Transforming Community Spaces into Opportunities for Playful Learning:

Measuring Progress and Success

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A Call to Action for Playful Learning

Early literacy is a key predictor of grade-level reading and school success. Too often, however, young children do not have equitable access to literacy-rich environments that foster the skills needed to attain reading proficiency by the end of third grade. This is a critical milestone because fourth grade academic standards assume students have already learned to read and, therefore, require them to "read to learn."[1] Not only is reading to learn a critical milestone to be an effective fourth grader, students who have not learned to read by fourth grade are four times more likely to drop out of school. This risk is even greater for low-income children;[2] nationally, about 67% of all children and 80% of low-income children do not reach this critical milestone.[3]

While high-quality preschool and early elementary programs are necessary early literacy supports for children, most young children in the United States only spend about 20% of their waking hours in formal classroom settings. This leaves enormous opportunity to create literacy-rich environments across the many places where children and families spend time—museums, libraries, parks, and playgrounds outside of formal learning settings. The COVID-19 pandemic, when many young children were not able to access formal learning settings, made it even more apparent that children need to access experiences in a wider range of enriching learning opportunities, including in the many places they go every day.[4] The need to expand where and when children and caregivers experience literacy-rich environments elevates the role that playful learning can play in supporting new and creative ways to learn outside of the classroom.

What is Playful Learning?

There is a robust body of evidence for the value of play in supporting healthy child development.[5] The American Academy of Pediatrics states that "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."[6] Through play, 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.[7] As depicted in Figure 1, play is described 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) to **direct instruction** (initiated and directed by adults). Where the kind of play sits on the spectrum is defined by who initiates and directs the experience and whether there is a specific learning goal.[8]

FIGURE 1. PLAY AS A SPECTRUM (ZOSH ET.AL., 2018)

	FREE PLAY	GUIDED PLAY	GAMES	CO-OPTED PLAY	PLAYFUL INSTRUCTION	DIRECT INSTRUCTION
Initiated by:	CHILD	ADULT	ADULT	CHILD	ADULT	ADULT
Directed by:	CHILD	CHILD	CHILD	ADULT	ADULT	ADULT
Explicit Learning Goal:	NO	YES	YES*	YES	YES	YES

*Here, we refer to "serious games" as outlined in Hassinger-Das et al., 2017, in which the game has a learning goal.

Playful learning refers to the type of play in which children are actively exploring an engaging activity embedded in a relevant, meaningful context that is structured by caregivers or the environment to guide children toward focusing on the elements that promote learning.[9] An important component of playful learning is that activities are facilitated by adults through enriching the play environment with learning materials, scaffolding children's discoveries through commenting on them, asking open-ended questions, and suggesting new ways to engage with the materials and the space.[10] Further, playful learning has explicit learning goals. Evidence suggests that all forms of play are valuable to learning and development, and that playful learning can help develop specific skills with regard to literacy, mathematics, and spatial relations, among others.[11]

Playful learning occurs in formal (school) and informal learning (afterschool) settings. This brief focuses on playful learning in nonformal settings throughout a community. It describes the landscape of playful learning possibilities in community spaces, presents the emerging evidence-base that demonstrates that playful learning, and particularly guided play, can positively impact child and family literacy, and concludes with some methodological challenges and opportunities for evaluating playful learning in community spaces.

FIGURE 2. BROOKINGS PLAYFUL LEARNING LANDSCAPES INFOGRAPHIC

PLAYFUL LEARNING LANDSCAPES
IN CITIES

CREATING OPPORTUNITIES FOR LEARNING IN EVERYDAY SPACES

Playful Learning Landscapes (PLL) marries developmental science with placemaking to address learning inequalities by extending education into the public realm. By infusing educational elements into places where families regularly go—such as bus stops, parks, and supermarkets—PLL transforms everyday spaces into learning hubs that encourage the development of healthy children, families, and communities.

For more information click on the titles below:

PARKS AND PUBLIC SPACES

Public spaces are enriched with learning through playful and physically active games and activities.

LAUNDROMATS

Literacy-rich spaces in laundromats turn laundry time into meaningful opportunities for families to play, read, and connect.

SUPERMARKETS

Signage in supermarkets sparks caregiver-child conversation to promote language development, literacy, and number knowledge.

BUS AND TRANSIT STOPS

Places where people wait and gather are reimagined as hubs for interaction with puzzles on the back of a bench and hopscotch that builds flexible thinking and self-control.

LIBRARIES

Reading comes alive through playful learning in libraries where children engage in dramatic play and create words by scaling a climbing wall.

STREETS

Closed streets are transformed into playful and safe gathering spaces for children and families when other play spaces are limited.

BROOKINGS

Playful Learning in Community Spaces

There is a growing movement to transform community spaces into opportunities for children and caregivers to engage in playful learning. Notably, **Playful Learning Landscapes** merges the science of learning with urban design and placemaking to embed learning opportunities in places where families regularly spend time—bus stops, laundromats, parks, and other community spaces (see Figure 2, Brookings Playful Learning Landscapes infographic). A key component of Playful Learning Landscapes has been to engage community members in the design and evaluation of the projects. Examples of playful learning projects include:

- **Supermarket Speak**, supported by the Temple Infant and Child Lab and Too Small to Fail, turns grocery stores into engaging opportunities for caregiver-child interaction by simply adding signs with interaction prompts in the aisles of grocery stores. Filled with labels and signs, the project was designed as a low-cost intervention to spark adult-child conversations.[12]

- **Urban Thinkscape**, an initiative co-created among the Temple Infant and Child Lab and local community members, embeds the science of playful learning into everyday objects and presents new designs that get families, moving, thinking, and talking about language, literacy and science, technology, engineering, and mathematics (STEM) in community settings. In Philadelphia, a bus stop and adjacent lot were transformed into a hub for playful learning while families wait for public transportation. Bus stop benches include puzzles with movable parts that stimulate spatial skills and become opportunities for exploring language, color, and numbers. On-site signage provides a website that connects families to additional information and resources about the links between play and learning.[13]

- **Parkopolis**, located at the Please Touch Museum in Philadelphia, was a life-size human board game that fosters STEM and reasoning skills. The activities in Parkopolis offered developmentally appropriate learning opportunities for children ages 2-13 and their families. They encouraged collaboration and cooperative game play, innovation in creating new rules, and the confidence to persist in challenging activities.[14]

- **Too Small to Fail, Literacy in the Laundromats** capitalizes on the fact that many families spend an average of two and a half hours during each visit to a laundromat to turn a family routine into a rich learning experience. Specifically, it has created a toolkit of materials for laundromat owners across the country to use in their stores and to make available to parents for free.[15]

- Also capitalizing on laundromats as a potential setting to promote child-caregiver interactions, **Laundromath** in Chicago, provides caregiver conversational cards attached to laundry baskets, including prompting signage on folding tables, and highlighting shapes and numbers across the laundromat so that caregivers can do their laundry while also engaging with their young children. To incorporate the playful learning installation into the existing community fabric, Playful Learning partnered with a local artist to create three murals that highlight early math concepts.

- **Read, Baby, Read** at the Free Library of Philadelphia is an initiative focused on encouraging early literacy development among infants and young toddlers. One way it does this is by creating dedicated permanent "baby spaces" designed specifically for children zero to 24 months old. The spaces are open for free play during normal library hours and provide infants and children with their own special play area filled with baby-friendly furniture and developmentally appropriate toys.

- **Picture This**, an initiative of the Children's Hospital of Philadelphia, has installed colorful, interactive storybook-page murals into pediatric waiting spaces and exam rooms. The murals model creative educational engagement, build imagination, serve as an assessment tool, and improve patient-family experience. Each mural has an associated set of prompts, written by pediatric experts alongside parents and caregivers, to help guide a family's interaction with the images.

- The mission of **Barbershop Books** is to inspire Black boys and other children to read for fun through child-centered, culturally responsive, and community-based programming and content. In over 15 states across the country, the program connects barbers and parents to the early reading experiences of young Black boys in a positive and culturally meaningful way. Barbershops are one of the places in Black communities where Black men and families from different socio-economic levels interact. Through the program, Black boys identify as readers by connecting fun books and reading to a male-centered space and by involving men in boys' early reading experiences.

Reflecting on the elements of success for playful learning across many of these installations, evaluators assert that "community engagement and co-creation, local ownership of installments, simple and intuitive designs, consideration of cultural context, and a base in the science of learning are pivotal drivers of success."[16] The next section of this brief describes how "success" is currently defined and measured.

How Playful Learning in Community Spaces Supports Literacy Development

These carefully planned play experiences focus on a range of learning and developmental outcomes, from individual outcomes to child-adult interactions to community outcomes. At the individual level, the aim is to improve caregiver behavior to support play, instill greater confidence in caregivers' ability to have quality interactions with their child as well as to increase a child's "6Cs"—collaboration, communication, content, critical thinking, creative innovation, and confidence.[17] At the child-adult interaction level, the aim is to improve the quality and quantity of caregiver and child language at the installation. While there is robust evidence that such interactions are related to later language development, the question remains about whether, with enough exposure, improved child-caregiver interactions at such installations will generalize to other settings and situations. Finally, playful learning in community spaces aims to contribute to the larger learning and development ecosystem in a neighborhood or community.[18]

An Ecosystems Approach to Learning and Development

An ecosystems approach acknowledges the many learning and development settings (e.g., homes, classrooms, cafeterias, gyms, playgrounds, clubs, maker spaces, workplaces) throughout the range of community settings (e.g., schools, non-profit community organizations, faith and civic organizations, libraries, recreation centers, businesses) that work collaboratively to support the whole child.

A recent review of evaluations of playful learning projects such as those described above found that evaluations targeted two main areas of impact:

1. **Increased quantity and quality of caregiver and child language use,** using indicators such as:

● Increase in literacy-related conversation

● Increase in conversations between caregivers and children

● Increase in conversations that target the specific topics highlighted at the installations, such as spatial terms, math, or vocabulary

● Increased interaction and language among treatment group participants

● More physical interaction with the space (mostly among children)

● Increased use of language by children to describe their experiences with the setting

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EVALUATION SPOTLIGHT:

Researchers observed how caregivers and children interacted and talked with each other at the Urban Thinkscape location and at a comparison site neighborhood playground, both prior to and after the Urban Thinkscape installation. Results found a statistically significant difference in caregiver-child conversation as well as an increase in the number of families using language relating to numbers, colors, spatial patterns, and letters at the Urban Thinkscape bus stop post installation.[19] Encouraged by these findings, researchers at Temple University's Infant and Child Lab, in partnership with community members, are examining how the addition of new signage with prompts and information about the content in each design might affect learning outcomes and put caregivers into a learning mindset.[20]

EVALUATION SPOTLIGHT:

Play and Learn Library Spaces is a partnership among the Free Library of Philadelphia and several community partners who collaboratively built "playbrary" spaces at three neighborhood libraries. The spaces feature cutout reading nooks, pattern blocks, a magnetized board with words and letters where children can express themselves, a stage for performances, and a climbing wall with letters near each rock step. Evaluation results found that the number of children using spatial-related language was 24.2% 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% higher.[21]

2. Improved caregiver knowledge and attitudes about learning opportunities, reporting on indicators such as:

- Increase in capacity of caregivers to support their child's learning

- Increase in awareness of local organizations as available resources

- Improved caregiver awareness about early brain language development

- Improved caregiver attitudes toward play and learning

EVALUATION SPOTLIGHT:

The **Ultimate Block Party**, one of the earliest playful learning landscape initiatives, sought to transform caregiver attitudes about the science of how children learn by demonstrating that play can foster important learning skills in STEM as well as in literacy and the arts. Its inaugural event, held in New York City's Central Park in 2010, attracted over 50,000 participants who engaged with 28 activities that spanned eight play domains: adventure, construction, physical, creative, the arts, make-believe, technology, and language play. Researchers administered a parent/caregiver survey to 258 parents/caregivers who attended the Ultimate Block Party event in New York City and 34 parents in Central Park during Fall 2010 but not at the Ultimate Block Party (the comparison group). Results indicated that participation in the Ultimate Block Party led to improved caregiver attitudes toward play. Specifically, attendees' attitudes about play changed as they visited increasing number of activities. Among comparison and those attendees participating in only one activity, only 50% and 51% respectively reported that 'play always leads to learning.' Among those attendees visiting two to three sites, 62% reported this relationship while 83% of those visiting four or more sites reported the same.[22]

Methodological Challenges of Evaluating Playful Learning Spaces

While there are encouraging findings from the research on playful learning, the current body of evidence regarding its impact on children's literacy development also points to some important methodological challenges of evaluating playful learning spaces. Addressing these challenges will help inform the design and implementation of future playful learning spaces to make them even more impactful on early literacy development.

For the most part, playful learning evaluations to date rely on naturalistic observation, a method of observation that involves observing subjects in their natural environment (in this case, bus stops, grocery stores, and other playful learning spaces in a community) with the goal of recording behavior in a natural setting without intervention. This means that observers are not able to interact with participants to collect their demographic information and therefore cannot make any conclusions about whether certain installations are more effective for people with specific demographic attributes such as race, ethnicity, and income. It also means that for studies with a comparison site that didn't have a playful learning installation, families may have been unknowingly observed in both settings. This is not to say that naturalistic observation is not without merits. In fact, many studies of parenting and early literacy interventions, including ones reviewed for this brief, employ observation in the context of rigorous experimental designs. However, if playful learning evaluations could collect more specific information about participants and/or track participation over time, it could strengthen the evidence and subsequent design of playful learning spaces to maximize child, caregiver, and community impact. Some areas for future exploration are:

- **What are the patterns of participation** for specific children and adult caregivers with regard to frequency, dosage, and engagement?

  - Are the same families coming back to playful learning spaces? Why, or why not?
  - What is the frequency of families' use of installations?
  - What are the characteristics of the children and adult caregivers who tend to participate more frequently?
  - What are the characteristics of the playful learning settings that seem to attract high rates of participation among families with specific demographic characteristics?

- What is the **cumulative effect of participation** in playful learning over time?

  - Do children and adult caregivers who participate in multiple literacy-rich experiences across a community fare better in terms of outcomes?
  - Do children and caregivers who visit the same installation multiple times fare better in terms of outcomes?
  - How much exposure do children and caregivers need to see changes in child-caregiver interactions? And what kind of change is reasonable to expect?

Another methodological challenge is how to assess whether the skills employed in playful learning settings translate into changes in behavior in other settings, including the home environment. Some researchers have attempted to administer caregiver surveys, but evaluators note a lack of trust among many caregivers to participate in research studies due to concerns about sharing their personal information. In addition, to date, sample sizes for survey data have been too low to contribute to evaluation results in meaningful ways. In keeping with the learning landscapes success factors, a strategy that some researchers are employing to overcome mistrust is to engage community members as part of the evaluation team and in the design of the projects. In addition to looking at the home environment, researchers call for studies that would look at children in matched neighborhoods—one that has playful learning installations and one that does not—to examine how, if at all, the presence of playful learning installations in a neighborhood impacts children's early learning and readiness for kindergarten.

For many of the studies, the unit of analysis has been the whole cluster of activities at an installation, not child and caregiver interactions with specific aspects of an installation—e.g., the signage, the materials, the games. Therefore, evaluators are not able to tease out if there are specific activities within a playful learning setting that are most impactful in supporting child and caregiver outcomes.

Researchers evaluating informal learning settings noted additional methodological challenges related to the lack of good instruments to assess children's motivation to read as well as their developing vocabulary. They also struggle with issues related to participation: participation in informal learning is voluntary and can be sporadic so it is hard to assess whether what they assess in one environment is behavior "in the moment" or becomes more habitual.

Finally, while it is the aim of playful learning in community spaces to contribute to the larger learning and development ecosystem in a neighborhood or community, there is little evidence thus far to assess this goal. This underscores a key methodological challenge of how to evaluate the constellation of literacy-rich opportunities across a community. Therefore, this brief concludes with a call for a new research agenda for playful learning.

A New Research Agenda: Taking an Ecosystems Approach to Evaluating Playful Learning

Increasingly, educators and community practitioners are recognizing the value of taking an ecosystems approach to learning and development. Doing so expands the notion of where, when, and how learning happens to include the myriad of formal, informal, and playful learning opportunities across the community—in schools, in informal learning programs such as afterschool, and in community-based playful learning settings. Learning ecosystem approaches embrace the belief that learning happens everywhere and that each and every adult—from teachers to community partners to family members—in each and every setting where a young person spends their time is responsible for helping youth thrive.[23] In the context of evaluating a literacy-rich learning ecosystem, this means transitioning from single-project evaluations such as those described throughout this brief, to more integrated evaluations that examine how participation across a constellation of literacy-rich environments contributes to healthy development. It also means continuing to explicitly and authentically include community members in the design, implementation, and evaluation of playful learning opportunities across the community.

Building on the promising evidence base that participation in playful learning settings can support individual and dyad-level improvements in quality and quantity of language use such as described in this brief, the Literacy-Rich Neighborhood Initiative in Philadelphia is embracing this new ecosystem approach. It recently launched to plan, implement, and evaluate multiple opportunities for families with young children in four specific neighborhoods in Philadelphia to interact with literacy-rich materials and activities that prompt caregiver-child conversation and interaction. The goal of the initiative is for caregivers to interact with literacy prompts across the neighborhood multiple times a day to regularly incorporate simple literacy techniques such as asking questions, discussing numbers, and reading together. A key component of the initiative is to engage community members in its design, including helping them understand the science behind effective design and the importance of designing for meaningful relevance to the families and children who will be experiencing the setting.

The evaluation team is examining all three aims of playful learning as described above. At the individual and child-caregiver levels, it will conduct pre-post surveys and literacy assessments to understand caregiver and child skill development and interactions. It will also examine how engaging community members in the design impacts the way the community responds to the initiative. Importantly, it will tackle community-level impacts to understand how, if at all, the initiative has spillover effects into the larger landscape of literacy supports in a community, interviewing businesses, community centers libraries, and schools. As such, it represents an important next frontier in understanding the role of playful learning in contributing to whole child development. Additional work to address the challenges described in this brief will help build the knowledge base about playful learning and expand opportunity for children and families.

About this Brief

In Winter 2021, The Forum for Youth Investment conducted a review of the William Penn Foundation's Literacy-Rich Environments portfolio evaluations. In addition to a thorough document review, the Forum facilitated a two-day convening of 32 individuals representing evaluators, program grantees, and other key stakeholders that are engaged with the Literacy-Rich Environments portfolio. This brief summarizes some of the key evaluation findings and draws on key insights shared by the many stakeholders who attended the convenings.

Acknowledgements

The Forum for Youth Investment

The Forum for Youth Investment is a national nonprofit, nonpartisan "action tank" committed to changing the odds that all children and youth are ready for college, work and life. It provides ideas, services, and networks that leaders need in order to make more intentional decisions that are good for young people. The Forum helps leaders increase their capacity to more effectively make the case for and manage the collaborative efforts that are needed to change the odds for youth; improve the alignment and appropriateness of child and youth policy agendas and investments; and strengthen programs' and practitioners' capacity to create environments in which youth thrive, across all the systems and settings where young people spend time.

End Notes

[1] Center for Public Education (2015, March). Learning to read, reading to learn: Why third grade is a pivotal year for mastering literacy. Retrieved from **https://www.nsba. org/-/media/NSBA/File/cpe-learning-to-read-reading-to-learn-white-paper-2015. pdf?la=en&hash=8E0E470C3E263C66E4491EC035224DC9018C6D5F**.

[2] Hernandez, J. (2011.) How third grade reading skills and poverty influence high-school graduation. Baltimore, MD: The Annie E. Casey Foundation. Retrieved from **https://www.aecf.org/resources/double-jeopardy/**.

[3] *Campaign for Grade Level Reading. (2021). Retrieved from* **https://gradelevelreading.net/**

[4] Hadani, H.S. & Jey, J.S. (2020). Scaling playful learning: How cities can reimagine pubic spaces to support children and families. Washington, DC: Brookings. Retrieved from **https://www.brookings.edu/research/scaling-playful-learning-how-cities-can-reimagine-public-spaces-to-support-children-and-families/**

[5] Robinson, J. (2019). Philadelphia playful learning landscapes: Scaling strategies for a playful learning movement. Washington, D.C.: Brookings Institute. Retrieved from **https://www.brookings.edu/product/learning-landscapes/**

[6] Yogman, M., Garner, A., Hutchinson, J., Hirsh-Pasek, K. & Golinkoff. R.M. (2018). The power of play: A pediatric pole in enhancing development in young children," Pediatrics 42, no. 3.

[7] Hirsh-Pasek, K., Zosh, J., Golinkoff, R., Gray, J., Robb, M. & and Kaufman, J. Putting education in educational apps: Lessons from the science of learning, (2015). Psychological Science in the Public Interest 16, no. 1, 3–34.

[8] Zosh, J. M., Hirsh-Pasek, K., Hopkins, E.J., Jensen, H., Liu, C., Neale, D., Solis, S.L., & Whitebread, D. (2018) Accessing the inaccessible: Redefining play as a spectrum. Frontiers in Psychology. Retrieved from **https://www.frontiersin.org/articles/10.3389/fpsyg.2018.01124/full#h1**

[9] Weisberg, D. S., Hirsh-Pasek, K., Golinkoff, R. M., Kittredge, A. K., & Klahr, D. (2016). Guided play: Principles and practices. *Current Directions in Psychological Science, 25*(3), 177–182. Retrieved from **https://doi.org/10.1177%2F0963721416645512**

[10] Cross, C. T., Woods, T. A., & Schweingruber, H. (Eds.). (2009). Mathematics learning in early childhood, paths toward excellence and equity. Washington, DC: The National Academies Press.

[11] Zosh et. al. 2018, Hirsh-Pasek, K. & Hadani, H. (2020). A new path to education reform: Playful learning promotes 21st-century skills in schools and beyond. Washington, DC: Brookings Institution.

[12] Ridge, K., Weisberg, D., Ilgaz, H., Hirsh-Pasek, K., & Golinkoff, R. (2015). Supermarket speak: Increasing talk among low socio-economic status families. International Mind, Brain, and Education Society and Wiley Periodicals, Inc. Vol. 9, No. 3. Pp. 127–135.

End Notes (continued)

[13] Hassinger-Das, B., Palti, I., Golinkoff, R. & and Hirsh-Pasek, K. "Urban Thinkscape: Infusing Public Spaces with Stem Conversation and Interaction Opportunities." Journal of Cognition and Development 21, no. 1 (2020): 125–47.

[14] Bustamante, A. S., Schlesinger, M., Begolli, K. N., Golinkoff, R. M., Shahidi, N., Zonji, S., Riesen, C., Evans, N., & Hirsh-Pasek, K. (2020, April 9). More Than Just a Game: Transforming Social Interaction and STEM Play With Parkopolis. Developmental Psychology.

[15] Newman, S., Portillo, M., & Celano, D. (2020.) Looking for literacy in all the right places: The laundromat. The Reading Teacher, Vol. 0, No. 0, pp. 1–10.

[16] Bustamante, A., Hassinger-Das, B., Hirsh-Pasek, K. & Golinkoff, R. (2018). Learning landscapes: Where the science of learning meets architectural design. Society for Research in Child Development, 1–7.

[17] Golinkoff, R. & Hirsh-Pasek, K. (2016). Becoming brilliant: What science tells us about raising successful children. American Psychological Association. **https://psycnet.apa.org/record/2015-57604-000**

[18] Hassinger-Das, B., Hirsh-Pasek, K. & Golinkoff, R. (2018). Learning landscapes: Playing the way to learning and engagement in public spaces. Education Sciences. 8 (2). Retrieved from **https://www.mdpi.com/2227-7102/8/2/74**

[19] Hassinger-Das, B., Palti, I., Golinkoff, R. & and Hirsh-Pasek, K. "Urban Thinkscape: Infusing Public Spaces with Stem Conversation and Interaction Opportunities." Journal of Cognition and Development 21, no. 1 (2020): 125–47.

[20] Ibid.

[21] Hassinger-Das, B., Zosh, J. M., Hansen, N., Talarowski, M., Zmich, Golinkoff, R. M., & Hirsh-Pasek, K. More than Bookshelves: Leveraging Library Spaces to Promote Play and Learning. Library & Information Science Research (under review, copy on file with author).

[22] Zosh, J. M., Fisher, K., Golinkoff, R. M., & Hirsh-Pasek, K. (2013) The Ultimate Block Party: Bridging the science of learning and the importance of play. In M. Honey & D. Kantner (Eds.), Design, make, play: Growing the next generation of STEM innovators. New York, NY: Taylor & Francis, 95–118

[23] Forum for Youth Investment (with Learning Policy Institute & Turnaround for Children). (2021). Design principles for community-based settings: Putting the science of learning and development into action.