PLAYFUL Learning™ LANDSCAPES

Playful Learning Landscapes Impact Evaluation Toolkit

PLL Impact Evaluation Toolkit

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Author's Note:
This workbook was created by Playful Learning Landscapes (PLL). The purpose of this Playful Learning Impact Evaluation Toolkit is to guide community members through the process of developing research questions, collecting data, and interpreting the data to demonstrate the impact of a project. Given that children spend the majority of their time outside of formal learning environments, playful learning seeks to reimagine public spaces in ways that spark interactions between children and caregivers and provide high-quality playful learning opportunities. Helping communities to understand the impact of this work will continue to reinforce the contributions of these spaces. This toolkit will allow community-based organizations, especially those with limited resources, to understand the impact of PLL sites, to report to funders, and to obtain additional resources to further the playful learning movement.

Chapter 1

About Playful Learning

Learning can be joyful, stimulating and fun. Children love to learn through play, and it happens naturally in the environment. Playful learning is play that is guided by an adult or the environment toward a specific learning goal. Learning happens when play is meaningful, joyful, socially interactive, actively engaging, and iterative. In playful learning, children are in charge!

Kids can flourish when they master the 6 Cs, a set of skills that complement and evolve with each other.

Collaboration

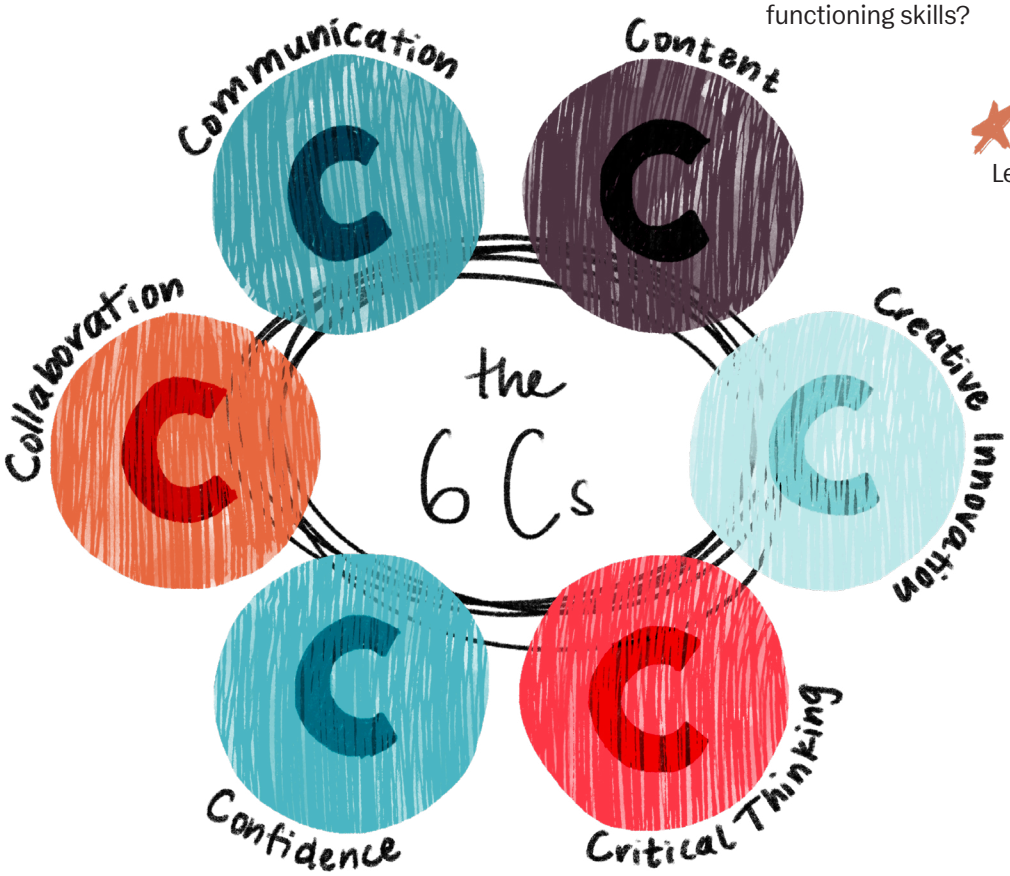
Does the child divide roles and work together with an adult or peer? Does the child take turns during an activity? Does the child set a goal with an adult or peer?

Communication

Does the child use non-verbal gestures to communicate? Does the child engage in back and forth conversation? Does the child explain something to an adult or peer?

Content

Does the child use math/science skills? Does the child engage in math/science learning? Does the child exercise language/literary skills? Does the child engage in language/literary learning? Does the child exercise executive functioning skills?



This information is from the Playful Learning Landscapes Playbook.

Confidence

Does the child persist through frustration? Does the child attempt a difficult task? Does the child verbalize confidence in self or group?

Critical Thinking

Does the child challenge another person's assumptions? Does the child ask questions to challenge others' ideas? Does the child engage in problem solving or use tools to solve a problem? Does the child generalize and transfer knowledge to new situations?

Creative Innovation

Does the child adapt ideas offered by someone else to use the installment in new ways? Does the child offer unique ideas to solve the same problem? Does the child generate original ideas?

Chapter 2 →

Our toolkit uses two Playful Learning Landscapes projects as case studies to help you envision how the projects were developed and evaluated: United for Brownsville Learning Landscapes and Urban Thinkscape. You can use these examples to help you conceptualize your own projects. Remember that projects will vary in any number of ways. They may be indoors or outdoors, short-term or long-term in duration, public or private.

Chapter 2
Developing Project Goals

Introducing the Case Studies

URBAN THINKSCAPE

Everyday places–like bus stops and sidewalks–offer the chance to explore how playful learning opportunities can be infused into everyday caregiver-child interactions. Urban Thinkscape reimagined a bus stop and an adjacent empty lot in an under-resourced area in Philadelphia, PA, as an interaction zone instead of merely a place to wait. The playful learning installations resulted in increases in specific types of caregiver and child language use, such as math and spatial talk, and caregivers and children interacted more at Urban Thinkscape than at a nearby control playground. Urban Thinkscape demonstrated that public spaces can be tailored in ways that invite the kinds of caregiver-child interactions which support children's learning.

Each community is different and these projects are not meant to be replicated exactly.

Puzzle Wall

Images: Sahar Coston-Hardy Photography

Hidden Figures

Jumping Feet

Chapter 2

Developing Project Goals

Introducing the Case Studies

UNITED FOR BROWNSVILLE LEARNING LANDSCAPES

Children in Western countries spend approximately 80% of their waking time outside of school. Playful Learning Landscapes capitalizes on the time children spend in other settings– such as supermarkets– that are often underutilized for their learning potential.

The United for Brownsville Learning Landscapes intervention, featuring colorful, visually attractive signs, was introduced in two supermarkets in Brownsville, Brooklyn, NY, in January 2020. The signage transformed the supermarkets into children's museums and used these everyday environments as springboards for learning as well as caregiver-child conversations and interactions. Signs featured both general language, math, and healthy eating-focused prompts. Results suggested that when caregivers and children saw and read the signs, the United for Brownsville signs encouraged caregivers and children to interact throughout the grocery store around the activities that were installed.

Each community is different and these projects are not meant to be replicated exactly.

Images: Brenna Hassinger-Das

It is important to determine several features of your project before you create an evaluation plan. You will want to consider the 5 W's of Evaluation: Who, What, When, Where, and Why.

Chapter 2

Developing Project Goals

Determining what you need or want to know to demonstrate the impact of a project.

Why?

What are the goals of the project? What do you hope to achieve?

- **United for Brownsville Learning Landscapes:** The goal was for the signs to encourage caregivers and their children to talk and interact more. Particularly, to talk more about targeted topics, like healthy eating, while grocery shopping.
- **Urban Thinkscape:** The goal was to transform a bus stop into a place for children and caregivers to engage in playful learning while they waited for the bus. The installation was designed to target math, spatial, and literacy content interactions.

The project goals will help you decide what to evaluate. Project goals will help you pinpoint which behaviors and interactions to focus on. Remember to consider the 6 Cs when identifying project goals. For instance, the content and communication goals of the 6 Cs were especially important in both these projects.

What?

What is your project? Will you install something? Will there be any programming? What amount of interaction with the intervention is necessary to see an effect?

- **United for Brownsville Learning Landscapes:** Signs encouraged caregivers and children to talk about healthy eating, math, and literacy-related topics with each other while shopping. The temporary signs were placed in grocery stores. Caregivers and children were observed over 5 minute periods.
- **Urban Thinkscape:** Four physical installations were placed at a public bus stop. The designs included: Puzzle Bench, Jumping Feet, Stories, and Hidden Figures and they were intended to prompt math talk, storytelling, and

Chapter 2

Developing Project Goals

Determining what you need or want to know to demonstrate the impact of a project.

→ **Urban Thinkscape (cont.):** creativity. They were designed to be a long-term installation at the bus stop. Caregivers and children were observed over 5 minute periods.

Thinking about what your project is will help you decide what types of things are important to evaluate.

Who?

What members of the community are the project's target audience?

→ **United for Brownsville Learning Landscapes:** The target audience was children and their caregivers who shop at these supermarkets. The signs were displayed in supermarkets for 2 months.

→ **Urban Thinkscape:** The target audience was children and their caregivers in the Belmont neighborhood who passed by or used the bus stop.

Determining the target audience is important to deciding how to evaluate the project. You may want to consider how you are going to evaluate participants with more than one child present. Will you assess all children at once or will you focus on one? How will you decide which child to focus on? The target audience can be a child, a caregiver, child-caregiver pair, or even a family. They can be recruited from a certain program or neighborhood.

When?

How long will the installation last?

During what months will it take place? If the activity is outdoors, what will the climate be like? Is it during a school month or summer month? When do children and families visit the location? When evaluating the project, what time of day should data be collected?

→ **United for Brownsville Learning Landscapes:** This is a short-term installation with signs designed to last a few months.

→ **Urban Thinkscape:** This is a long-term installation that was designed to last for years in the outdoor space.

Chapter 2

Developing Project Goals

Determining what you need or want to know to demonstrate the impact of a project.

Where?

Where is the project located?

Is it located indoors or outdoors? Is it located in a low income or high income area? How will you select the location? Will you involve the community?

- **United for Brownsville Learning Landscapes:** The signs were located indoors in two supermarkets in Brownsville, Brooklyn. United for Brownsville selected the sites. United for Brownsville is a non-profit collaborative consisting of caregivers, educators, advocates, and backbone staff members. They work to improve early childhood outcomes for the children of Brownsville.

- **Urban Thinkscape:** The installation was located outdoors at a public bus stop in the Belmont neighborhood of West Philadelphia. The Belmont Alliance Civic Association provided community input to select the location.

The where and when questions may help you think about the best time to evaluate the project. For instance, outdoor play spaces might have more visitors in the summer than the winter. When evaluating school aged children, it is important to consider the time of day and week. During the school week, they may not be at off-site locations until after school hours.

Now that you have considered the 5 W's of Evaluation, let's look at a visual to tie them all together.

Chapter 2

Developing Project Goals

THE 5 Ws of Research

Answering these questions will help decide the best ways to evaluate your project.

What?
What is your project? Will you install something? Will there be any programming? What amount of interaction with the intervention is necessary to see an effect?

Who?
What members of the community are the project's target audience?

Where?
Where is the project located?

Why?
What are the goals of the project? What do you hope to achieve?

When?
How long will the installation last?

Chapter 3 →

It is time to start thinking about what the 5Ws will mean for your own project! The chart below will help you develop your evaluation questions. Refer to the case study examples on pages 5 through 7 as you fill out the chart.

Chapter 2

Developing Project Goals

Doing it Yourself

	Your Project
Why are you implementing the project? Why does the project matter?	
What? What is your project? Will you install something? Will there be any programming?	
Who? Who is your target audience in the community?	
When? When will the implementation be in place?	
Where? Where is the project located?	

Chapter 2

Developing Project Goals

Understanding the 5Ws of your project information will help you think through evaluation questions. The learning goals of your project may help determine what to measure. For instance, if the goal of the project is to encourage dialogue between children and caregivers, your evaluation might focus on evaluating certain types of conversation. Below are some examples of things you can observe based on what you are looking to measure. This information is adapted from the Brookings Institution (https://www.brookings.edu/)

If your goal is to promote healthy child development and learning, it may be helpful to measure:

- Conversational turns
- Following caregiver or child focus
- Use of numerical language, spatial language, or pattern language

If your goal is to create an inclusive social environment, it may be helpful to measure:

- Frequency of visits to your site
- Average length of visits at your site
- Percentage of visitors who say they made new friends at your site

You can find more information to help you measure these outcomes in the appendix. The following page will give an example.

Here is how we would consider the 5Ws of the United for Brownsville Learning Landscapes project and how it would inform what we want to measure.

Chapter 2

Developing Project Goals

Worked Example

	Project: United for Brownsville Learning Landscapes	What to Consider & Measure
Why? Why are you implementing the project? Why does the project matter?	The goal was for the signs to encourage caregivers and children to talk more about specific topics.	This will help us decide what behaviors and interactions to focus on.
What? What is your project? Will you install something? Will there be any programming?	Signs encouraged caregivers and children to talk about healthy eating, math, and literacy-related topics.	Our evaluation might want to focus on different types and amounts of language.
Who? Who is your target audience in the community?	The target audience was children and their caregivers in the supermarket.	We should make a plan for observing the project when there is more than one child with one caregiver.
When? When will the implementation be in place?	The project was a short-term installation designed to last a few months.	We should think about when to do observations in the supermarket. We may want to prioritize after-school or weekend hours when children are out of school.
Where? Where is the project located?	The signs were located indoors in two supermarkets in Brownsville, Brooklyn.	Since the project is indoors, we can evaluate it in any type of weather.

What kind of information do you want to learn to determine the effectiveness of your project? For instance, observers can watch interactions at an installation. They can note the presence of the 6 Cs (mentioned in Chapter 1) during playful learning.

Chapter 3

Developing an Evaluation Plan

Data Collection

What kind of data to collect?

First, you developed research questions and decided what to measure. The next step is to collect data to determine if your project has achieved your goal(s). There are many different types of data, but this toolkit presents three types:

1. Surveys	Surveys are brief questionnaires that allow participants to share their thoughts. They can talk about their experiences with the space.
2. Observations	Observations involve observing how people naturally interact in the space. Observers can note things like specific interactions, site usage, or number of visitors.
3. Interviews	Interviews involve asking in-depth questions live to the participants. The participants could be site users or people involved in creating the project.

Your conclusions are stronger when using more than one data collection method. But, this is not always possible on the same project! Your project goals should help determine the best type of data collection methods to use. What type of data do you need to determine if the project is successful?

Let's look at the data collection methods used in our case studies. We provide timelines to help you understand the data collection process.

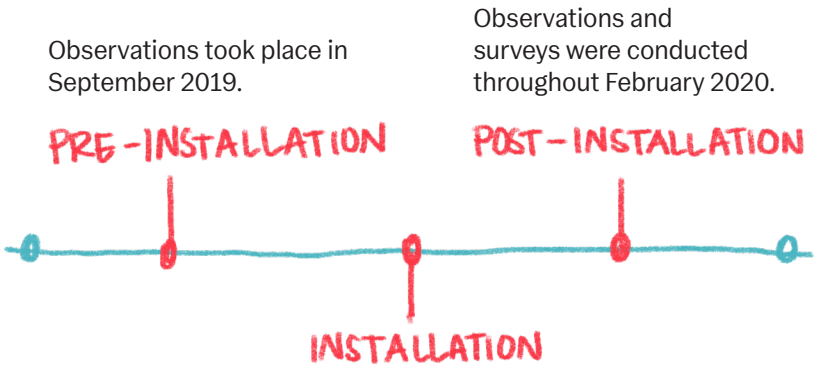
Chapter 3

Developing an Evaluation Plan

United for Brownsville Learning Landscapes and Urban Thinkscape both used observational methods. Trained observers watched parent-child interactions with the installations.

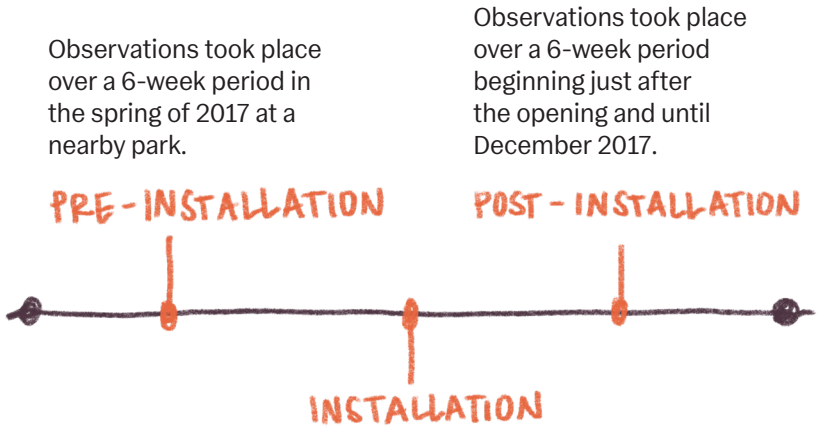
United for Brownsville Learning Landscapes Timeline

The United for Brownsville Learning Landscapes observations took place before sign installation. Both observations and surveys were conducted after sign-installation.



Urban Thinkscape Timeline

The Urban Thinkscape evaluation included pre-and-post-installation observations. Pre-installation observations took place over a 6-week period at a nearby park. Post-installation observations occurred at the Urban Thinkscape location over a 6-week period. Ideally, the installation itself should be the only difference when comparing observations before and after installation.



Chapter 3

Developing an Evaluation Plan

Pre-installation means collecting data before a project is installed. It can be any time before the installation, however, the best timing is as close to the installation date as possible. Post-installation data collection can take place any time after installation, however, it is ideal to collect data right after installation. You can also do a follow-up later to check how long the effects last.

The advantage of doing pre-and-post-installation data collection is having a point of comparison at the same location. It allows you to understand the change in interactions between children and caregivers as a result of the installation. It is also possible to only do post-installation data collection. You could conduct observations or give a survey once the project is up and running. This method can also show the impact of the installation. It doesn't give a point of comparison at the same location, but you can identify an appropriate comparison group at another location in the community. It may be hard to tell if scores actually improved after installing the installation. Post-installation data collection is easier to coordinate. It can also provide valuable information and can be done on a smaller scale. Yet, it is not as revealing as pre- and post-installation data. Keep in mind that a pre-post comparison does not necessarily mean that you have measured the impact of a program. You should focus on answering the questions that are most important to your evaluation.

Methods of Data Collection

Surveys, observations, and interviews are the most common methods of data collection for Playful Learning Landscapes. The following tables will help you understand the differences between surveys, observations, and interviews. Consider what resources might be available to help you evaluate your project. Can your organization recruit participants? Do you have the funds to pay participants to incentivize them to join?

1. Surveys	**PRO:** completed on-site at the project location, quick to administer
	CON: may result in reduced number of participants (people may not stop for the survey)
2. Observations	**PRO:** completed on-site at the project location, does not change people's natural interactions with the installation
	CON: time consuming to train the data collectors, demographic information is assumed
3. Interviews	**PRO:** detailed information about individual people who have interacted with the installation
	CON: time consuming, completed off-site in another location, may result in reduced number of participants given the time constraints

Consider the tables on the following page when thinking about the data collection methods you will use on your own projects.

Chapter 3

Developing an Evaluation Plan

Characteristics of Data Collection Methods			
	Surveys	**Observations**	**Interviews**
On-Site?	Yes	Yes	No
In-Depth?	No	No	Yes
Time Consuming?	No	Yes	Yes
Need Consent?	Yes	No	Yes
Number of Participants?	May be reduced	N/A	May be reduced
Naturalistic?	No	Yes	No

Pros and Cons of Data Collection Methods		
	Pros	**Cons**
Surveys	completed on-site at the project location, quick to administer	may result in reduced number of participants (people may not stop for the survey
Observations	completed on-site at the project location, does not change people's natural interactions with the installation	time consuming to train the data collectors, demographic information is assumed
Interviews	detailed information about individual people who have interacted with the installation	time consuming, completed off-site in another location, may result in reduced number of participants given the time constraints

Chapter 4 →

After deciding what type of data to collect, the next step is to consider the logistics of data collection. How should you train your data collectors, keep them safe, and plan for their interactions with community members?

Chapter 4
Collecting Data

Logistics

Surveys, Observations, and Interviews in Further Detail

The list below describes the steps to take during the three different aspects of data collection. You can find examples of data collection tools in the appendix.

1. Surveys

Surveys are brief questionnaires that allow participants to share their thoughts. They can talk about their experiences with the space.

Tips for Training Data Collectors

Decide how data collectors will decide which participants to approach.

For example, data collectors might approach any caregiver-child groups visiting the site during their data collection shift. Or you may want them to focus on a particular age group, like caregivers and children under 5. If there are multiple data collectors, they can each approach different caregiver-child groups.

Data collectors can carry printed surveys or tablets with the surveys on them. Google Forms, Qualtrics, and SurveyMonkey are online platforms you can use to create digital surveys.

Remember that data collectors need participants' permission to ask them survey questions.

2. Observations

Observations involve observing how people naturally interact in the space. Data collectors can note things like specific interactions, site usage, or number of visitors.

Tips for Training Data Collectors

Data collectors can carry a notebook or a tablet, and take notes as they observe.

Even if data collectors go to the site in pairs, each data collector can conduct their own observations.

Data collectors observe the first group they see and observe their interactions for 5 minutes. Then, they move on to the next group they see in the designated space.

Data collectors do not necessarily tell participants that they are observing them, unless participants directly ask.

3. Interviews

Interviews involve asking in-depth questions live to the participants. The participants could be site users or people involved in creating the project.

Tips for Training Data Collectors

Interviewers should be presented with a predetermined list of questions to ask.

They might also have a set of permitted follow-up questions. They can use this script to limit any potential influence on participants' responses.

Interviewers can take notes during the interview.

They can also request permission to video and/or audio record the session so it can be coded later.

Regardless of the data collection methods you choose, it is important to consider the safety of data collectors and how data collectors interact with people during data collection

→ Safety of Data Collectors

Data collectors can go alone or in pairs. Data collectors should stay aware of their surroundings and weather conditions. It is smart to have safety procedures in place, and two or more data collectors can protect each other.

→ Interacting with People On and Off-Site

People might ask data collectors what they are doing. Data collectors can wear t-shirts or nametags to identify themselves, but there are pluses and minuses to making data collectors more visible to visitors at your site. On one hand, identifying data collectors might make people at the site feel more comfortable. However, data collectors may be more noticeable when they are wearing an identifying item. This could impact the behavior of people visiting the site if they know they are being observed. Make the choice that feels right to your specific project. For interviews, consider where the interviews will take place. If the location is hard to access, it may limit the number of people who can participate. Locations that need a car may be hard to access. It is helpful to have someone from the community make an introduction.

Chapter 4

Collecting Data

Case Studies

United for Brownsville Learning Landscapes

If you recall the research questions, United for Brownsville Learning Landscapes was created for children and their caregivers in supermarkets. Signs encouraged caregivers and their children to talk and interact more while grocery shopping. It was a short-term installation designed to last a few months in two supermarkets in Brownsville, Brooklyn. The evaluation examined whether caregivers and children engaged more after installation of signs. It looked at usage of the space and changes in the types of communication between children and caregivers.

The United for Brownsville Learning Landscapes project collected data using pre- and post-installation observations and surveys. Trained data collectors watched caregivers and children interact with the supermarket signage. They noted behaviors including stopping in the designated area and conversational content. Data collectors also asked participants about topics related to their shopping experience. It asked whether shoppers noticed or discussed the signs. It also asked whether the signs had an impact on people's shopping experience.

Urban Thinkscape

Urban Thinkscape was designed for children and their caregivers at a public bus stop. Four physical installations were placed at the public bus stop in West Philadelphia. It was a long-term installation designed to last for years. The goal was to transform the bus stop into a place for children and caregivers to engage in playful learning. The installation was designed to improve math, spatial, and literacy interactions between children and caregivers.

The evaluation compared children and caregiver behavior before and after installing Urban Thinkscape. The evaluation examined whether the installation would increase conversation between caregivers and children.

The project collected pre- and post- installation observational data.. The observation protocol included conversational content, verbal interactions, and non-verbal engagement features.

Chapter 5 →

In this chapter, you will learn how to analyze the data you collected by organizing it into categories.

Chapter 5

Analyzing Data

Analyzing Survey and Interview Questions

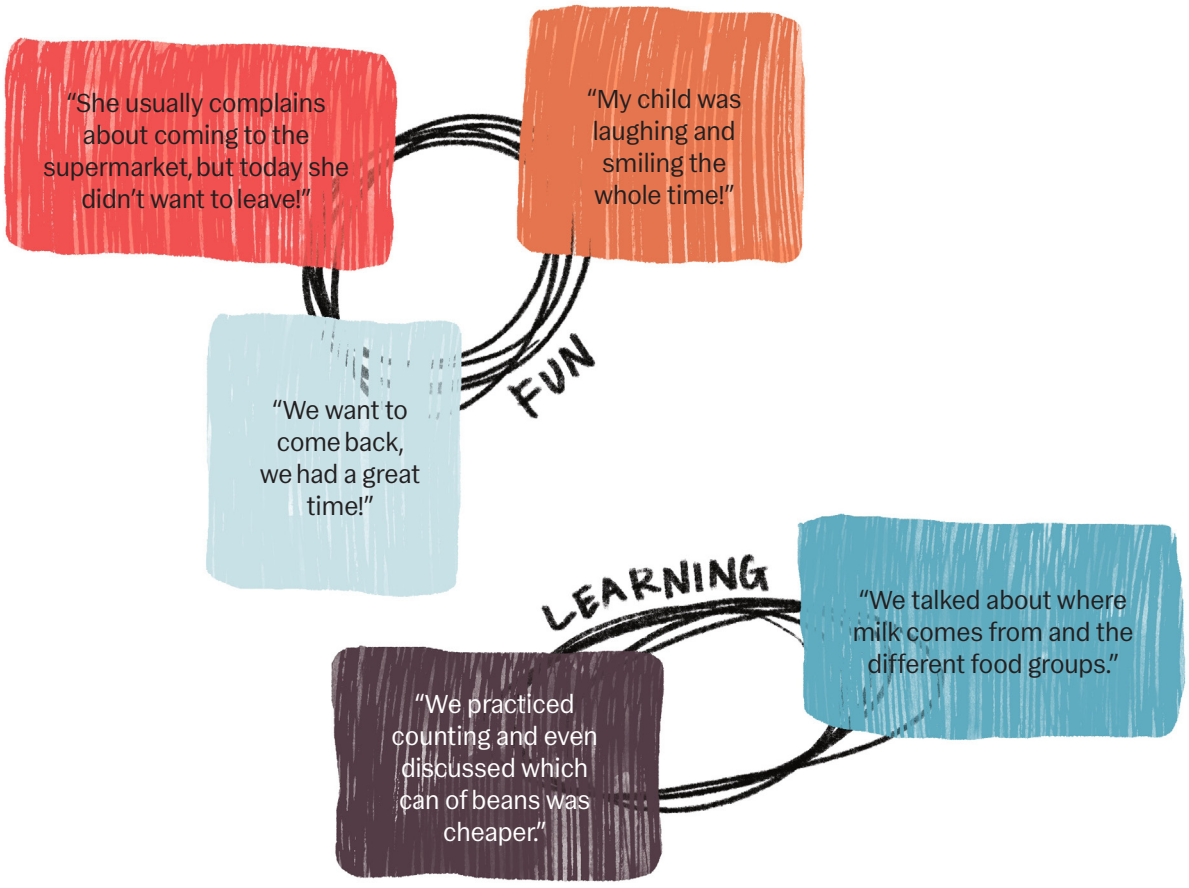
Coding Data

After deciding which method to use to collect data, the data will need to be coded. Coding data means classifying and quantifying survey responses. It also involves organizing verbal and nonverbal behaviors into meaningful categories.

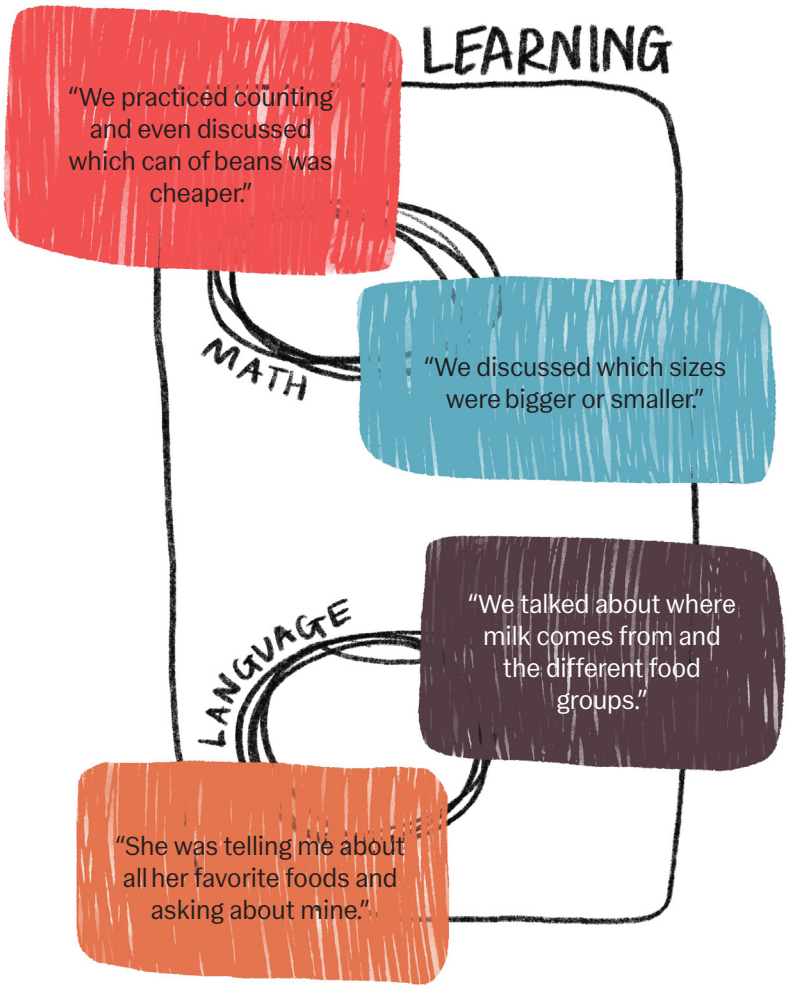
Open-Ended Survey Questions and Interview Questions

You can analyze the open-ended survey questions and interview questions. Thematic analysis involves reorganizing the data you collected into meaningful categories. Take a look at the survey responses and pull out quotes you think are useful. Look for commonalities amongst the quotes and see if you can group them into themes. It may be helpful to write your quotes on post-its and visually move them around into categories.

We broke our quotes into two categories here: **Fun and Learning.**



You may even be able to break your codes into subcodes, which are more specific categories.



Closed-Ended Survey Questions and Observational Data

- Common answers to a closed-ended survey might be "yes" or "no." You can put these into a spreadsheet to count the number of "yes" or "no" responses. Microsoft Excel or Google Sheets may be helpful here.
- For observational data, you may need to tally responses. Sometimes observational data is recorded as a percentage. For instance, you can report the percentage of children and adults using numerical language in their interaction.

Chapter 6 →

In this chapter, you will learn to interpret responses and observations and use this information to tell an impact story.

Chapter 6 Using Data

Interpreting Your Results

After analyzing the data, it is time to interpret and use the information. Consider what you thought would happen and what actually happened. For instance, did you expect an installation to increase the number of site visitors? Was your expectation correct? If more people visited the site after the installation was in place, then your hypothesis was correct. If you looked at qualitative data and quotes, what themes did you find? If you looked at quantitative data, were there any averages? For example, you may want to report average interaction score or average language score. It is important to tie all this information back to your research questions. Make sure that the data you collect and present relates to the goal of your project and evaluation of its impact. To draw conclusions, look at how the data relates to each research question. Consider all your conclusions together to form an overall conclusion that can tell your story.

Chapter 7 →

Being mindful of potential ethical issues can help you respect the privacy and wellbeing of children and adults in your study.

Chapter 7

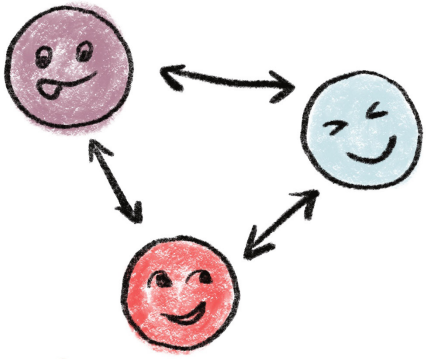
Ethical Issues

Any time you conduct a research study, you should consider the participants' rights. The Belmont Report outlines basic ethical principles and guidelines. These should be used in all research with human subjects. The main pillars of the Belmont Report are respect for persons, beneficence, and justice.

Partnering with a university or other entity with an Institutional Review Board (IRB) will take extra steps. IRBs are research ethics committees that review research proposals. They make sure that research follows institutional policies and protects participants' rights. The IRBs evaluate the proposals to confirm that risks are minimized. They ensure the participant selection process is fair. They check that the plans for informed consent are enough. Even without a university partner, you can and should still ensure that you are conducting ethical research. Use the diagram below to define respect for persons, beneficence, and justice. Also, be mindful if you are evaluating your own project. You want to make sure that your own hopes or opinions do not influence how you interpret the results. Try to approach the project objectively. You may consider asking a peer to review your work for a fresh perspective.

RESPECT FOR PERSONS

Respect for persons means that participants must hear the risks and benefits of participating. They then must consent to taking part in the study, even if verbally. Anyone who participates in surveys or interviews needs to consent. Some participants need specific protections. For instance, children are unable to make their own decisions.



BENEFICENCE

Beneficence means that researchers should protect participants from harm. Research must maximize possible benefits and reduce possible harms. This protects the participants' wellbeing. For instance, data must be secure so that private information is not released.

JUSTICE

Justice means that all participants should be treated fairly. The potential subject pool should be an appropriate population. For instance, the populations studied should be the ones benefiting from the research.

Chapter 8 →

Chapter 8

Conclusion

Playful Learning Landscapes transform everyday places and spaces into opportunities for rich interactions between children and caregivers. Although there is an extensive body of research on the effectiveness of Playful Learning Landscapes, individual projects of all sizes are often interested in understanding their impact, how they provide new opportunities for social interaction, and contribute to community cohesion. This information can be valuable in reports to funders, messaging to the community, and in securing grants for additional work. This community evaluation toolkit provides a community-centered model to support a community's own evaluation efforts.

This toolkit has covered the basic information you need to know to design, conduct, and interpret your own impact evaluation. You have learned about different types of data collection, the logistics of collecting data, and coding and interpreting data. Now it is time to take what you have learned and measure your own learning outcomes!

The Impact Evaluation Process in Review

Develop Evaluation Questions: Consider the 5 W's (who, what where, when, why)

Create an Evaluation Plan: Decide what type of data to collect (like surveys, observations, and interviews) and when to collect it (like post-installation or pre-and-post installation)

Collect Data: Be sure to train data collectors, keep them safe, and have a plan for interacting with people on-site

Analyze Data: Code data and use a spreadsheet to tally responses

Use Data: Interpret the information and draw conclusions

Appendix

Glossary

Terms to Know

Caregiver-Child Interactions	The ways that caregivers and children interact with, respond to, and engage with each other. These interactions can be verbal, like conversations, or nonverbal, like laughing together or pointing.
Surveys	Brief questionnaires that allow participants to share their thoughts and their experiences.
Observations	Watching how people naturally interact in a space. Observers can note things like specific interactions, site usage, or number of visitors.
Interviews	Asking in-depth questions live to the participants. Interviews differ from surveys because the interviewer can listen to longer stories and ask follow-up questions, the participants could be site users or people involved in creating the projects.
Conversational Turns	Exchanges in which a caregiver says something and the child responds, or vice versa. Conversational turns are counted by the number of back and forth responses.
Physical Activity	Describes how active people are in a space. Physical activity is usually coded as sedentary (sitting or lying down), moderate (walking or exerting the same amount of energy as walking), or vigorous (running, jumping, or any activity exerting the same amount of energy).
Adult and Child Responsiveness	Following each other's focus, responding appropriately to questions and directions, and pointing or verbally addressing the same object, person, target, or symbol as someone else.
Math Talk (Math Language)	Any language involving or relating to whole numbers, numerical order, or sorting. Any caregiver prompt that gets a child to count or use mathematical language is considered math talk, even without using specific number terms.
Nature Talk	Any language that focuses on nature and/or the outdoors. This could mean talking about the natural world (like plants, animals, weather or soil), talking about interacting with the natural world (like touching a plant or petting an animal), or influencing the natural world (like the influence of pollution or the importance of recycling).
Literacy Talk	Any language that addresses letters or literacy skills, such as "elephant starts with e", or "b says 'b b b'".
Spatial Language	Any language that addresses spatial concepts, including weight or direction, such as "above" and "below" or "next to".

These additional examples of case studies can help you as references for your own work.

Appendix
Additional Examples

Additional Case Studies

Fraction Ball (Bustamante et al., 2022)

Project Description

Fraction Ball is a playful and physically active learning game. It stems from math cognitive research. The game modifies lines on a basketball court to encourage children to learn fractions and decimals. One side of the court has fraction labels. The other side has decimal labels. This allows players to keep score by adding fractions, decimals, and converting between fractions and decimals.

How was the project evaluated?

A team of researchers evaluated how much players were learning from Fraction Ball. They measured students' ability to solve fraction and decimal problems. Students who participated in Fraction Ball during physical education class were compared to students who participated in normal physical education.

What did they find?

The results suggest that Fraction Ball can be a fun and low-cost intervention that promotes math learning. Students playing Fraction Ball over a series of 4 physical education classes had improved ability to convert fractions to decimals.

Image: University of California, Irvine

Appendix

Additional Examples

Additional Case Studies

"Play-and-Learn Spaces" (Hassinger-Das et al., 2020)

Project Description

For this project, a library space was reconstructed into a Plan-and-Learn space. Children could climb to different letters on a climbing wall to create words. Seats were large movable "tangram"-type pieces, and they fit like puzzle pieces into reading nooks and bookshelves. There were magnetic letters and play surfaces that allowed children to create stories. Children could also use socio-dramatic play to complete story-related activities in these spaces.

How was the project evaluated?

The researchers used naturalistic observation. They compared interactions of caregivers and children in Play-and-Learn spaces with those in control libraries. There was also data from the Play-and-Learn libraries before creating the installations. Researchers looked at the quantity and quality of interactions between children and caregivers. They looked at the number of participants in children's programs and time spent in the spaces. Observers noted specific behaviors like using spatial-related language, following a child's focus, laughing, and engaging in physical activity. Observers also took note of the tone of each observation, like positive affect, negative affect, and neutral interactions.

What did they find?

All the Play-and-Learn library branches had significant increases in children's programming attendance and time spent in the spaces. The control libraries saw a decrease in attendance during the same period of time. The caregiver and child behavior in the Play-and-Learn spaces included more laughter, literacy-related talk, spatial talk, and physical interaction with the space, and less use of technology.

Image: Halkin Mason

Appendix

References

Glossary Sources

Hassinger-Das, B., Fletcher, K., Todaro, R., Scott, M., & Hirsh-Pasek, K. (2024). A hop, skip, and a jump towards social interaction and learning at a child and adolescent inpatient treatment program. *Child: Care, Health, and Development*, 50(1), e13200. http://doi.org/10.1111/cch.13200

Hassinger-Das, B., Zosh, J. M., Hansen, N., Talarowski, M., Zmich, K., Golinkoff, R. M., & Hirsh-Pasek, K.(2020). Play-and-Learn spaces: Leveraging library spaces to promote play and learning. *Library & Information Science Research*, 42(1), 101002. https://doi.org/10.1016/j.lisr.2020.101002

Hassinger-Das, B., Palti, I., Golinkoff, R. M., & Hirsh-Pasek, K. (2020). Urban Thinkscape: Infusing public spaces with STEM conversation and interaction opportunities. *Journal of Cognition and Development*, 21(1), 125-147. https://doi.org/10.1080/15248372.2019.1673753

Case Studies

United for Brownsville Learning Landscapes

Hassinger-Das, B. (2021). *United for Brownsville: Preliminary Report*. Psychology Department, Pace University.

Photography: Brenna Hassinger-Das

Urban Thinkscape

Hassinger-Das, B., Palti, I., Golinkoff, R. M., & Hirsh-Pasek, K. (2020). Urban Thinkscape: Infusing public spaces with STEM conversation and interaction opportunities. *Journal of Cognition and Development*, 21(1), 125-147. https://doi.org/10.1080/15248372.2019.1673753

Photography: Sahar Coston-Hardy Photography

Play-and-learn spaces

Hassinger-Das, B., Zosh, J. M., Hansen, N., Talarowski, M., Zmich, K., Golinkoff, R. M., & Hirsh-Pasek, K.(2020). Play-and-Learn spaces: Leveraging library spaces to promote play and learning. *Library & Information Science Research*, 42(1), 101002. https://doi.org/10.1016/j.lisr.2020.101002

Photography: Halkin Mason

Fraction Ball

Bustamante, A. S., Begolli, K. N., Alvarez-Vargas, D., Bailey, D. H., & Richland, L. E. (2022, January 13). Fraction Ball: Playful and Physically Active Fraction and Decimal Learning. *Journal of Educational Psychology*. Advance online publication. http://dx.doi.org/10.1037/edu0000714

Photography: University of California, Irvine

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Hadani, H. S., Vey, J. S., Parvathy, S., Hirsh-Pasek, K. (2021). *Playful Learning Landscapes metrics framework.* Brookings Institution. https://www.brookings.edu/wp-content/uploads/2021/10/Playful-Learning-Landscapes-metrics-framework_FINAL.pdf

Playful Learning Landscapes. (2022). *Playful learning landscapes playbook*. https://playfullearninglandscapes.com/wp-content/uploads/sites/7/2022/02/PLLAN-Playbook.pdf

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The following is an additional example to help you conceptualize an evaluation. While this is not a real-life project, it shows how to design a simple evaluation to demonstrate a project's impact.

Appendix
Case Study

Flower Case Study

This playful learning installation was designed to encourage conversation about color-mixing and shadows. It was also designed to get more caregivers and children to visit the park. The project included a flower sculpture with colored pedals designed to cast shadows of different colors. It was located at an outdoor public park in an urban city. This was a long-term installation designed to last for years, and the target audience was children and their caregivers at the park.

If we were to do a survey, we may want to ask questions allowing caregivers and children to share their thoughts about the installation. We might ask caregivers at the playground for permission to conduct a survey.

Possible Survey Questions

1. Did you notice this flower?

2. What made you notice the flower?

3. Is this the first time you have seen the flower? If no, did you interact with the flower differently this time?

4. Did you or your child engage with the features of the flower, like its colors or shadows? If so, how?

5. Did you and your child(ren) talk about the flower?

6. What did you talk about? (e.g., colors, shapes, sizes, shadows)

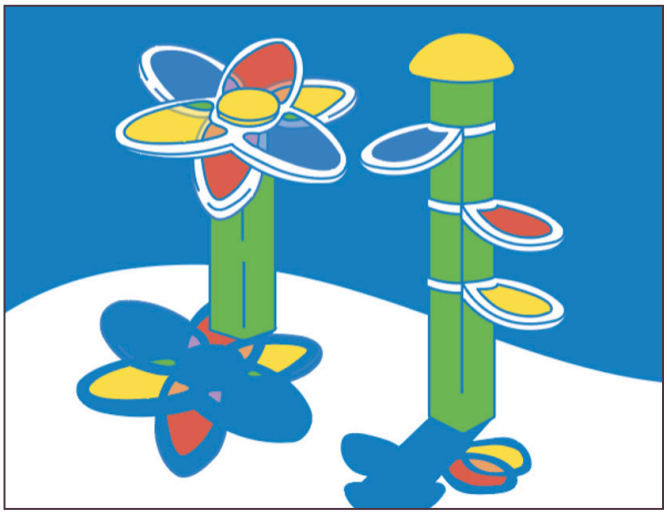
7. Did the flower make your experience at the playground different from normal? If so, how?
8. Did the flower inspire you and your child(ren) to talk about colors and/or shapes here or at home?

9. Do you engage with any activities at home to help your child talk about colors and shapes?

10. Did your child enjoy interacting with the flower? If yes, how do you know?

11. How old is your child/children that interacted with the flower?

12. Do you think the flower encourages your child to be more creative or curious? If so, in what ways?



Images: Haverford Design + Make Fellowship

We have included an example survey on page vii of this appendix.

Flower Case Study cont.

If we were to conduct observations, we could give observers worksheets to record data on language, engagement, and social interactions between children and caregivers at the park. For instance, observers might watch a parent-child pair for 5 minutes and make a tally every time they hear the child or adult following each other's focus, asking questions, and taking conversational turns. After 5 minutes, they might focus on another parent-child dyad and complete the worksheet again. Observation items may include:

1. Child or adult talks about shadows
2. Child or adult talks about colors
3. Child or adult talks about patterns
4. Child or adult asks questions
5. Child or adult follows focus
6. Child physical activity (sedentary, moderate, or vigorous)
7. Child or adult uses technology
8. Child or adult laughs
9. Child or adult points
10. Child or adult engages in imaginative play or storytelling
11. Number of conversational turns
12. Child or adult answers questions

We have included an example coding sheet on page viii.

If we were to conduct interviews, we might ask more in-depth questions to the participants. We could choose to interview caregivers who visit the park or people involved in creating the color-mixing flower designs. The interviews might be more in-depth than the survey questions.

For adults visiting the park, we may ask questions like:

1. How often do you visit the park?
2. Do you visit the park more often after the color-mixing flower was installed?
3. Does the color-mixing flower make your experience at the playground different than at other playgrounds?
4. Does the color-mixing flower influence the way your child plays or interacts with the playground?
5. What kinds of things related to the color-mixing flower do you talk about with your child?
6. Did the color-mixing flower in the park encourage you to talk about colors and/or shadows at home with your child?
    a. If so, what do you talk about at home?
7. Do you think the color-mixing flower has added educational value to your visits to the park? If so, how?

For someone involved in making the color-mixing flower, we may ask questions like:

1. What was your goal in creating the color-mixing flower?
2. Why did you decide to install the color-mixing flower at this park?
3. Have you received any feedback from the community about the color-mixing flower? If so, how has your work been influenced?
4. Are there color-mixing flower installations at other locations? If so, what impact have they made?
5. What challenges did you face during the design and installation process of the color-mixing flower?

Date and Time: S #:

Color-Mixing Flower Survey

Here is an example of what a survey might look like.

Hello, my name is . We are conducting a survey about parents and caregivers' experience at this playful learning installation.

May I ask you some short questions about your experience today? Answering the questions will take about 5 minutes. We won't ask you for any identifying information. If you have already participated in this survey on a different date, we won't ask you to participate again. **YES** or **NO**

If **NO** → *Okay, thanks for your time!*

At the park, we have installed a new color-mixing flower for children and caregivers to use around the playground.

1. Did you notice this flower? **YES** or **NO**
2. What made you notice the flower?
3. Is this the first time you have seen the flower?

   If no, did you interact with the flower differently this time?
4. Did you and your child(ren) talk about the flower?
5. What did you talk about? (e.g., colors, shapes, sizes, shadows)
6. Did the flower make your experience here different from normal? If so, how?

Thank you so much for all that helpful information! We want to make sure the flower is a great fit for our community. May I ask you 4 quick questions that will help us make sense of all this information you've given us? **YES** or **NO**

1. What languages do you speak at home?
2. May we ask the age(s) and genders of the child/ren accompanying you today?
3. May we ask your gender and approximate age range? (Provide an example, "20s, 30s")

Thanks for your time!

Notes (anything that has the potential to offer meaningful insight about this participant):

Observer Initials: Observation #

Research Site: Date:

Time Start: Time Finish:

Duration:

Observation Sheet Example

Content of Language

	Child	Adult	Staff
talks about shadows			
talks about colors			
talks about patterns			
asks questions			

Social Interaction

	Child	Adult	Staff
follows focus	0 1-3 4-6 7+	0 1-3 4-6 7+	0 1-3 4-6 7+
answers questions	**Y** or **N**	**Y** or **N**	**Y** or **N**
ignores bids for attention	**Y** or **N**	**Y** or **N**	**Y** or **N**
laughs	**Y** or **N**	**Y** or **N**	**Y** or **N**
conversational turns			
caregiver communications	mostly directive neutral mostly open-minded		
interaction leading	mostly adult-led neutral mostly child-led		
valence of interaction	negative neutral positive		
amount of interaction	low moderate high		

Engagement

child physical activity	sedentary moderate vigorous
adult physical activity	sedentary moderate vigorous

Child 6 Cs

Communication low moderate high

Uses non-verbal gesture to communicate
Engages in back and forth conversation
Explains something to an adult or peer

Content low moderate high

Uses math/science skills
Uses language/literacy skills
Shows self-control or flexibility

Creative Innovation low moderate high

Adapts ideas offered by someone else
Offers multiple ideas to solve problems
Generates original ideas

Collaboration low moderate high

Works together with an adult or peer
Takes turns doing an activity
Sets a goal with an adult or peer

Critical Thinking low moderate high

Challenging others' assumptions/ideas
Solve problems
Compares and/or contrasts

Confidence low moderate high

Persists through an activity
Attempts a difficult task
Verbalizes confidence in self or group

Technology

child technology use	none	low	mod	high	Type:	Describe:	
adult technology use	none	low	mod	high	Type:	Describe:	

If tech used, choose: adult using tech alone; adult bids for child[using tech]'s attention; child bids for adult[using tech]'s attention; child using tech alone co-viewing

# of Children: Gender: Ethnicity: Ages:

Notes:

# of Adults: Gender: Ethnicity: Relation to Child(ren):

Notes:

Here are some ideas for metrics you can use to evaluate the impact of your project. This information comes from the Playful Learning Metrics Framework, developed by the Brookings Institution (https://www.brookings.edu/).

Appendix

Potential Interactions and Concepts to Observe

PL Metrics Framework

The PL Metrics Framework names five goals that community members may want to evaluate when demonstrating the impact of their projects:

1. Promotion of healthy learning and child development.
2. Supporting accessible and welcoming public realms.
3. Fostering social environments that are vibrant and inclusive.
4. Nurturing a strong sense of community and vivid engagement.
5. Strengthening the resiliency and economic health of neighborhoods.

For example, if your goal is to promote healthy child development and learning, you may want to consider child and caregiver interaction, language development and literacy, and STEM literacy. These are ideas of specific things you can measure:

Signal: Child and Caregiver Interaction

Metric	Description	Source
Conversational turns	The amount of back and forth exchanges between the caregiver and child and/or between children. Coding breaks turns into 4 levels (high, moderate, low, and none). Reported as the percentage of high, moderate, low and no interactions.	Observation
Valence of Interaction	Overall effect of the interaction (positive, neutral, or negative). Reported as the percentage of positive (smiling, positive tone of voice), neutral (verbal discussions without much emotion) and negative (frowning, harsh tone of voice) interactions.	Observation
Following caregiver or child focus	Involves the child and caregiver paying attention to the same item (e.g., pointing or verbally addressing the same object). Reported as the median of the number of times "following the focus" occurs during an interaction.	Observation

Appendix

Potential Interactions and Concepts to Observe

PL Metrics Framework cont.

Signal: Language Development and Literacy

Metric	Description	Source
Talk about literacy or storytelling skills	Any language that builds storytelling or literacy skills ("B says "b, b, b."). Reported as percentage of children and adults using specified language.	Observation

Signal: STEM Literacy

Metric	Description	Source
Use of numerical language	Any language that a caregiver or child uses involving or related to numbers, numerical order, or sorting (e.g., counting, addition/subtraction, more versus less). Any language that involves the use of mathematical knowledge. Reported as percentage of children and adults using specified language.	Observation
Use of spatial language	Involves the child and caregiver paying attention to the same item (e.g., pointing or verbally addressing the same object). Reported as the median of the number of times "following the focus" occurs during an interaction.	Observation
Use of pattern language	Any language or behavior that addresses repeating patterns in a game or activity (e.g., noticing that when you answer a card correctly, you can roll again in fraction dice in Parkopolis). Reported as percentage of children and adults using/identifying specified language/patterns.	Observation
Use of numerical language	Any language that indicates knowledge of measurement (e.g., using words like "far, long, heavy, tall, and short"). Reported as percentage of children and adults using specified language.	Observation

You can find a more comprehensive list of potential interactions and concepts to observe at the following link.

Acknowledgements

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Playful Learning Landscapes (PLL), a project of the Ultimate Block Party, Inc., fosters the creation of playful learning infrastructure and activities in the everyday spaces where children and families gather. By infusing our cities with playful learning opportunities, we can improve educational equity and enhance children's cognitive and social development, better preparing them for success in the 21st-century.