest[s] that more guided forms of play can help children to develop their abilities in math, language, spatial skills, literacy, and other areas.”²² Although

all play has a potential for learning, playful learning intentionally focuses on opportunities and activities that are explicitly structured to reach specific learning goals.²³

Table 1: Play as a Spectrum



	Free Play	Guided Play	Games
Initiated by:	Child	Adult	Adult
Directed by:	Child	Child	Child
Explicit Learning Goal:	No	Yes	Yes

Source: Jennifer M. Zosh¹, Kathy Hirsh-Pasek, Emily J. Hopkins, Hanne Jensen, Claire Liu, Dave Neale, S. Lynne Solis and David Whitebread. "Accessing the Inaccessible: Redefining Play as a Spectrum." *Frontiers in Psychology* (02 August 2018). Retrieved from <https://doi.org/10.3389/fpsyg.2018.01124>

Methodology

This report documents the scaling journey to date of PPLL and the lessons learned to help inform further expansion in Philadelphia and adaptation and replication to other cities and countries. Lessons are targeted toward city-level actors—policymakers, implementers, researchers, and funders—in Philadelphia and beyond who wish to expand and sustain evidence-based approaches that foster learning and caregiver-child interactions in intentionally designed public and everyday spaces where people regularly go and can be easily engaged.

The following findings and recommendations are drawn from evidence emerging from pilot installations and activities in Philadelphia and from adaptations to other cities, including data gathered from the following: (a) surveys and observations, (b) 21 interviews with Philadelphia-based and national stakeholders (see Acknowledgments for interview list), and (c) discussions from two Philadelphia-based Advisory Group workshops and three Learning Landscape Steering Committee meetings. (See Annex I and II for Advisory Group and Steering Committee members.) The report is also informed by additional background research about relevant efforts to scale initiatives that have led to widespread changes in learning outcomes among children, particularly children in more disadvantaged communities around the world.

The report is divided into four sections: (a) an initial background providing an overview on PPLL and the broader umbrella initiative, Playful Learning Landscapes; (b) a brief description of Playful Learning Landscapes installations and efforts in other cities informed by PPLL; (c) key insights and lessons from designing and implementing playful learning installations and activities to inform ongoing expansion in Philadelphia and beyond; and (d) a set of recommendations for policymakers, funders, researchers, and implementers for expanding, deepening, and sustaining the impact of playful learning opportunities for more children around the world.

BACKGROUND

Overview of Playful Learning Landscapes

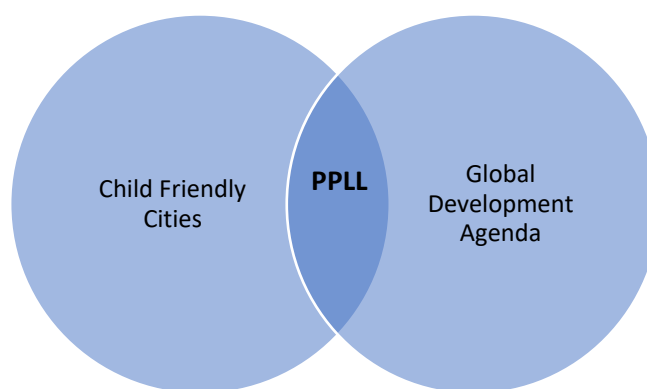
“Ah, I see what you’re doing ... you’re putting a children’s museum at a bus stop.”

—Belmont community member during a PPLL community meeting

PPLL seeks to transform everyday spaces into playful learning opportunities to maximize “the other 80 percent” of time that children spend outside school. It lies at the intersection of the growing Child Friendly City²⁴ movement and a global development agenda that calls for access to high-quality early education for all. As a joint project of Temple University’s Infant and Child Laboratory and the Center for Universal Education at the Brookings Institution, Playful Learning Landscapes is a broad umbrella initiative that marries the learning sciences with urban revitalization to design carefully planned play experiences that focus on learning outcomes, particularly for children and families from under-resourced communities.²⁵

Although Playful Learning Landscapes builds on other city-wide and play-based efforts, such as playgrounds and children’s museums, its key differences include these: (a) embedding learning science findings into public and trapped spaces; (b) augmenting everyday experiences, such as waiting at the bus stop, to encourage playful learning interactions between children and caregivers; and (c) purposefully taking place outside the classroom to complement, not replace, time in the classroom.²⁶

Figure 1: PPLL: The Intersection between Child Friendly Cities and the Global Development Agenda on Education



Philadelphia Playful Learning Landscapes

Philadelphia provides an opportunity to draw important lessons and insights from working with a network of organizations to create playful learning installations across the city and establish proof of concept for these interventions. Together, they can inform the broader Playful Learning Landscapes initiative. The aim is for Philadelphia to serve as an international model for how playful learning can be embedded into a city’s everyday spaces so it enhances children’s development and neighborhood cohesion while supporting community-wide development for families. In this report, PPLL refers to the Philadelphia-based playful learning movement supported by researchers at the Infant and Child Laboratory at Temple University in collaboration with researchers outside of Philadelphia and with the Brookings Institution.²⁷

The vision of scale for PPLL is not to grow the individual pilots that were tested in Philadelphia; but rather, to strengthen the overall ecosystem so that many playful learning installations and activities can contribute to large-scale improvements in children’s social and cognitive development, through transforming interactions between caregivers and children. The intention is to move beyond supporting a single installation to replicate, to shaping the mainstream practices of business, government, and other organizations to incorporate playful learning principles and design into their own work. Just as PPLL is interested in scaling impact, the focus is also on the sustainability of benefits over time, which will require building the necessary systems, structures, and processes to provide services in the long-term

while maintaining the effect of such changes.²⁸ The terms *scale*, *expand*, *deepen*, and *spread* are used interchangeably throughout this report.

The timing is ripe for a playful learning movement to take off, especially in Philadelphia. As the fifth most populous city in the United States and its poorest large city,²⁹ Philadelphia has more than 25 percent of its residents living below the federal poverty line of \$19,337. Almost half of those live in deep poverty, which is defined as 50 percent below the poverty line.³⁰ Among Philadelphia's children, 37 percent grow up in households experiencing poverty.³¹ Meanwhile, a large and persistent achievement gap exists between white students and their Black and Hispanic counterparts. In 2009, there was a 23-point difference between the mathematics test scores of white and Black fourth grade students, which grew to 37 points in 2017. Similarly, in reading achievement, the gap between the two groups grew from 24 points in 2009 to 34 points in 2017.³²

Therefore, the combination of the educational challenges and the recognition that business as usual will not address the magnitude of the problem demands an urgent and disruptive response. Philadelphia is experiencing a surge in direct investment and attention in play and built spaces. Civic leaders, including Mayor Jim Kenney of Philadelphia, are prioritizing early childhood development and learning, including a campaign for universal pre-kindergarten. The contributions of recreation centers, libraries, and parks are being recognized with a \$500 million investment into infrastructure from the city through its Rebuild initiative. Key funders such as the William Penn Foundation and the Knight Foundation are investing significant resources into placemaking³³ and education. Additionally, there is ongoing engagement among community leaders in playful learning, and there is a good backbone of civic infrastructure, including a broad coalition of play-based and early-childhood-development-focused organizations and institutions working across Philadelphia.

Globally, there is also momentum for a playful learning movement, with large-scale initiatives that infuse playful learning opportunities into public spaces. Examples include Urban95, an initiative of the Bernard van Leer Foundation that supports public officials in a number of cities around the world to design policies and plans based on what life is like at 95 centimeters, which is the average height of a three-year-old. Another recent, high-profile effort is the Real Play Coalition, an initiative of IKEA, the LEGO Foundation, Unilever's Persil and OMO, and National Geographic. It aims to catalyze a global movement that prioritizes the importance of play for children's development and learning. Additionally, there have been large philanthropic investments into play-based educational responses, such as the LEGO Foundation's \$100 million grant to Sesame Workshop to ensure that young children affected by the Rohingya and Syrian crises have opportunities to learn through play, in collaboration with BRAC, the International Rescue Committee and New York University's Global TIES for Children.

Overview of Playful Learning Landscapes Installations and Activities

Across a number of pilot installations and activities in Philadelphia and other cities, Playful Learning Landscapes is demonstrating impact to help make a case for expanding playful learning interventions and to inform their design and implementation. Brief overview and results include the following:

Ultimate Block Party (UBP): This was the first pilot test for Playful Learning Landscapes, and it sought to transform caregiver attitudes about the relationship between play and learning in a community setting. The inaugural UBPs event was held in Central Park in New York City on October 3, 2010. It reached more than 50,000 participants through a series of playful outdoor installations that included adventure, construction, physical activity, the arts, make-believe, technology, and language play.³⁴ Scientists were available throughout the park to explain the learning connections embedded in each activity. "Event organizers also handed out 16,000 handbooks, which described the ways to take home the learning happening at UBPs."³⁵ Results showed that when parents visited three to four activities at UBPs, they had more positive attitudes about the play-learning connection, which is a vital component in public awareness, than did parents who visited fewer installations.³⁶ In the following years, UBPs have also been held in Toronto, Canada; Baltimore, Maryland; and Norwalk, Connecticut.

Talk It Up / Supermarket Speak: In an attempt to transform supermarkets into a kind of children’s museum, colorful signs to spark conversation and parent–child interactions were placed in the aisles of three grocery stores in Philadelphia and Wilmington, Delaware in the fall of 2011. These grocery stores were in neighborhoods serving low- and middle-income families. The idea was to select a space where families regularly go and to infuse it with opportunities for learning and interactions. Research has shown that everyday conversations between caregivers and child are important to language learning and can predict school readiness.³⁷ Results found a 33 percent increase in caregiver–child talk when the signs were up in supermarkets in low-income neighborhoods.³⁸



Photo credit: Saxum

This same increase was not found in nearby supermarkets in high-income neighborhoods. The most prominent gains appeared when the baseline was low, not when the intended behaviors were already occurring. This study has been replicated in grocery stores in other cities, such as Tulsa, Oklahoma, and Johannesburg, South Africa, as well as in other “trapped spaces” such as laundromats across New York City.³⁹ Further replications demonstrate that this installation can also focus on science, technology, engineering, and math (STEM) outcomes.⁴⁰

Urban Thinkscape: A collaboration between architectural design and the science of learning, Urban Thinkscape has combined the enjoyable nature of play with a learning goal in a community space. Located in the Belmont neighborhood in West Philadelphia, Urban Thinkscape worked with the Belmont community, architect Itai Palti of Conscious Cities movement,⁴¹ and Temple University’s Infant and Child



Photo credit: Sahar Coston-Hardy

Lab to place fun and engaging learning opportunities directly within cityscapes and in places where people regularly go: bus stops, benches, and parks. Installations include a bench with puzzles incorporated into the design, hopscotch specifically developed to foster impulse control, and figures hidden throughout a sculpture garden.⁴² Community members were actively engaged in identifying the sites, selecting activities, maintaining the public space, and serving as data collectors to monitor use and impact. Results found a significant increase in conversations between caregivers and children that include six or more turns (where participants

speak one at a time in alternating turns), as well as an increase in the number of families using language relating to numbers, colors, spatial patterns and letters—from 2.2 percent at pre-test to 36 percent at post-test.⁴³

Parkopolis: Parkopolis builds ideas about numbers, measuring, and fractions into a life-size board game where children roll fraction dice and hop around the board in fractional increments. They draw playing cards with activities that build STEM skills. The game was initially piloted by We Are Play Lab in Switzerland and then was built and exhibited at the Please Touch Museum in Philadelphia from May 2018 to September 2018. Results found that 39 percent more children used whole number language and 12



Photo credit: Sahar Coston-Hardy

percent more children used fraction language in Parkopolis when compared to children in a comparison STEM exhibit. Furthermore, 29 percent more adults used whole number language, 23 percent more adults used fraction language, and 17 percent more parents asked questions compared to parents in the comparison STEM exhibit.⁴⁴

Play and Learn Library Spaces: A broad-based partnership among the Free Library of Philadelphia, architecture firm DIGSAU, play consultants Studio Ludo and Smith Memorial Playground and Playhouse, and fabricator Erector Sets—along with playful learning support from Kathy Hirsh-Pasek (Temple University), Brenna Hassinger-Das (Pace University), and Jenn Zosh (Pennsylvania State University)—built “playbrary” spaces at three neighborhood libraries in Philadelphia with the aim of promoting quality



Photo credit: Digsau

parent–child interactions. Library branches feature tangram cutout reading nooks; colorful, lightweight tangram blocks; a magnetized board with words and letters where children can express themselves; and a climbing wall with letters near each rock step. Results found that the number of children using spatial-related language was 24.2 percent higher at the Play and Learn spaces than at the non-Play and Learn sites. Similarly, the number of children using letter/sound related language was 18.8 percent higher. Further, the installation of Play-and-Learn spaces was associated with significant increases in children's programming attendance; across the three sites, the

average increase was 189 percent.⁴⁵

PARK(ing) Day: PARK(ing) Day is an annual, global event, which celebrates parks and other public spaces in cities across the country. It raises awareness of the need for more pedestrian-friendly spaces in our urban areas. In Philadelphia, PARK(ing) Day is presented by the Center for Architecture and Design in partnership with the Community Design Collaborative.⁴⁶ In 2018, Heidi Segall Levy, who is part of the Community Design Collaborative and is also a member of the PPLL advisory group, proposed that PARK(ing) day have a playful learning theme. All PARK(ing) Day teams were encouraged to integrate playful learning into the designs of their individual parklets and were offered training from PPLL about the principles of playful learning.

In collaboration with PPLL, the Community Design Collaborative PARK(ing) Day team designed and constructed an iterative playful learning installation, which integrated suggestions from the community of McCreesh Recreation Center in Cobbs Creek, Philadelphia. The installation, piloted on PARK(ing) Day, revealed a giant bean-bag toss game that encouraged adults and children to talk about numbers and letters, which are foundational to young children's learning of early numeracy and literacy. The installation was then relocated permanently to the McCreesh Recreation Center. In addition, several of the other playful learning parklets were installed permanently at other locations throughout the city following PARK(ing) Day.⁴⁷



Photo credit: Sahar Coston-Hardy

- Evaluate a project, including collecting and analyzing data and reporting.
- Share temporary, mobile games and activities.
- Inform policy and funding decisions, including through shaping key messages.

Communities regularly reach out to the PPLL team for support in developing their playful city plan. PPLL is currently partnering or providing support to many cities, with a few examples listed next.

The Playful Pittsburgh Collaborative is focused on activating play through both built spaces and popup programming. Their Play Boxes and Ultimate Play Days are additional examples of how partners work together to end play deserts by infusing opportunities for play throughout neighborhoods.⁵⁰ PPLL has provided training, professional development, and product development to demonstrate playful learning. This endeavor has included a presentation at the 2018 Play for Change Conference in Pittsburgh, which brought together teams across different job scopes (for example, a city planner and a school administrator) to assess what happens when you combine play and urban design and how it might influence planning. Coming out of the conference, several participants from Indiana, West Virginia, and Western Pennsylvania requested additional technical assistance from PPLL, thus providing additional opportunities to spread playful learning principles.⁵¹

The city of Seattle has been working to embark on a playful city installation for several years since hearing Kathy Hirsh-Pasek speak at a conference. The project is now well on its way and represents a collaboration with the Department of Transportation, the Department of Education and Early Learning, a local public elementary school, and an area university. In the Seattle Safe Routes to School project, Seattle is adapting an existing Safe Routes project to build playful sidewalk installations on a busy walk to an elementary school.⁵² PPLL has provided inspiration, extensive coaching, and feedback about strategy and design. It also provided adaptable design templates, which the Seattle team members have modified to meet their needs based on input from the school community. Ongoing learning will be exchanged as the Seattle team members are interested in sharing their experience with PPLL so that Safe Routes to School can become a national model for other cities that attempt to incorporate playful learning into existing infrastructure investments.⁵³

The Playful Learning project, which is led by Metropolitan Family Services (MFS)—a nongovernmental organization (NGO) in Chicago, is a state-wide project to infuse Chicago and surrounding communities with playful learning installations in everyday public spaces where children and families gather. The first three-year grant charges an anchor organization with designing and activating playful learning installations in three distinct communities with historically marginalized populations. Each community has a set amount of funding to support a number of customized playful learning installations. At this stage of the project, the anchor organizations and MFS are actively engaging the community in a process to determine the following:

- What learning goals are important to the community?
- What are the sites in those communities where people gather and that are optimal for playful learning installations?
- What does the community want to build while drawing from a list of potential options that are based on the Philadelphia Playful Learning Playbook?⁵⁴

PPLL has directly influenced this project through coaching conversations and by providing the playbook as a list of potential playful installations for communities to consider. There is an interest to continue the work and to share learnings back to PPLL so that PPLL can showcase the partnership and identify good practices.⁵⁵

EMERGING FINDINGS AND RECOMMENDATIONS FOR SCALING PLAYFUL LEARNING

The following is a summary of key insights and lessons learned from the design and implementation of PPLL to date as it further expands in Philadelphia and beyond. The emerging findings were drawn from PPLL's experience, including observations and data from pilot sites, interviews with key stakeholders, and Philadelphia Advisory Group and Playful Learning Landscapes Steering Committee meetings. The insights were also informed by efforts to apply learning from PPLL to other cities, such as Chicago, Seattle, and Pittsburgh, as well as relevant lessons from scaling other social innovations in Philadelphia and beyond. Recommendations are intended for policymakers, funders, implementers, and researchers who are interested in expanding and deepening the impact of playful learning installations across built spaces in Philadelphia and other cities.

The findings are organized into three categories: scaling building blocks, scaling strategies, and scaling mindsets.

Scaling Building Blocks

The first group of findings are organized around essential components—or building blocks—that are required for scaling and sustaining playful learning installations and activities across locations. The components include: (a) visionary leaders and public champions who inspire and accelerate the expansion of playful learning efforts; (b) key alliances and partnerships with institutions that have a capacity for large-scale delivery, as well as with organizations that have deep roots in communities; (c) community engagement at the center of the design, delivery, and monitoring of any playful learning installation or activity; and (d) relevant data to motivate action, inform the design and implementation of any response, and sustain activities over time.

Thought leaders and public champions are essential to sustainably scale.

Playful Learning Landscapes' experience in Philadelphia highlights how scaling quality early learning and child development opportunities requires public champions and thought leaders at all levels. Those leaders come from within the community, classroom, government, and funding institutions. PPLL has benefited from visionary and inspirational leadership from Temple University's Infant and Child Laboratory and from a core group of close collaborators. Those leaders have played a critical role in launching PPLL through inspiring others and demonstrating what is possible by making a compelling case based on empirical evidence, connecting partners, and galvanizing action. PPLL is also supported by an impressive group of individuals on both the National Playful Learning Landscapes steering committee and the Philadelphia-based advisory group, who have provided strategic guidance and input to the initiative.

Scaling Requires Organizational Leadership with a Range of Capabilities:

1. Clear vision and ambition.
2. Flexibility and the ability to apply an adaptive approach for emergent strategies.
3. A combination of technical knowledge and sociopolitical networks.
4. Deep embeddedness in the societies that are concerned.
5. The ability to connect issues, opportunities, and levels.
6. The ability to perceive and understand changes in the system and to adapt work accordingly—not only focusing on what is happening (outputs), but also focusing on why things are or aren't changing (for example, look at changing relationships between actors).

Jan Ubels and Floortje Jacobs, "Explorations 06: Shaping successful scaling processes with public-private engagement," PPPLAB Food & Water (2018): 28. Retrieved at: <https://ppplab.org/wp/wp-content/uploads/2018/11/1411-PPPLab-Explorations06.pdf>.

As PPLL has grown and evolved, so have its leadership needs as it moves to informing the broader field and focusing more on large-scale systems change. This endeavor requires expertise in areas such as systems thinking, advocacy, and policy, as well as having a management team and staff members who have deep functional and technical expertise and who thrive while working in complex ecosystems.⁵⁶

Organizations and collaborative efforts, such as PPLL, that look to expand and deepen playful learning throughout cities should consider early on how their leadership needs will evolve in the transition to larger-scale and systems-change focused work. They should plan for how best to foster or bring on the skills needed for large-scale delivery. This plan should include broadening the intellectual base beyond the original thought leaders by building the capacity of many others to advise and design playful learning interventions and to take forward the scaling plan.

In addition to strong internal leadership, a government champion is critical in connecting research to policy action. In the case of Philadelphia, Mayor Kenney has helped to create a culture in the city that values children and families, including his prioritization of educational opportunities and improved learning outcomes. The importance of a political champion has also been demonstrated in the efforts of other cities, such as with Boston's Mayor Marty Walsh and Playful Boston, Baltimore's Mayor Catherine Pugh and Play Grants, Chicago's Mayor Rahm Emanuel and Playstreets, and Los Angeles's Mayor Eric Garcetti and the Great Streets Initiative.

Cultivating such champions often involves engaging government officials in the co-creation of an initiative, rather than bringing them a fully baked, evaluated model to roll out across the city. More specifically, those seeking to scale playful learning approaches should meet with city leaders to (a) explain the value of playful learning using accessible, compelling data; (b) find out what is planned or is on the horizon that can be leveraged or tapped into; and (c) ask what those stakeholders would need to integrate playful learning designs into their space. Philanthropy—particularly in Philadelphia through the William Penn Foundation—has also played a catalytic role in creating space for experimentation, building networks and coalitions, and strengthening the evidence base around playful learning.

Partnerships are vital for expanding and sustaining impact.

The task of improving children's learning outcomes, urban renewal, and other complex social challenges requires the combined efforts of many different stakeholders. PPLL has demonstrated the importance of mobilizing diverse actors, expertise, and resources to spread the concept of playful learning, especially because everyday spaces cut across multiple jurisdictions and disciplines. PPLL has developed partnerships with key allies in sectors such as education, child health and well-being, as well as involving not-the-usual allies such as city planners, builders, and architects.

Early Learning Nation: An Opportunity to Align with a National Network with Common Goals

Early Learning Nation (ELN) is building a nationwide network of early learning communities across the United States where young children and families can get the support that they need to thrive. ELN creates a unified system of support and access to high-quality programs and services.

Early learning communities share four key building blocks: (a) community leadership and commitment to make early childhood a priority, (b) quality services that work for all young children and their families, (c) neighborhoods where families can thrive, and (d) policies that support and are responsive to families. With a vision to make the United States an ELN by 2025, ELN is an example of an existing network with common goals where PPLL can create important linkages.

Source: Center for the Study of Social Policy. (n.d.). Early Learning Nation. <https://cssp.org/our-work/project/early-learning-nation>.

To date, the most natural allies and alliances for PPLL have been with smaller, community-based nonprofits, which see their efforts as complimentary to PPLL's mission but do not necessarily have the infrastructure or capacity to deliver a large-scale project. PPLL has taken steps toward collaborating directly with larger institutions, but this effort has been challenging at times because it involves engaging actors such as city transportation and infrastructure agencies where incentives might appear to be less aligned.

Despite such challenges, with any efforts to scale playful learning approaches, it is important to forge partnerships with entities that have infrastructure in place that will sustain large-scale implementation, such as government agencies. It is also important to continue to nurture alliances with smaller NGOs that have deep roots in the community. An example of those with deep community roots could be pediatricians who can be natural allies for spreading playful learning approaches given their trusting relationship with families and their extensive contact with young infants and toddlers. In the case of PPLL, partnerships are already being forged with the American Academy for Pediatrics. A recent article

in its journal, *Pediatrics*, highlighted the importance of play for child development and encouraged pediatricians during well visits to write prescriptions for play.⁵⁷

PPLL has demonstrated that building and sustaining partnerships is easier said than done. One challenge that is faced by PPLL and that is not unique to it or to Philadelphia is competition with partners or potential partners for the same sources of funding. This is a clear example of the inherent tensions for funding that exist within the broader play community, such as for innovation versus maintenance, in-school versus out-of-school interventions, free play versus guided play, and so forth. To build buy-in and to avoid giving the impression that playful learning is exclusionary, a playful learning movement should develop a clear and simple continuum of play where the various stakeholders who work on play and learning can see themselves represented. Those stakeholders can include this messaging in their communications and outreach efforts. More specifically, this approach will likely necessitate a focus on the whole child and on the full set of competencies that children need, rather than on a narrower set of learning outcomes, such as reading in early grades. This focus will have implications concerning data collection and messaging of findings.

Table 2. The 6Cs of Learning

	Collaboration	Communication	Content	Critical Thinking	Creative Innovation	Confidence
LEVEL 4	Building it together	Tell a joint story	Expertise	Evidence	Vision	Dare to fail
LEVEL 3	Back and forth	Dialogue	Making connections	Opinions	Voice	Calculated risks
LEVEL 2	Side by side	Show and tell	Wide breadth/ Shallow understanding	Truths differ	Means-end	Where do I stand?
LEVEL 1	On my own	Raw emotion	Early learning/ Situation specific	Seeing is believing	Experimentation	Barrel on

Source: Golinkoff and Hirsh-Pasek, 2016.

Focusing on the whole child and the continuum of play, however, should not result in a lack of focus. In fact, the more inclusive an effort, the more important it is to have a clear and unified purpose. A playful learning movement must balance the scope of the north star so that it is broad enough to be relatable to a range of stakeholders but focused enough to be meaningful and actionable.⁵⁸ This focus will require articulating clear criteria for engagement, such as adhering to the five principles of how children learn (fun, active, engaging, meaningful, and socially interactive) and to the 6Cs of what they should learn. (See Table 2, which describes collaboration, communication, content, critical thinking, creative innovation, and confidence.) Additionally, it would be helpful to identify a few common metrics and to request that those involved with the playful learning movement collect and share data about each of the Cs periodically so actors can continue to strengthen the field in a unified way.

Community engagement is essential for scaling playful learning approaches.

Sustainable scaling requires designing interventions that are based on community wants rather than on what outside experts believe communities need. A critical element of PPLL from the start has been community engagement and ownership—a recognition of the importance of engaging the community in the design process at every stage for impact and sustainability. A related underlying principle of PPLL has been to pursue models of caregiver engagement that focus on leveraging existing strengths and assets in the community and on empowering parents to share their own visions for change, rather than taking a deficit approach that is focused on what

Community Engagement and Urban Thinkscape

An example in which PPLL actively engaged communities includes Urban Thinkscape, where the Belmont community had input into the project at various levels: from site selection to park design, construction, and launch. Additionally, community members were trained as local enumerators to collect observational and survey data both at the Urban Thinkscape installation and at a comparison site playground in the same area. Community members received payment and job training as part of their participation in the project.

Source: Author interviews with Kathy Hirsh-Pasek and Brenna Hassinger-Das and site visit December 6, 2017.

communities are lacking. As with other practices that yield longer-term benefits, however, there are challenges with ensuring authentic community engagement, including that it is resource and time intensive.

Authentically engaging communities does not necessarily mean that every organization must work directly with each community. Rather, within a playful learning movement, there should be a process

Pratham School Readiness Report Cards

In India, Pratham Education Foundation hosts “School Readiness Melas,” or festivals, that bring together community members from a local village to both assess children’s school readiness and demonstrate to mothers the activities they can do with their child at home to support healthy development. At the event, children participate in fun activities related to physical, cognitive, and social–emotional development while mothers observe and volunteers fill out a simple report card about the child’s development level.

Afterward, mothers are given the report cards, which use graphics and indicators to show what domains the child is doing well in and where the mothers can support improved outcomes by engaging their children in more of the activities learned that day. Over the next month, mothers are expected to engage in such activities with their children, as well as share their experiences with others. Another Mela is then held in the village to demonstrate the children’s progress, and a certificate is provided to the families celebrating their children’s school readiness.

Source: Pratham Education Foundation. (2019). *Hamara Gaon: School Readiness Melas*.

identified for ensuring the community’s meaningful participation. In some instances, this process could be through partnering with a smaller, community-based organization that has deep and existing roots in a community. The Greater Philadelphia Cultural Alliance has spent time looking at this issue, including looking at under-represented communities in museum visitorship. It has partnered with some of Philadelphia’s smaller neighborhood-based arts organizations that have stronger connections to communities and that understand the needs and interests of the groups.⁵⁹ In the case of the Community Design Collaborative, its design grant process requires the client organization to establish a community task force committee for each project.⁶⁰

Engaging communities can be an exercise in matching supply and demand—and often there is disproportionate attention on supply-side efforts, or “push factors,” and not enough on generating demand, or “pull factors.” In the case of PPLL and the playful learning movement more broadly, sometimes local demand must be catalyzed, including through clear, compelling, and actionable messaging that

shows how playful learning can directly contribute to addressing local concerns. Demand can also be catalyzed by providing opportunities for families to witness the value of play firsthand.

Nationally, it has been difficult to create a sense of urgency for families around play. A 2017 Gallup poll undertaken in partnership with toy company Melissa and Doug found that families consistently fail to prioritize play in children’s lives.⁶¹ Yogman et al. (2018) note that a strong pressure toward academic achievement; cuts to recess, physical education, art, and music in many schools; and a lack of access to safe neighborhoods and playgrounds means many children and families have little time or space in the day to play. For example, a national survey of 8,950 preschool children and parents found that only 51 percent of children went outside to walk or play once per day with either parent.⁶²

Often, caregivers may not see the connection between play and learning and may undervalue play in favor of learning, thereby effectively approaching them as mutually exclusive. To help catalyze community demand and engagement, it is important to communicate the links between play and learning in clear, accessible terms, which may include using familiar methods such as report cards and certificates when children complete playful learning activities.

Data are critical for scaling

Scaling literature and experience suggest that data play at least three important roles in the scaling process: (a) motivating action to address the problem, (b) shaping the design and implementation of the response, and (c) sustaining the response.⁶³ Using data to support the scaling of a playful learning movement requires clarity and consensus around how success is being defined and, as a result, how it will be measured. However, the case of PPLL makes clear that this approach can prove particularly challenging.

In Philadelphia, the definition of success and how it should be measured has not always been clear among all stakeholders involved with PPLL. At times, there has been the assumption that PPLL is solely focused on demonstrating academic outcomes in order to make the case for playful learning activities. Stakeholders who were interviewed shared their frustration with current approaches beyond PPLL to evaluating playful learning spaces and impact more broadly. Although the evidence base is growing about short-term outcomes, there is a need to understand how outcomes are sustained over the longer-term. Some have called for the development of evidence-based “play-indicators” to help measure the effects of play on children’s development and lifelong chances.⁶⁴ This is a clear need and prime space for a playful learning movement to focus on when developing plans to expand impact. Without clarity about definitions of success or without clearly defined metrics for measuring outcomes, it will be challenging to motivate and inform change at large-scale.

Challenges with Collecting Cost Data

Although cost data are critical if one is to understand what is feasible in making the case for scale (whether for governments, communities, or the private sector), it has been challenging for researchers to gather costs about projects from inception to ongoing maintenance. Reasons include that all of the PPLL pilots (with the exception of Urban Thinkscape) were created in collaboration with other independent organizations, with each entity collecting data in different ways.

Furthermore, given that most of the costs were highly variable, it has been difficult to communicate a total figure for design and implementation. PPLL has attempted to address this challenge in its Playbook by providing a spectrum or range of costs for interventions, rather than a total figure.

A central concern for PPLL has been not only *what* data should be collected but also *how* data will be used, including how that information will be communicated and shared with a diverse audience. At times, PPLL’s challenge has been to thread the needle of developing clear messaging that appeals to many different stakeholder groups without losing its grounding in science. Developing this type of messaging includes considering how to provide data that are tailored to different audiences and how to make the business case for investments that respond to their particular interests. For example, some city actors require making a strong case for how playful learning opportunities contribute to academic outcomes, such as early grade literacy and numeracy. For other audiences, it has been important to highlight the social and emotional outcomes from playful learning activities. Though it has found striking this balance challenging to date, PPLL has demonstrated the importance for a broader playful learning movement to share data in accessible and actionable ways—using compelling, straightforward messaging about the need to prioritize play that conveys a sense of urgency.

Finally, as is often the case with an innovation that responds to complex social challenges, there has been demand from other cities and locations to expand or replicate PPLL’s work before comprehensive data exist. Given that the Family Friendly City movement is going forward and that research takes years to seed, PPLL will likely not have all results before implementation takes place in new cities. One way to address this reality is to build an iterative learning process into the playful learning movement so that cities can continue to adapt and evolve their playful learning initiatives on the basis of the latest evidence and insights that have emerged from ongoing studies and experimentation. Tight feedback loops are needed so that information collected from playful learning installations and activities can continue to inform and shape efforts to transform cities into playful learning hubs.⁶⁵

Scaling Strategies

The second group of findings relate to different strategies and approaches to scale that have appeared to be important in scaling playful learning efforts throughout Philadelphia and other cities. As with other scaling-related approaches, these are not mutually exclusive but often are pursued simultaneously. The approaches include (a) pursuing flexible adaptation as the initiative continues to spread across Philadelphia and to other locations, underscoring the importance of cities and neighborhoods tailoring playful learning installations and activities to their own context without losing a core set of scientific principles that lead to impact; (b) strengthening the overall playful learning field, which includes growing the field by raising awareness and cultivating more partners to join and by building the capacity of existing players who are already committed to the issue of playful learning; and (c) integrating playful learning principles into existing goods and services that families and communities already use, with the aim that infusing playful learning principles eventually become second nature when designing any public, or trapped, space.

Flexible adaptation is required for large-scale expansion and impact.

PPLL experience to date highlights the need for interventions to marry universal principles that lead to impact with elements that must be customized by local communities. Cities and neighborhoods must tailor particular installations and activities to their own context without losing the core scientific principles that lead to effective change. Contextualizing playful learning installations that are based on local culture, geography, and other demographics is essential to ensure accessibility, relevance, impact, and ultimately sustainability. The question becomes how a playful learning movement can best enable actors within Philadelphia, as well as in other cities around the world, to implement and scale their own version of playful learning activities and installations without sacrificing quality or impact, particularly as cities are forging ahead at times with limited data.

Part of the answer lies in identifying the core components responsible for the outcomes of the playful learning installations. Those components should look the same across contexts and should be maintained regardless of location. This endeavor is not always as simple as it sounds. Among PPLL key collaborators, concepts identified as central to the effort are (a) the unification of play and learning, (b) the targeting of everyday spaces, (c) the transformation of city infrastructure, and (d) the focus on children and families. Among those directly involved in the research behind PPLL, core elements identified are the five scientific principles of *how* children learn (fun, active, engaging, meaningful, and socially interactive) and the 6Cs of *what* children should learn to succeed in the 21st century (collaboration, communication, content, critical thinking, creative innovation, and confidence). It will be important for the playful learning movement to determine, while drawing on evidence, the core components that should be preserved and replicated across contexts.

At the same time, as playful learning concepts and designs continue to scale and spread, it will be important for originators of the designs to accept not only that adaptation is inevitable, but also that it is part of the scaling process and perhaps is even desirable. Given this reality, it is important from the start to think about how to build in adaptation into the design of any playful learning installation or program. And because adaptation is inevitable when it comes to scaling and spreading, it should be purposeful and planned; should be informed by evidence, theories, and models; and must involve the end users. Work should be guided by evidence-based design principles versus fixed models. The playful learning community can make an important contribution to the early childhood development field, scaling, and the implementation science by measuring *what* is adapted, *why* it is adapted, *who* is receiving the adapted intervention, and *what* the outcomes of this adaptation are.

This messaging of core components has been the intention behind the Philadelphia Playful Learning Playbook⁶⁶ as it aims to provide a user-friendly guide for a wide range of actors who are interested in combining learning and play into community settings. For those developing the Playbook, however, the challenge has been how to strike the right balance between providing universal design principles and illustrative examples without being overly prescriptive for a narrow audience. Yet through interviews

conducted for this report, clearly there is huge appetite and demand among designers, community organizations, and city agencies for customizable playful learning designs—templates that others can take and adapt to their local contexts.

The playful learning movement could partner with designers and architects to build on the current Philadelphia Playful Learning Playbook and develop an inventory of generic design guides or templates to illustrate how interventions can be designed to fit into all communities and can be customized after installation. Additionally, a playful learning movement could focus on designing for non-context specific sites, such as lampposts, street signs, and libraries, rather than using preexisting pieces for context-specific locations, because ultimately (in order to scale) playful learning installations must be produced in volume at a low cost and efficiently.⁶⁷

A Playful Learning Certification could be explored as one way to control how the initiative spreads and to avoid dilution. Examples of other certification processes, which are common in the construction and appliances industries, include LEED (Leadership in Energy and Environmental Design), Energy Star, and the U.S. Green Building Council. In the case of the latter, anyone can join the council, but joining does not mean the work is automatically certified by that council. The organization offers multiple levels of certification to its members and offers a transparent certification process that is based on clearly published criteria for those members who wish to pursue it. The council also offers a wealth of resources about how to make a building greener, thereby supporting the members' efforts to improve their communities. This example offers a potential model for a playful learning movement to consider as it builds a network of playful learning cities that combine inclusivity while maintaining quality control. However, working as a quality-control gatekeeper may change the focus of the effort from innovator to evaluator. This area can be explored further.

Field building is an important pathway to scale.

There are various pathways and approaches to scaling impact—from partnering with local organizations and directly reaching more communities to institutionalizing key practices into policies and practices. Often, multiple approaches are pursued simultaneously. One scaling strategy that PPLL has been pursuing is to strengthen the overall playful learning field and the enabling conditions that are necessary to scale and sustain effective approaches. Field-building strategies often follow one of two paths: (a) growing the field by raising awareness of an issue to generate support and funding, or (2) improving the performance of existing players who are already committed to the field.⁶⁸ PPLL has pursued both strategies as it focuses on expanding impact. More specifically, PPLL efforts have highlighted four critical gaps in the field: generating evidence, developing design standards, building networks, and informing policy.

For example, PPLL has identified the need to make an urgent and compelling case to communities, policymakers, and funders for deciding to invest in playful learning amid other competing priorities. This requires developing clear talking points that are both evidence-based and accessible in order to raise awareness of playful learning across sectors. A challenge has been to tailor talking points to specific audiences that have different priorities and interests without diluting the essential message. In terms of strengthening the performance of existing players, PPLL is developing and disseminating playful learning standards, research, and tools—starting with development of the Philadelphia Playful Learning Playbook. Eventually, the aim is to codify learning gathered from playful learning sites and installations into design guidelines, policy guidance, and funding strategies. There is huge demand for this type of guidance, and PPLL has already been providing other cities with advice and technical assistance in their efforts to design and build playful learning activities and programs.

An important and often overlooked aspect of field building is paying attention to those who stand to lose as a result of successful scaling. Literature finds that programs may have failed at scale because they did not pay sufficient attention to institutional incentives, vested interests, and how those who stand to lose out would react.⁶⁹ Some of the latter may not be apparent until after the pilot stage, once the

intervention is showing success at scaling.⁷⁰ When not accounted for or addressed, this can quickly undermine any gains made. Daron Acemoglu, an economist at Massachusetts Institute of Technology (MIT), dubbed this the seesaw effect; making a change without redistributing power or the equilibrium of power usually leads to a counteracting force so strong that the change is unlikely to have significant impact.⁷¹

One example was the scaling of a contract teacher intervention in Kenya. Although an NGO-led pilot in western Kenya found the hiring of contract teachers to be effective in raising students' tests scores, its effect disappeared when the government implemented the intervention across the country. Evidence from Bold et al.'s (2013) study of the program suggests that one explanation for the large difference in change was that the program's potential to introduce 18,000 new contract teachers into the workforce spurred organized resistance from Kenya's national teachers' union. The researchers attributed this fact as demonstrating that the controversy around scaling adversely affected incentives for government-employed teachers to experiment in the classroom, thereby weakening teacher performance.⁷²

Getting consensus around a new model or approach is difficult, particularly if it requires reallocation of funding, changes in human resources, and other politically difficult activities such as curtailing some services and replacing them with others. Given finite resources in this space, there will inevitably be competition between groups such as those focused on free play versus more deliberately guided play with a learning goal. Competition can also exist between those focused on building playful learning in schools (such as playgrounds) versus integrating opportunities into everyday public spaces, such as sidewalks and bus stops. Those groups do not necessarily need to be at odds, because there is common ground between all the actors, so it will be important to identify the potential conflicts and to consider how to create a big enough tent. This process will require identifying where interests do align and strategically positioning playful learning as a value added to achieving their stated aims.

Experience repeatedly demonstrates that field building most often does not happen organically, but it needs to be seeded and nurtured. It often requires a central hub or secretariat to help coordinate efforts, connect partners, build the evidence base, codify learning emerging across various sites, and disseminate findings in a way that can help to inform policy change and to sustainably scale efforts.⁷³ PPLL is attempting to play this coalition-building role by bringing together diverse actors (such as in health, education, and built spaces) along the play continuum and across sectors. It is important to strike the right balance between being inclusive and allowing space for a wide range of actors to participate, while identifying a few criteria that partners should agree to, such as incorporating the scientific principles behind playful learning into design and a willingness to share data about common metrics.

Scaling and sustaining playful learning approaches requires integration into existing structures.

Playful learning installations and activities will achieve sustainable scale only if they result in meaningful change that is embedded in and delivered through public or market systems. Experience across sectors suggests that scaling is facilitated when an innovation can be bundled with a good or service that consumers already use. The aim of PPLL from the start has been for playful learning principles and approaches to be widely understood and accepted so that embedding them throughout the city becomes second nature—just as whenever the city builds a crosswalk, it is automatically equipped for the visually

impaired. As mentioned earlier, this acceptance has started to happen already: the Philadelphia Playful Learning Playbook and design standards have been included as an appendix in Rebuild's Design Standards (the city of Philadelphia's \$500 million investment in public spaces), thereby encouraging consideration of playful learning designs and principles. This is an important strategy to continue pursuing for further expansion and sustainability.

To date, PPLL has focused primarily on scaling through the public system. This is a key avenue for scaling, because governments have the primary responsibility for ensuring education for all children as well as focusing on equity. However, given that a significant proportion of places where children interact outside school are owned and controlled by the private sector—such as supermarkets, laundromats, and banks—PPLL and playful learning actors in other cities should further consider and, where appropriate, pursue market-based mechanisms for financing the scale-up of playful learning principles. If businesses incorporate such investments into their routine expenditures, scaling could be accelerated beyond what government could achieve alone.

Making the case for scaling to the private sector will require demonstrating that those investments are not only good for the community but also good for business, because incorporating playful learning installations could, for example, increase usage. Linking playful learning to the job markets of tomorrow is a compelling argument, especially in places such as Philadelphia that are experiencing labor shortages and deficits in next-generation skills.

PPLL and other playful learning efforts should look at city budgets, such as transportation, when they consider sustaining new playful learning spaces. Projects in New York and Seattle have both had success involving city transportation agencies for infusing playful learning in public spaces. In New York, the Gehl Institute built an ongoing partnership with the New York City Transportation Department, the Department of Health and Mental Hygiene, the Parks and Recreation department, and the New York Academy of Medicine to sustain its Play Streets initiative.⁷⁴

PPLL and other playful learning partners in Philadelphia and other cities should continue to explore opportunities to partner with businesses to bring playful learning into retail spaces at a large scale, as well as public spaces, perhaps starting with natural allies such as IKEA and Target. In addition to embedding playful learning activities into existing public and commercial infrastructure, scaling efforts can be accelerated by infusing playful learning design principles into widely used tools that cut across sectors, such as with the *KaBOOM! Play Everywhere Playbook*, which includes an extensive toolkit for creating kid-friendly cities,⁷⁵ and *Nature PHL Park Rx*, a toolkit and community of practice for cities and organizations interested in developing public health prescriptions for outdoor activity in green spaces.⁷⁶

Scaling Mindsets

The final set of findings relate to certain scaling mindsets that appear to have contributed to—and will continue to be important for—ongoing expansion and adaptation of playful learning efforts. PPLL's journey to date has underscored the following: (a) the need for flexibility and agility because scaling any playful learning initiative is far from a linear process but has been shown to require ongoing data-driven reflection, experimentation, and adaptations to existing strategies and plans; (b) the importance of maintaining a focus on place-keeping as part of any placemaking effort—given challenges across the

Integrating Design Principles into City Infrastructure: The Case of Philadelphia Redevelopment Authority

There are relevant experiences of integrating design principles into existing city infrastructure that PPLL and other cities could learn from. For example, Philadelphia's arts community worked closely with the Philadelphia Redevelopment Authority (PRA), which is the city's implementation arm for community development, to mandate that developers who build on land acquired and assembled by the PRA must dedicate at least 1 percent of the total building construction costs toward the commissioning of original, site-specific works of art.

Source: City of Philadelphia. (2019). Philadelphia is Celebrating 60 Years of Percent for Art. <https://www.phila.gov/2019-04-18-philadelphia-is-celebrating-60-years-of-percent-for-art/>.

board for maintenance of play-related installations in public spaces; and, finally, (c) the need to consider unintended consequences early on as playful learning initiatives scale, some of which might not appear to be issues at a pilot stage but can become obstacles once activities have reached a larger population.

Scaling playful learning spaces requires flexibility and agility.

PPLL's journey to date underscores how scaling is not a linear process where plans are developed and then implemented with absolute fidelity. Rather, the scaling process inevitably encounters opportunities and obstacles along the way that require ongoing data-driven reflection, experimentation, and adaptations to existing strategies and plans. This type of adaptive approach requires the same learning agility that we expect from today's students among those designing, delivering, and funding playful learning projects. For example, PPLL had initially planned to work through Rebuild's investments in public spaces around Philadelphia, but it had to adjust plans quickly when the funding mechanism for Rebuild (the mayor's proposed sweetened beverage tax) got held up in court. As a result, PPLL was forced to shift plans and identify an alternative approach to testing and infusing playful learning principles and designs into built spaces. This approach included working directly with partner organizations, such as the Belmont Alliance Civic Association, Community Design Collaborative, and Fab Youth Philly.

This experience highlights how scaling requires being agile and flexible in order to seize opportunities as they arise and being able to respond to inevitable unanticipated obstacles. The ability to do so is often heavily influenced by how much flexibility is afforded by funding sources to change course as needed. Creating scalable and sustainable initiatives requires funders that focus on agreed-upon results to achieve goals but remain flexible and have trust in the implementer about the best way to achieve them.⁷⁷ Unfortunately, this type of flexible and longer-term financing is more often the exception rather than the norm.⁷⁸ Traditionally, there has been a preference among funders for project-based, short-term solutions as they struggle to align their expectations with the longer-term nature of social change. Fortunately, in the case of Philadelphia, the William Penn Foundation's seed funding to Temple University's Infant and Child Laboratory has allowed the ability to strategically shift and change course as needed.

In writing about collective impact, Kania and Kramer (2011) argue that funders must be willing to let grantees steer the work and must have the patience to stay with an initiative for years while recognizing that social change can come from the gradual improvement of an entire system over time, not just from a single breakthrough by an individual organization.⁷⁹ Because funders do not typically want to support field-building activities or core overhead needs rather than more tangible deliverables, it will be critical for the sustainability of playful learning activities to encourage funding in exactly those areas. Across the United States, funders are working with cities to pool resources to collectively support playful cities or related concepts, such as the following: (a) Playful Pittsburgh, with support from the Grable Foundation; (b) Hope Starts Here initiative in Detroit, supported by Kresge and Kellogg foundations; (c) Global Designing Cities initiative with support from Bernard van Leer Foundation, Bloomberg Philanthropies, Foundation Botnar, and the FIA Foundation; and (d) Play More B'more with support from Carmax and Annie E. Casey Foundation. There is an opportunity for a broader playful learning coalition to inform those funding collaboratives about the core principles of playful learning and about approaches to use such principles to deepen and sustain the impact of their existing work.

Place-keeping must remain part of placemaking to sustainably scale.

An important area for consideration among the playful learning community will be attention to and investments in place-keeping or sustaining playful learning installations once developed. There are challenges across the board of sufficient resources to maintain any play-related installations in public spaces. Funding for public parks has continued to decline, and much more funding is available for capital spending than for maintenance.⁸⁰ For example, in 2015, Philadelphia installed temporary

rainbow crosswalks in the city to celebrate PRIDE and the LGBTQ community. The crosswalks began to wear almost immediately, and citizens were surprised to hear that the city would need to spend almost \$30,000 to repair them.⁸¹ Maintenance of public spaces tends to be supported through friends of and other stewardships, which often benefit more economically advantaged areas. Entities that are trying to focus on maintenance face considerable challenges, such as the New York Restoration Project,⁸² which has struggled to raise funds for parks and gardens from people who do not live near the gardens they are supporting.⁸³

This question of long-term maintenance is an important consideration for PPLL and other cities' efforts as they advocate for more playful learning installations in public spaces. While PPLL is promoting more playful learning in built spaces, it will also be important to consider investments in evergreening of the installations. This could include advocating for or creating an endowment fund for such types of installations or, when collaborating on design, making sure to identify a local organization responsible for ongoing maintenance for each site (such as Metropolitan Family Services in Chicago has done). It can also include advocating for line items to guarantee maintenance of playful learning installations in public budgets.

Ensuring Place-keeping Is Part of Placemaking

Since 2013, the Place-Keeping Group, based in the United Kingdom, has advocated for the prioritization of maintenance of public space alongside its creation or reinvestment in it. The group contends that “what is surprising is the lack of priority given to the place-keeping, or long-term management of such spaces, once placemaking has occurred.”

The scholars envision placemaking as a smaller component of a broader project of place-keeping and as maintaining public spaces for use over time. They argue that this kind of maintenance project tends to take more planning and funds than does initial placemaking projects or outgrowths, such as popups and parklets, because “place-keeping is not simply about the physical environment, its design and maintenance, but also [it] encompasses the interrelated and non-physical dimensions of partnerships, governance, funding, policy, and evaluation.”

Source: The Place Keeping Group. (n.d.). Home. <http://www.place-keeping.org/>.

Unintended consequences of scaling playful learning approaches must be considered from the start.

As compelling as the image of a widespread playful learning city is, there are always unexpected and unintended consequences as any initiative scales. These issues may not be apparent at the pilot stage but can become problematic once the pilot reaches a larger population. It is important to try to identify any potential adverse effects of a playful learning installation or activity and to attempt to mitigate it in planning from the start. Some potential unintended consequences could include the following:

- Will it be harder to get on the bus? Is it possible that a family might find bus stop playtime more challenging and begin avoiding the bus stop or playful route because it delays the daily commute?⁸⁴
- Is it safe? Safety is often a concern around these types of installations as sidewalks are activated, and children may now behave in new ways in an everyday space.
- Will this be disruptive to our mission? When businesses are asked to participate in playful learning installations and activities, there is usually significant concern around whether children playing in or near their space will be disruptive to their core business.
- Will this take resources from other partners? In cities around the country and world, organizations are competing for limited resources. As exciting as it is to see new playful learning spaces pop up in unexpected spaces, there is a sense that such investments could crowd out resources for formal play spaces such as playgrounds.

- Without adequate resources for maintenance, will the installation fall in disrepair? If there isn't a sufficient budget for upkeep, installations could fall into disrepair and could leave cities in an even worse place than where they started.

Lessons from PPLL can continue to support the field as it tackles the described challenges and unintended consequences. Working closely with community members is one way to identify and address potential adverse impacts early on. PPLL and other playful learning partners can further support addressing those concerns by including guidance about identifying and addressing potential adverse impacts into design principles.

A CALL TO ACTION

Ultimately, the intention of PPLL is to help maximize child development and learning outcomes for children and communities through the creation of a new approach where learning sciences and placemaking come together and cross-fertilize. Rather than focusing on scaling a single installation, Playful Learning Landscapes, with Philadelphia serving as a demonstration site, hopes to contribute to a stronger ecosystem of evidence-based efforts that promote children's learning and development. This approach requires thinking beyond individual pilots and institutional agendas and instead focusing on collective action needed to strengthen the field overall. This calls for three interrelated efforts going forward by actors who foster a playful learning movement, including, but not limited to, those involved with PPLL and the larger umbrella initiative of Playful Learning Landscapes:

1. **Generate robust evidence about playful learning to continue to build the evidence base and to gather data that enable continuous learning.** Given the critical role that data play in the scaling process, there is a need to better understand the impact of playful learning and how it is sustained over time. This includes developing a few shared metrics across playful learning sites that measure shorter- and longer-term improvements on child-caregiver language and interaction and on community-level effects, such as revitalizing neighborhoods and reinvigorating cities. Tight feedback loops are needed so that information collected from those and other installations and initiatives continue to inform and shape efforts to transform cities into playful learning landscapes. Even while scaling, demonstration sites that include partnerships with academic institutions will remain important to continue to innovate, inspire action, and show what is possible with limited resources. For funding partners, it is critical to focus on the entire innovation-learning-scaling cycle as a coherent package to advance and sustain playful learning efforts city-wide. This requires longer-term and flexible financing to allow implementers to adapt and adjust on the basis of ongoing learning and new evidence emerging.
2. **Capture and codify key elements and approaches to implement playful learning initiatives.** Transforming cities and towns into vibrant learning communities requires not only more information and evidence about *what* is working, but also more guidance and support around *how* it is achieved. To cultivate and engage thought leaders and champions, lessons learned and evidence gathered must be codified and broadly shared in actionable ways with policymakers, implementers, researchers, funders, and community members. In addition to generating, distilling, and sharing more knowledge, other actors and cities also require support in designing, implementing, and monitoring playful learning activities, such as in the form of design templates, guidelines, tools, and technical assistance. This type of targeted support to practice flexible adaptation enables other cities to create their version of Playful Learning Landscapes while still adhering to some fundamental principles and maintaining quality as the movement spreads.
3. **Build a coordinated global movement around playful learning.** The task of improving children's learning outcomes, urban renewal, and other complex social challenges requires the combined efforts of all. Despite growing evidence and a strong case for investment, it remains too easy for different sectors and disciplines to continue to work in their respective silos. Given the

importance of partnerships for sustaining impact, a strong, coordinated network of actors is needed to collectively pool expertise, resources, and skills around a shared vision and aligned incentives. Cities should be linked to learn from each other and develop joint approaches. Mobilizing this movement and ensuring its impact will require investment, organization, and coordination. This calls for building some unexpected coalitions and experimenting and taking risks in efforts to leapfrog current rates of progress. A central hub is critical to strengthen the playful learning field, help in coordinating efforts, connect partners, and share learning emerging across various sites in a way that can help to inform policy change and sustainably scale efforts. Thus, to ensure that the impact of combined efforts across locations is greater than the sum of its parts. The Sustainable Development Goals provide a common north star to focus attention across electoral cycles and levels of government, given their call for universal access to quality education and early childhood development and care.⁸⁵ The timing for a playful learning movement is ripe, including because power is shifting downward in the world from national governments and states to cities and towns and horizontally from the public sector to networks of public, private, and civic actors.⁸⁶

Collective action among policymakers, implementers, funders, and researchers around these three recommendations would help advance Playful Learning Landscapes' vision to help all families support children to lead healthy, safe, and productive lives by transforming everyday spaces into playful learning opportunities.⁸⁷

ANNEX I: PLAYFUL LEARNING LANDSCAPE STEERING COMMITTEE MEMBERS

Chair: Joan Lombardi, Early Opportunities LLC

Gregg Behr, The Grable Foundation

Jackie Bezos, Bezos Family Foundation

Milton Chen, The George Lucas Educational Foundation

Cheryl Cohen, Efron

Ellen Galinsky, Bezos Family Foundation

Roberta Golinkoff, University of Delaware

Darell Hammond, KaBOOM!

Kathy Hirsh-Pasek, Temple University; The Brookings Institution

Cas Holman, Rhode Island School of Design

Michael Levine, Joan Ganz Cooney Center, Sesame Workshop

Susan Magsamen, International Arts and Mind Lab, Brain Science Institute, Johns Hopkins University

Itai Palti, The Centric Lab

Michael Rich, Center on Media and Child Health, Boston Children's Hospital

Deb Roy, Laboratory for Social Machines, Massachusetts Institute of Technology; Chief Media Scientist,
Twitter

Jack Shonkoff, Center on the Developing Child, Harvard University

Shin-pei Tsay, Gehl Institute

Jennifer Vey, Metropolitan Policy Program, The Brookings Institution

Elliot Weinbaum, William Penn Foundation

Rebecca Winthrop, Center for Universal Education, The Brookings Institution

Sarah Wolman, The LEGO Foundation

Michael Yogman, Harvard Medical School

Barry Zuckerman, Boston University School of Medicine / Boston Medical Center

ANNEX II: PHILADELPHIA ADVISORY GROUP MEMBERS

Jenny Bogoni, Read by 4th
Otis Bullock Jr., Mamie Nichols Center
Betsy Caesar, Playcare Inc.
Christine Caputo, Free Library of Philadelphia
Cheryl Carson, Smith Memorial Playground and Playhouse
Diane Castelbuono, The School District of Philadelphia
Francesco Cerrai, Philadelphia Parks and Recreation
Jack Conviser, Philadelphia City Planning Commission
Donna Cooper, Public Citizens for Children and Youth (PCCY)
Shannon Dryden, Get Healthy Philadelphia—Division of Chronic Disease Prevention
Rebecca Fabiano, Fab Youth Philly
Owen Franklin, The Trust for Public Land
Eva Gladstein, City of Philadelphia
Sidney Hargro, Philanthropy Network of Philadelphia
Gael Levin-Simon, Meadowflowers
Heidi Segall Levy, Community Design Collaborative
Jennifer Mahar, Fairmount Park Conservancy
Ivy Olesh, Playworks
Aparna Palantino, Philadelphia Parks and Recreation
Siobhan Reardon, Free Library of Philadelphia
Marla Shoemaker, Philadelphia Museum of Art
Julie Skierski, Office of Capital Programs, School District of Philadelphia
Kira Strong, Rebuild
Julia Terry, Artwell
Maria Walker, Drexel University
Patricia Wellenbach, Please Touch Museum
Jennifer Zosh, Penn State Brandywine

ENDNOTES

- ¹ Brenna Hassinger-Das, Andres S. Bustamante, Kathy Hirsh-Pasek, Roberta Michnick Golinkoff, Susan Magsamen, Jenny Perlman Robinson, and Rebecca Winthrop, “Learning Landscapes: Can Urban Planning and the Learning Sciences Work Together to Help Children?” *Global Economy and Development Working Paper* 124 (2018). Retrieved from <https://www.brookings.edu/wp-content/uploads/2018/09/20180904-learning-landscapes-paper.pdf>
- ² Jan Beise, Bin Lian, and Danzhen You, “Advantage or Paradox? The Challenge for Children and Young People Growing up Urban,” UNICEF (2018). Retrieved from https://data.unicef.org/wp-content/uploads/2018/11/AdvantageOrParadox_web.pdf
- ³ Temple Infant and Child Lab and Playful Learning Landscapes, “Draft Philadelphia Playful Learning City Playbook,” (2018). Retrieved from https://static1.squarespace.com/static/5b6c7a5d3917eec655b1a847/t/5b7b0fcc032be44799584263/1534791631733/PPLC+Playbook_DRAFT_August+2018.pdf
- ⁴ Hassinger-Das et al., “Learning Landscapes.”
- ⁵ Afterschool Alliance, “Expanding Learning Opportunities: It Takes More Time,” *Afterschool Alert Issue Brief #29* (2007).
- ⁶ Adopted by 193 countries in 2015, the Sustainable Development Goals (SDGs) are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. See <https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>.
- ⁷ John McArthur and Tony Pipa, “Cities on the World Stage: Using the SDGs as a “North Star,” *OpenCanada* (2018).
- ⁸ The Ounce, “Learning Begins at Birth,” *Ounce of Prevention Fund* (2017).
- ⁹ Center on the Developing Child at Harvard University, “In Brief: The Science of Early Childhood Development,” *In Brief Series* (2007). Retrieved from <https://46y5eh11fhgw3ve3ytpwxt9r-wpengine.netdna-ssl.com/wp-content/uploads/2007/03/InBrief-The-Science-of-Early-Childhood-Development2.pdf>
- ¹⁰ Maureen M. Black, Susan P. Walker, Lia C H Fernald, Christopher T Andersen, Ann M DiGirolamo, Chunling Lu, Dana C McCoy, Günther Fink, Yusra R Shawar, Jeremy Shiffman, Amanda E Devercelli, Quentin T Wodon, Emily Vargas Baron, and Sally Grantham-McGregor, for the Lancet Early Childhood Development Series Steering Committee, “Advancing Early Childhood Development: From Science to Scale 1: Early Childhood Development Coming of Age: Science through the Life Course,” *The Lancet* 389, no. 10064 (2017): 77–90.
- ¹¹ Sheridan Bartlett, “Improving Learning Achievement in Early Primary in Low-Income Countries: A Review of the Research,” *Aga Khan Foundation* (2010.); Patrice L. Engle, Maureen M. Black, Jere R. Behrman, Meena Cabral de Mello, et al., “Strategies to Avoid the Loss of Developmental Potential in More Than 200 Million Children in the Developing World,” *The Lancet* 369, no. 9557 (2007); Susan P. Walker, Theodore D. Wachs, Julie Meeks Gardner, Betsy Lozoff, et al., “Child Development: Risk Factors for Adverse Outcomes in Developing Countries,” *The Lancet* 369, no. 9556 (2007): 145–57.
- ¹² Stuart Shanker, “Self-Regulation: Calm, Alert and Learning,” *Education Canada* 50, no. 3 (2010).
- ¹³ Michael Yogman, Andrew Garner, Jeffrey Hutchinson, Kathy Hirsh-Pasek, and Roberta Michnick Golinkoff, “The Power of Play: A Pediatric Role in Enhancing Development in Young Children,” *Pediatrics* 42, no. 3 (2018).
- ¹⁴ Kathy Hirsh-Pasek, Jennifer M. Zosh, Roberta Golinkoff, James H. Gray, Michael B. Robb, and Jordy Kaufman, “Putting Education in ‘Educational’ Apps: Lessons from the Science of Learning,” *Psychological Science in the Public Interest* 16, no. 1 (2015): 3–34.
- ¹⁵ Hassinger-Das et al., “Learning Landscapes.”
- ¹⁶ Beise et al., “Advantage or Paradox?” Retrieved from https://data.unicef.org/wp-content/uploads/2018/11/AdvantageOrParadox_web.pdf
- ¹⁷ Temple Infant and Child Lab and Playful Learning Landscapes, “Draft Philadelphia Playful Learning City Playbook,” (2018).
- ¹⁸ Hassinger-Das et al., “Learning Landscapes.”
- ¹⁹ Afterschool Alliance, “Expanding Learning Opportunities.”
- ²⁰ Brenna Hassinger-Das, Tamara S. Toub, Jennifer M. Zosh, Jessica Michnick, Roberta Golinkoff, and Kathy Hirsh-Pasek, “More than Just Fun: A Place for Games in Playful Learning,” *Infancia y Aprendizaje [Infancy and Learning]* 40 (2016): 191–281.
- ²¹ Roberta Michnick Golinkoff and Kathy Hirsh-Pasek, *Becoming Brilliant: What Science Tells Us about Raising Successful Children* (American Psychological Association, 2016).
- ²² Temple Infant and Child Lab and Playful Learning Landscapes, “[Draft Philadelphia Playful Learning City Playbook.](#)”

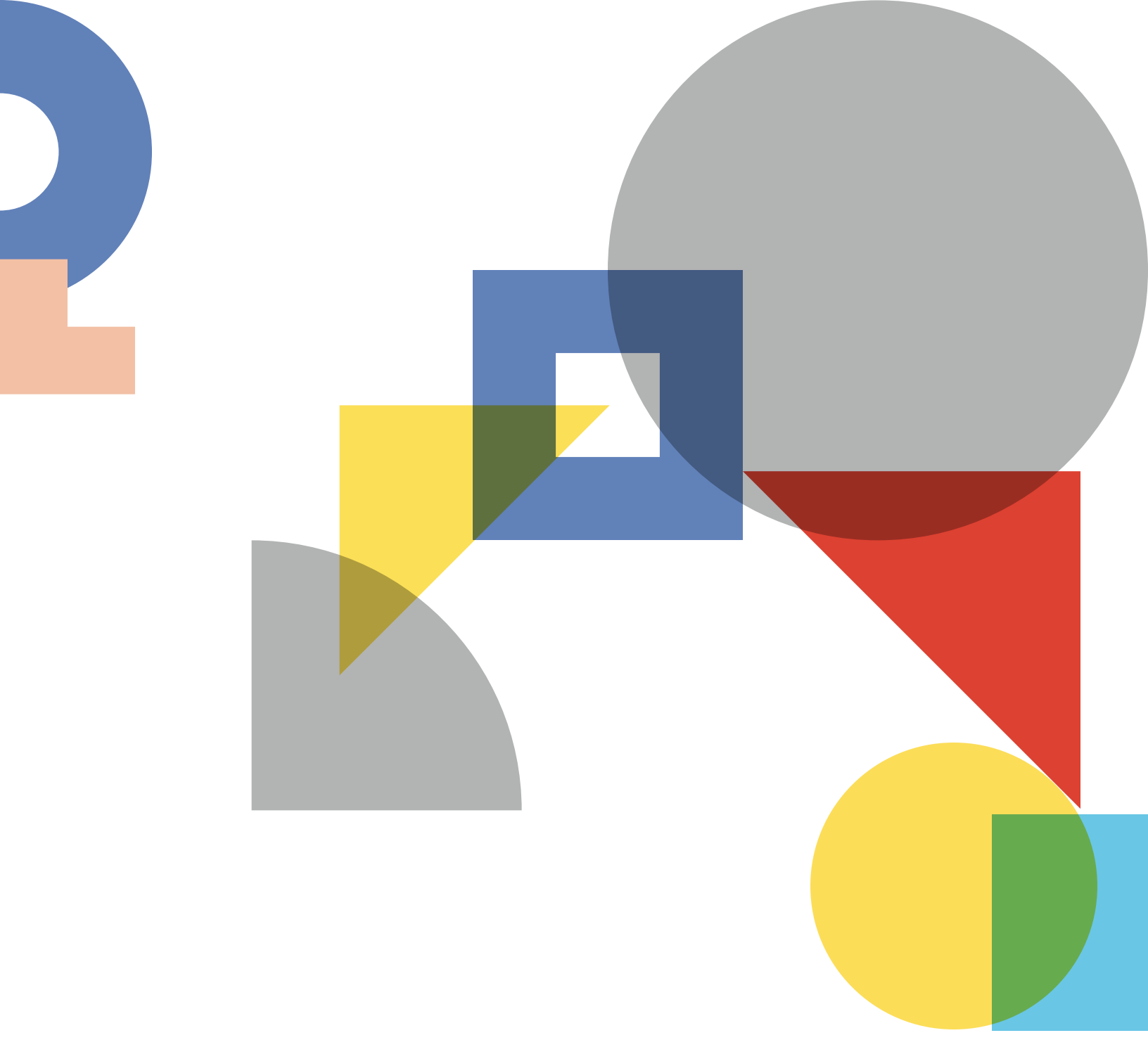
- ²³ Kathy Hirsh-Pasek, Roberta Michnick Golinkoff, Laura E. Berk, and Dorothy Singer, *A Mandate for Playful Learning in Preschool: Presenting the Evidence*, (Oxford, UK: Oxford University Press, 2018).
- ²⁴ The core concept of “child friendly cities” was developed by UNICEF in 1996 to ensure (a) that city governments consistently make decisions in the best interests of children; (b) that cities are places where children’s rights to a healthy, caring, protective, educative, stimulating, nondiscriminating, inclusive, and culturally rich environment are addressed; and (c) that those rights are an integral part of public policies, programs, and decisions. See <https://childfriendlycities.org/what-is-the-child-friendly-cities-initiative/>.
- ²⁵ Hassinger-Das et al., “Learning Landscapes.”
- ²⁶ Ibid.
- ²⁷ Please see the Philadelphia Playful Learning Playbook website for in depth information on the playbook: playfulllearninglandscapesPHL.org.
- ²⁸ Eleanor Crook Foundation, “Grantee Guidance Series: Theory of Sustainability and Theory of Scale.” (2018): 3.
- ²⁹ Pew Charitable Trusts, “Philadelphia’s Poor: Who They Are, Where They Live, and How That Has Changed,” (November 2017): 1.
- ³⁰ Ibid.
- ³¹ Ibid.
- ³² The Nation’s Report Card, “Data Tools, District Profiles: Philadelphia Student Groups and Gaps Data,” (2017), https://www.nationsreportcard.gov/profiles/districtprofile/overview/XP?cti=PgTab_GapComparisons&chart=1&sub=RED&sj=XP&fs=Grade&st=MN&year=2009R3&sg=Race%2FEthnicity%3A+White+vs.+Black&sgv=Difference&ts=Cross-Year&tss=2017R3-2009R3&sfj=NL.
- ³³ Placemaking is a community-based approach to define shared values and reimagine public spaces according to what is important to its residents ([Learning Landscapes: Can Urban Planning and the Learning Sciences Work Together to Help Children?](#)). It promotes better, people-centered urban design; facilitates creative patterns of use; and advocates attention to the physical, cultural, and social identities that define a place and support its ongoing evolution. See <https://www.pps.org/article/what-is-placemaking>.
- ³⁴ Jennifer M. Zosh, Kelly Fisher, Roberta Michnick Golinkoff, and Kathy Hirsh-Pasek, “The Ultimate Block Party: Bridging the Science of Learning and the importance of Play,” in *Design, Make, Play: Growing the Next Generation of STEM Innovators*, eds. M. Honey and D. Kantner, (New York: Taylor and Francis, 2013), 95–118.
- ³⁵ Brenna Hassinger-Das, Itai Palti, Kathy Hirsh-Pasek, Roberta Michnick Golinkoff (under review); Hassinger-Das et al., “Learning Landscapes.” 74.
- ³⁶ Rachel Grob, Mark Schlesinger, Amy Pace, Kathy Hirsh-Pasek, and Roberta Michnick Golinkoff, “Playing with Ideas: Evaluating a Collective Experimental Intervention Designed to Enrich Perceptions of Play,” *Child Development* 88, no. 5 (2017): 1419–34.
- ³⁷ Marc de Rosnay and Claire Hughes, “Conversation and Theory of Mind: Do Children Talk Their Way to Socio-cognitive Understanding?” *British Journal of Developmental Psychology* 24, no. 1 (2006): 7–37.; Roger Brown, “Development of the First Language in the Human Species,” *American Psychologist* 28, no. 2 (1973): 97.
- ³⁸ Katherine E. Ridge, Deena Skolnick Weisberg, Hande Ilgaz, Kathy Hirsh-Pasek, and Roberta Michnick Golinkoff, “Supermarket Speak: Increasing Talk among Low-Socioeconomic Status Families,” *Mind, Brain and Education* 9, no. 3 (2015): 127–35.
- ³⁹ Laundry Literacy Coalition, “Creating Literacy-Rich Spaces in Laundromats: Pilot Evaluation Findings Executive Summary,” (2019).
- ⁴⁰ Erinn Hanner, Emily J. Braham, Leanne Elliott, and Melissa E. Libertus, “Promoting Math Talk in Adult-Child Interactions through Grocery Store Signs,” *Mind, Brain, and Education* 13, no. 2 (2019).
- ⁴¹ Conscious cities involve applying both new technologies and behavioral insights toward improving the experience of a city and gaining the resulting mental and physiological effects that one receives from that experience. The Conscious Cities movement easily incorporates play into built spaces. See <https://www.theguardian.com/cities/2015/aug/28/manifesto-conscious-cities-streets-sensitive-mental-needs>.
- ⁴² Hassinger-Das et al., “Learning Landscapes.”
- ⁴³ Brenna Hassinger-Das, Itai Palti, Kathy Hirsh-Pasek, Roberta Michnick Golinkoff (under review).; Hassinger-Das et al., “Learning Landscapes,” 74.
- ⁴⁴ Andres Bustamante, Molly Schlesinger, Kathy Hirsh-Pasek, and Roberta Michnick Golinkoff, “More than Just a Game: Transforming Social Interaction and STEM Play with Parkopolis,” (under review).

- 45 Brenna Hassinger-Das, Jennifer M. Zosh, Nicole Hansen, Meghan Talarowski, Kate Zmich, Roberta Michnick Golinkoff, and Kathy Hirsh-Pasek, "More than Bookshelves: Leveraging Library Spaces to Promote Play and Learning," *Library & Information Science Research* (under review, copy on file with author).
- 46 About (Park)ing Day. (n.d.). From (Park)ing Day: <https://parkingday.org/about-parking-day/>
- 47 City, P. P. (2018). Playful Learning on (Park)ing Day 2018. From Philadelphia cfa.org: https://www.philadelphiacfa.org/sites/default/files/parking_day_letter__playful_learning_intro_sample_designs_hsl.pdf
- 48 Fabiano, R. (n.d.). Play Captain Initiative. From Play Captains.com: <https://www.playcaptains.com/>
- 49 Chang, n.d. A Momento Mori For the Modern Age. From Before I Die: <https://beforeidieproject.com/>
- 50 Sarah Siplak (Director, Playful Pittsburgh Collaborative), interviewed by Jen Brevoort, February 26, 2019.
- 51 Siplak, 2019.
- 52 Monica Liang-Aguirre (Director of Early Learning, Department of Education and Early Learning, City of Seattle) interviewed by Jen Brevoort, January 17, 2019.
- 53 Liang-Aguirre, 2019.
- 54 Temple Infant and Child Lab and Playful Learning Landscapes, "[Draft Philadelphia Playful Learning City Playbook](#)," (2018).
- 55 Nataly Barrerra (Metropolitan Family Services, Chicago), interviewed by Jen Brevoort, January 24, 2019.
- 56 Kriss Deiglmeier and Amanda Greco, "Why Proven Solutions Struggle to Scale Up," *Stanford Social Innovation Review* (2018): 10. Retrieved from https://ssir.org/articles/entry/why_proven_solutions_struggle_to_scale_up
- 57 Yogman et al., "The Power of Play."
- 58 Social Innovation Generation de l'Innovation Sociale (SIG), "[Field Building](#)."
- 59 Maud Lyon (President, Greater Philadelphia Cultural Alliance), interviewed by Jen Brevoort, January 4, 2019.
- 60 Michael Norris (President of External Relations, Greater Philadelphia Cultural Alliance), interviewed by Jen Brevoort, January 4, 2019.
- 61 Melissa and Doug and Gallup, "Time to Play: A Study on Children's Free Time: How It Is Spent, Prioritized, and Valued," (2017).
- 62 Yogman et al., "The Power of Play," 8.
- 63 Jenny Perlman Robinson, Rebecca Winthrop, and Eileen McGivney, *Millions Learning: Scaling Up Quality Education in Developing Countries*, (Washington, DC: Brookings Institution Center for Universal Education, 2016), 98.
- 64 Real Play Coalition, "[Value of Play Report](#)," *National Geographic*, Unilever, The Lego Foundation, IKEA (2018).
- 65 Hassinger-Das et al., "Learning Landscapes."
- 66 Temple Infant and Child Lab and Playful Learning Landscapes, "[Draft Philadelphia Playful Learning City Playbook](#)," (draft 2018).
- 67 Cas Holman (Founder and Principal Designer, Heroes Will Rise), interviewed by Jen Brevoort, January 10, 2019.
- 68 Jeffrey Bradach and Abe Grindle, "[Emerging Pathways to Transformative Scale](#)," *Stanford Social Innovation Review* (2014).
- 69 R. Bille, "Action without Change? On the Use and Usefulness of Pilot Experiments in Environmental Management," *Sapiens* 3 (2010).
- 70 Ibid., 1.
- 71 Acemoglu and Robinson, "The Role of Institutions in Growth and Development," Working Paper 10, Commission on Growth and Development, World Bank (2008).
- 72 Bold et al., "Scaling Up What Works."
- 73 Hassinger-Das et al., "Learning Landscapes," 23.
- 74 Shin-Pei Tsay, 2019.
- 75 Kaboom, "[Play Everywhere Playbook](#)."
- 76 ParkRx, "[Park Prescription Program Toolkit](#)."
- 77 Perlman et al., *Millions Learning*, 105.
- 78 Ibid., 106.
- 79 John Kania and Mark Kramer, "[Collective Impact](#)," *Stanford Social Innovation Review* (2011): 41.
- 80 Shin-Pei Tsay, 2019.
- 81 Michael Boren, "[Philadelphia's Rainbow Crosswalks Are Falling Apart. Will Anyone Fix Them?](#)" *The Inquirer* (July 18, 2018).
- 82 New York Restoration Project, accessed September 12, 2019, <https://www.nyrp.org/>.
- 83 Shin-Pei Tsay, 2019.
- 84 Nina Feldman (Reporter, Plan Philly) and Ariella Cohen (Managing Editor, Plan Philly), interviewed by Jen Brevoort, February 7, 2019.

⁸⁵ McArthur and Pipa, "Cities on the World Stage."

⁸⁶ Bruce J. Katz and Jeremy Nowak, *The New Localism: How Cities Can Thrive in the Age of Populism* (Washington, DC: Brookings Institution Press, 2018).

⁸⁷ Hassinger-Das et al., "Learning Landscapes."



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