



Little FarmHouse Summative Evaluation Report

A Mixed Methods Evaluation of an Early Childhood Informal Learning Exhibit

At the Creative Discovery Museum

Chattanooga, TN



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Little FarmHouse Summative Evaluation Exec. Summary

In 2023, an in-house, mixed-method evaluation was conducted for Creative Discovery Museum's newly renovated early childhood (ages 0 to 5) informal learning exhibit, Little FarmHouse. The evaluation was made up of 100 observations of children in the exhibit, 20 observations of children in the new and non-walker area specifically, and 55 caregiver interviews. Below are the key results, further expanded on in the complete report.

1. On average, children spent approximately **14 minutes** in the space, interacting with roughly **¼ of the elements** in the exhibit. This is **consistent** with the valuation findings of other renovated exhibit spaces at creative discovery museum.

a. In fact, of the three (RiverPlay, ArtSpace, and Little Farmhouse), children **spend the most time in LFH, relative to its square footage.**

2. The exhibit is **balanced** in placement of elements with high attraction and holding power and cooler and elements with low attraction and holding power. This means there is no single cluster in the exhibit where all visitors are going and/or staying for a long time, a positive finding that indicates **there is no area overly crowded and hindering visitor's family learning.**

a. The tractor was by far the most popular element with almost 80% of visitors stopping there at some point.

b. The truck and train table were the elements where children stayed the longest- on average about 3 minutes.

3. With 18 more elements and almost double the square footage, children are **spending significantly more time** in Little FarmHouse compared to its pre-renovation counterpart, Little Yellow House- on average about **three minutes longer.** With the significant increase in square footage, they are also moving through the exhibit faster relative to the size of the space.

4. Children **3 and under stay in the exhibit significantly longer** than those 4 years and older- roughly 19 minutes compared to 12 minutes.

5. Behavioral observations largely fell into three categories: **object play, pretend play, and caregivers scaffolding their child's learning**. Object play was associated with fine motor skill practice, cause and effect actions, exploring auditory sensory input, and pretend play. Pretend play was associated with problem solving, novel play, spontaneous connections, and chances for caregiver scaffolding. Caregiver scaffolding behaviors included prompting, modeling, and math skills.

6. Caregivers discussed that the space was very **age appropriate** for all in the 0-5 year old range and provided a sense of **safety** with the enclosed nature that **allowed more independent play** for the child. They also cited the way that **engaging, interactive, and hands on** elements provided both opportunities to **learn new things** about plants and animals, while still including elements familiar to the children like a kitchen.

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Study Overview

Purpose:

The present study was conducted to evaluate the dedicated early-childhood exhibit space at Creative Discovery Museum. The previous early childhood space, known as Little Yellow House, closed in the Fall of 2022, and the renovated Little FarmHouse (LFH) space opened in Spring of 2023. This study aims to clarify the effect of renovations on visitor experience for those families with children from 0-5 years old. Specific evaluation questions included:

1. What kind of attention are the areas and elements of LFH receiving from children five and under and their families?
 - a. How does it compare to the pre-renovation Little Yellow House?
2. How does engagement within the exhibit vary by participant demographics and time of data collection?
3. What types of behavioral indicators of learning outcomes are observed in LFH and at which specific elements do they occur frequently?
4. How do caregivers feel about the new space?

Exhibit Overview:

The exhibit is comprised of 8 areas: Farm & Market, Barn, Milking Parlor, Tree, Garage, Kitchen, Nursery, and the Meadow, a gated area for new and non-walkers.

Area of LFH	# of Elements
Meadow	7
Nursery	6
Kitchen	8
Garage	3
Tree	4
Milking Parlor	3
Barn	7
Farm & Market	8

There are a total of **46** distinct elements in the space that visitors can interact with. These vary from larger components like the tractor to smaller elements such as the squirrel wheel in the barn. Some have props associated with them such as the eggs and chickens at the coop, while others do not, including the stairs, slide, and tunnel.

Table 1: Distribution of Elements By Area of LFH

The exhibit space has a singular entrance and exit gate that leads into the atrium, meaning all subjects entered and exited from the same location of the exhibit.¹ Guests enter via the gate between the meadow and the farm & market area at the bottom of the map below. Signage is bilingual with English and Spanish labeling objects such as vegetables in the garden, as well as prompts with play possibilities and other information on the power of play for caregivers.

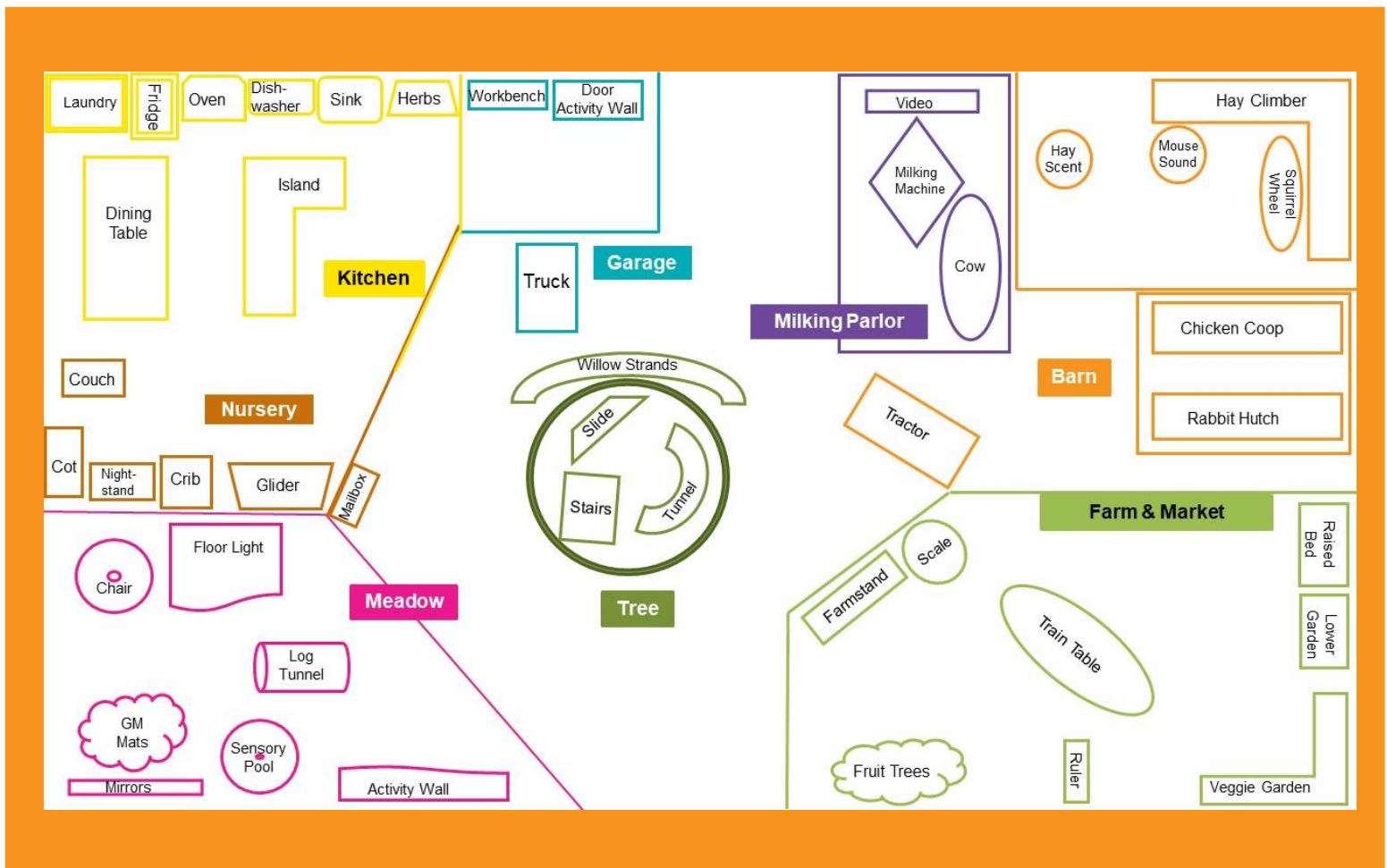


Figure 1: Exhibit & Element Diagram of the Little FarmHouse

¹ There is an additional door from Little FarmHouse in between the Coop/Hutch and Raised Bed that leads to the Early Childhood classroom. However, it is not open to general museum visitors and no subjects came directly to or from a class held in this space.

The exhibit was designed to facilitate the following essential experiences for children:

- Play that provides opportunities for
 - (1) gross motor and fine motor practice
 - (2) social-emotional roles and interactions
 - (3) language acquisitions and usage
 - (4) problem solving skills
- Independent exploration
- Multi-sensory engagement to learn about the world around them
- Engagement in different types of large body movement, including climbing, for physical and cognitive development.

As all exhibits and programs at Creative Discovery Museum, the Little FarmHouse exhibit was created with CDM's Audience Impact Framework in mind, particularly our five distinct learning outcomes which were clarified in the context of Little FarmHouse.

Curiosity & Interest

- Caregivers learn to be their child's first teacher and support them in uncovering and growing their strengths and interests.

Environmental & Cultural Connectivity

- Child is introduced to the basic requirements of plants, animals, and humans with the support of their caregivers.

Understanding of Others

- The family discovers the abilities and interests of others through play, allowing the child to cultivate foundational socio-emotional skills.

Exploring & Experimentation

- Audiences explore independently and with others through sensory experiences and foundational cause/effect exploration.

Embracing Playful Discovery

- Caregivers embrace the importance of open-ended interactions and play, especially pretend play, in healthy development.

Methods and Sample Demographics

This study used timing & tracking, an unobtrusive observation technique well respected in the museum field. An observer follows a single child, selected at random, from a distance during the entirety of their visit to the specific exhibit space. The observer notes which elements they engage with, the length of time they do so, the order of elements they interact with, and other qualitative behavioral observations. This method is successful in capturing both initial interest, also known as attraction power, and the duration of engagement, or holding power, that each element possesses. This method is widely used due to the non-disruptive effect on visitor experience, as well as documenting time engaged with elements, a pre-requisite for learning (Serrell, 2010).

Age	# in Sample
< 12 months	0
12 - 24 months	12
2 years	17
3 years	25
4 - 5 years	46

Evaluators conducted 100 unique timing and tracking observations of children. The sample was almost evenly split in terms of gender and skewed to the older side of the 0-5 age range (see Table 2: Time & Tracking Age Demographic Distribution to the right). This age range is posted externally as a guideline for museum visitors, but children

slightly older do play in the exhibit and as such could have been included in the sample, though data collectors made efforts to select children in the target range. Behavioral observations were written in for 80 of the 100 observations. Data collectors were instructed to note object play, pretend play, interactions (with peers or caregivers), math skills, expected play, and unexpected play, but otherwise left to their own judgement on how many observations to include and what level of detail.

Given the low number of those under 24 months, evaluators also conducted a separate timing and tracking study with behavioral observations just in the new and non-walker Meadow area with a sample of 20.

Finally, a total of 55 interviews with caregivers were conducted in a semi-structured interview style. All quantitative analyses were conducted in Excel, while qualitative coding was done through NVivo after the recorded interviews were transcribed.

Visitation Patterns

Overview: Time Spent, Stops Made, Elements Interacted

For any outcomes to be achieved or learning indicators to be observed, two prerequisites are attention and time. Therefore, the first step in evaluating the Little FarmHouse exhibit is to look at the visitation patterns of the space, primarily:

- Are elements attracting the attention of visitors in a balanced way across the exhibit space?
- And are elements holding that attention for an appropriate length of time?

While this data alone cannot confirm whether an outcome is achieved, meaning one of the indicators was observed or reported, it does provide the first level of foundational information. In other words, timing and tracking data is the first step that tells us whether there was the potential for a learning indicator to occur.

CDM Exhibit	Median Dwell Time	% of Elements Interacted
Little FarmHouse	0:14:03	24%
RiverPlay	0:15:12	29%
ArtSpace	0:20:16	15%

Table 3: Renovated Exhibit Comparisons of Dwell Time and % Elements Interacted

As seen in the table above and figure below, Little FarmHouse’s key metrics are comparable to that of other newly renovated exhibit spaces. Despite the lowest median dwell time, the sweep rate index (speed that visitors move through an exhibit relative to square footage) shows that in fact, given it’s size, visitors are moving through Little FarmHouse the slowest, meaning they are engaging deeper with the elements.

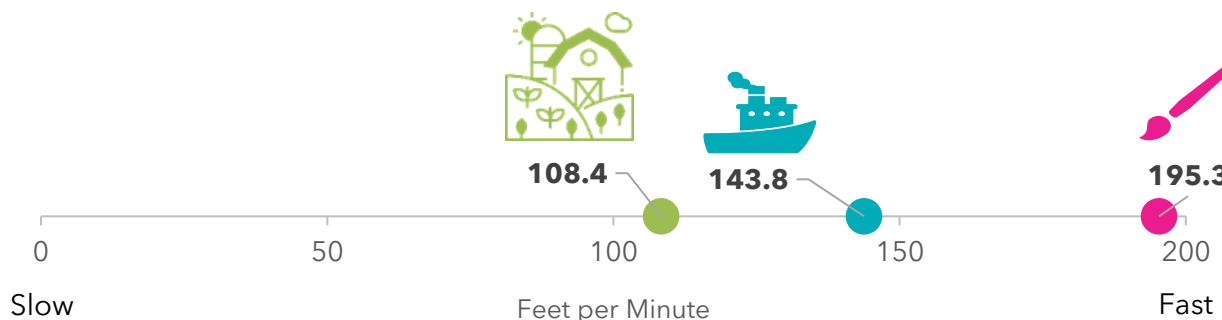


Figure 2: Comparison of Sweep Rate Indexes of Renovated Creative Discovery Museum Exhibits

Most children stayed in LFH between **0 - 20 minutes**.

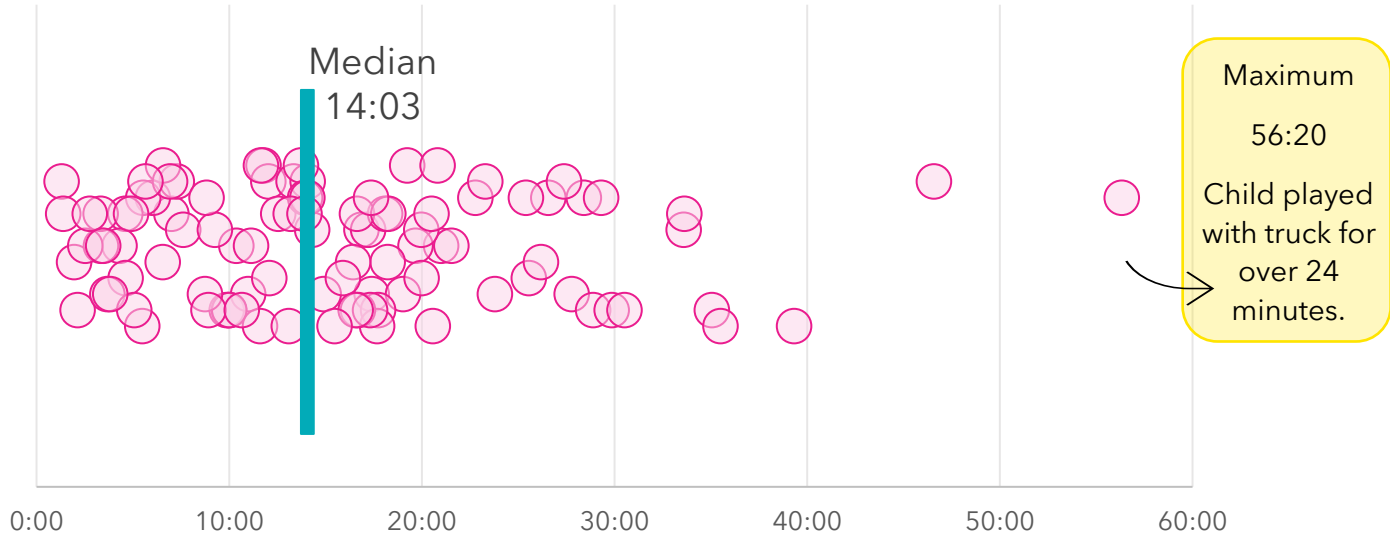


Figure 3: Timing & Tracking Dwell Time Jitterplot

Most children stopped between **2-30** times in LFH.

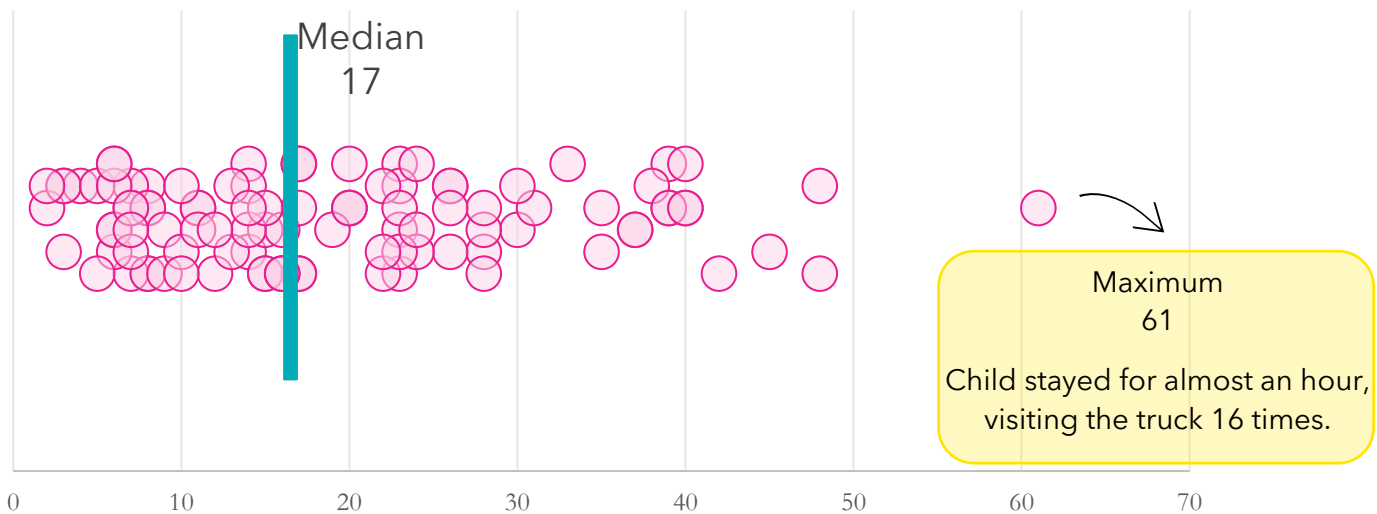


Figure 4: Timing & Tracking Stops Jitterplot

Most children stopped at **10% - 40%** of all LFH distinct elements.

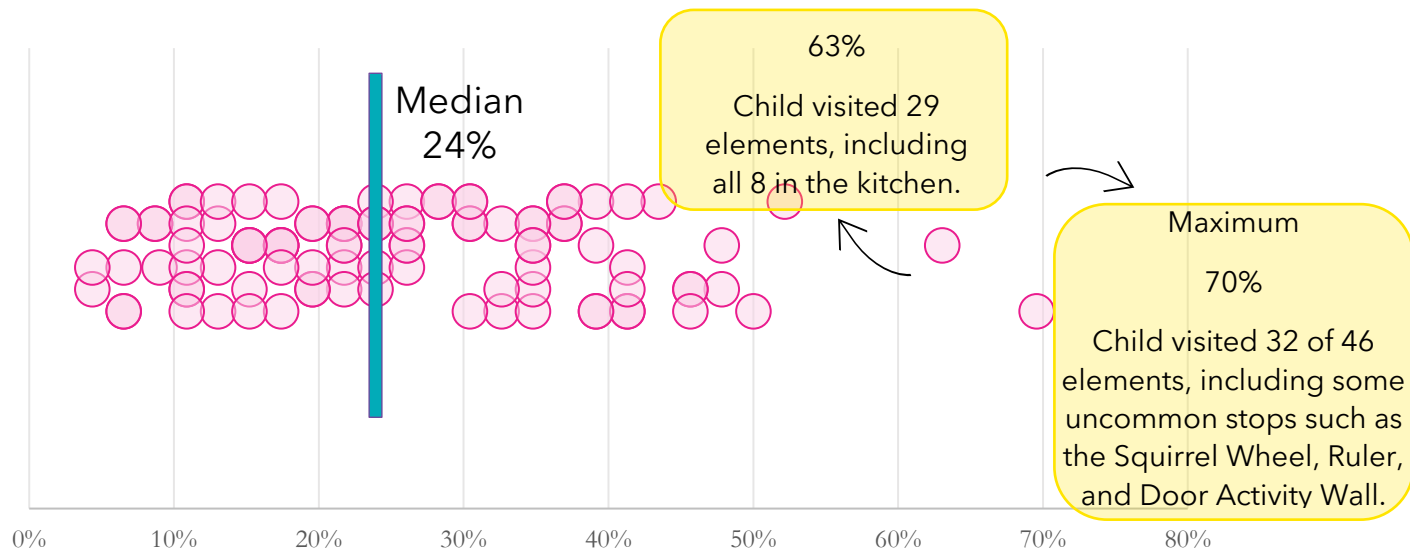


Figure 5: Timing & Tracking % Elements Visited Jitterplot

As visitors spent **more time** in LFH, they visited **a higher % of elements**.

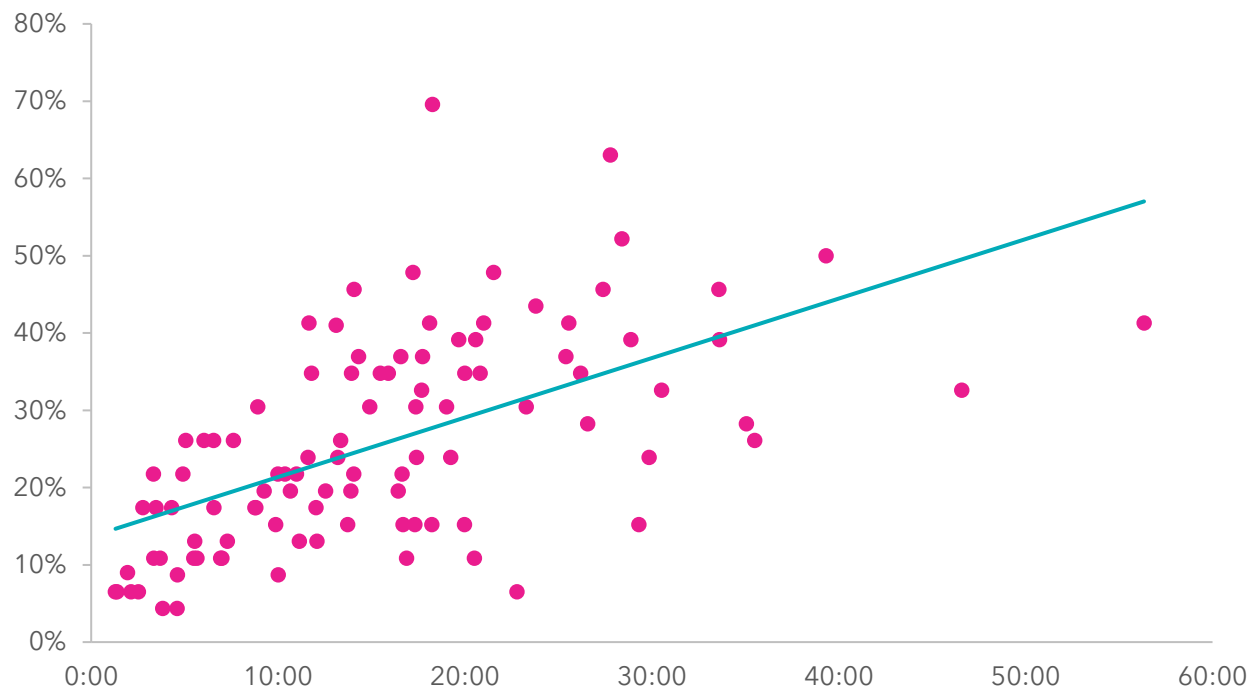


Figure 6: Timing & Tracking Dwell Time Compared to % of Elements Visited

Attraction & Holding Powers

Attraction Power by Element

10 Hottest

Tractor	79%
Slide	66%
Stairs	62%
Chicken Coop	62%
Truck	60%
Hay Climber	58%
Milk Machine	55%
Hutch	52%
Train Table	46%
Farm Stand	41%

Table 4: 10 Hottest Elements Attraction

6 Coldest

(Excluding Meadow)

Hay Scent	0%
Sleeping Cot	5%
Ruler	5%
Mailbox	6%
Glider	8%
Willow Strands	8%

Table 5: 5 Coldest Elements Attraction

Remember, these percentages and heat map below only represent children's movements not caregivers.

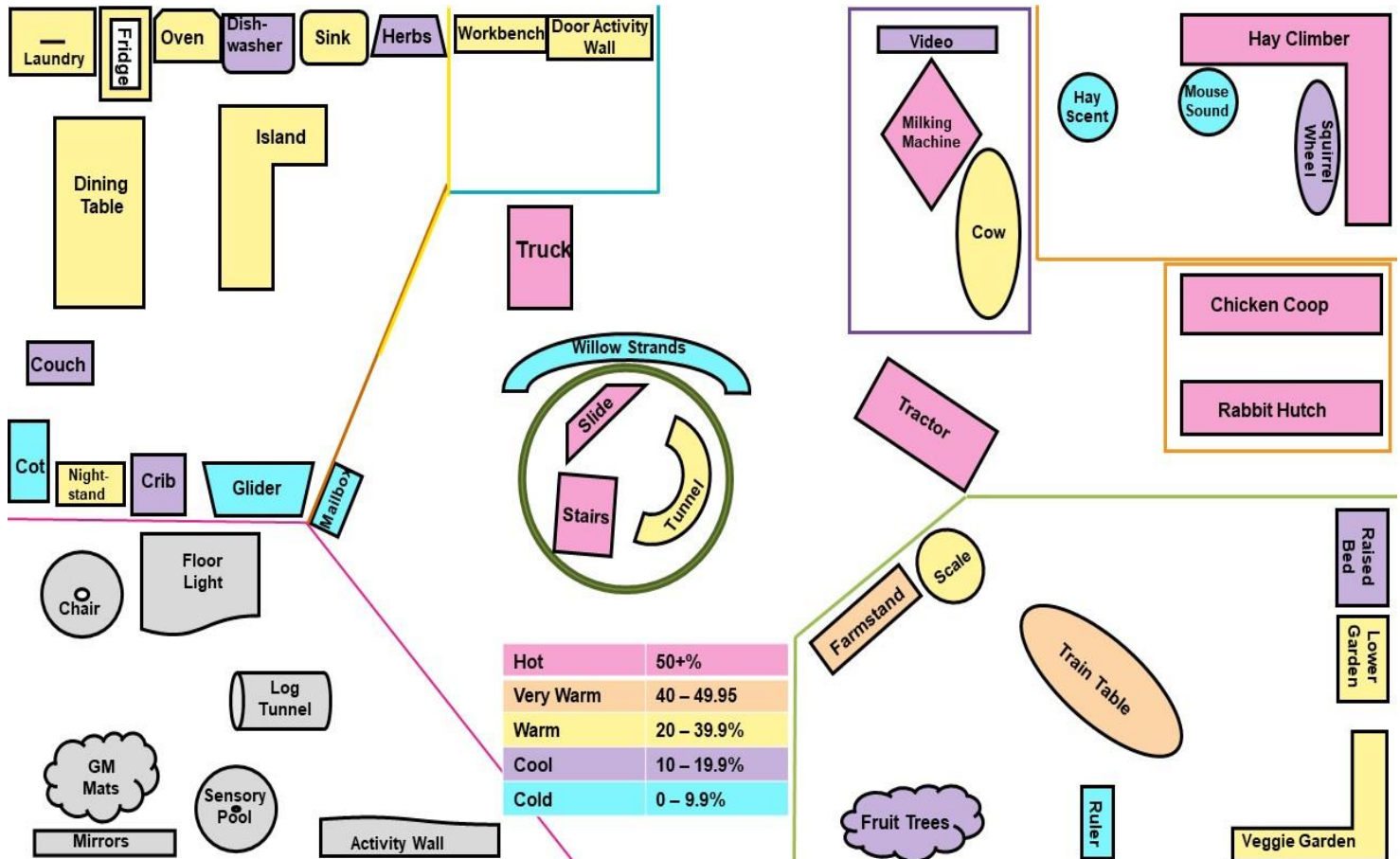


Figure 7: Attraction Power Heat Map (Excluding Meadow)

There are a few important things to note about the attraction heat map.

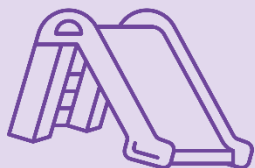
- Several of the Cold stops were elements that caregivers engaged in, even if the children did not as frequently: including the glider, mouse noise, and hay scent.
- Many of the Hot stops are some of the most evident and eye-catching elements either when guests enter Little FarmHouse or even from the atrium. This applies to elements including the slide and stairs, tractor, truck, and cow.



32% of children stopped at the Tractor first.



19% of children first stopped at Stairs, on route to the Slide.



Top 10 Revisited Elements

Tractor	38 revisits
Slide	31 revisits
Stairs	27 revisits
Chicken Coop	26 revisits
Truck	23 revisits
Hutch	22 revisits
Farmstand	22 revisits
Train table	19 revisits
Veggie Garden	17 revisits
Table	16 revisits

Table 6: Revisited Elements

Holding Power by Element

10 Hottest
(80th percentile and up)

Truck	3:10
Train Table	2:57
Hay Climber	1:24
Tractor	1:24
Crib	1:23
Table	1:22
Couch	1:18
Farmstand	1:14
Chicken Coop	1:13
Oven	1:03

Table 7: 10 Hottest Elements Holding

5 Coldest
(Excluding Meadow & Hay Scent which wasn't visited by sample)

Mouse Sound	0:08
Willow Strands	0:11
Herbs	0:11
Ruler	0:13
Cow Video	0:13

Table 8: 5 Coldest Elements Holding

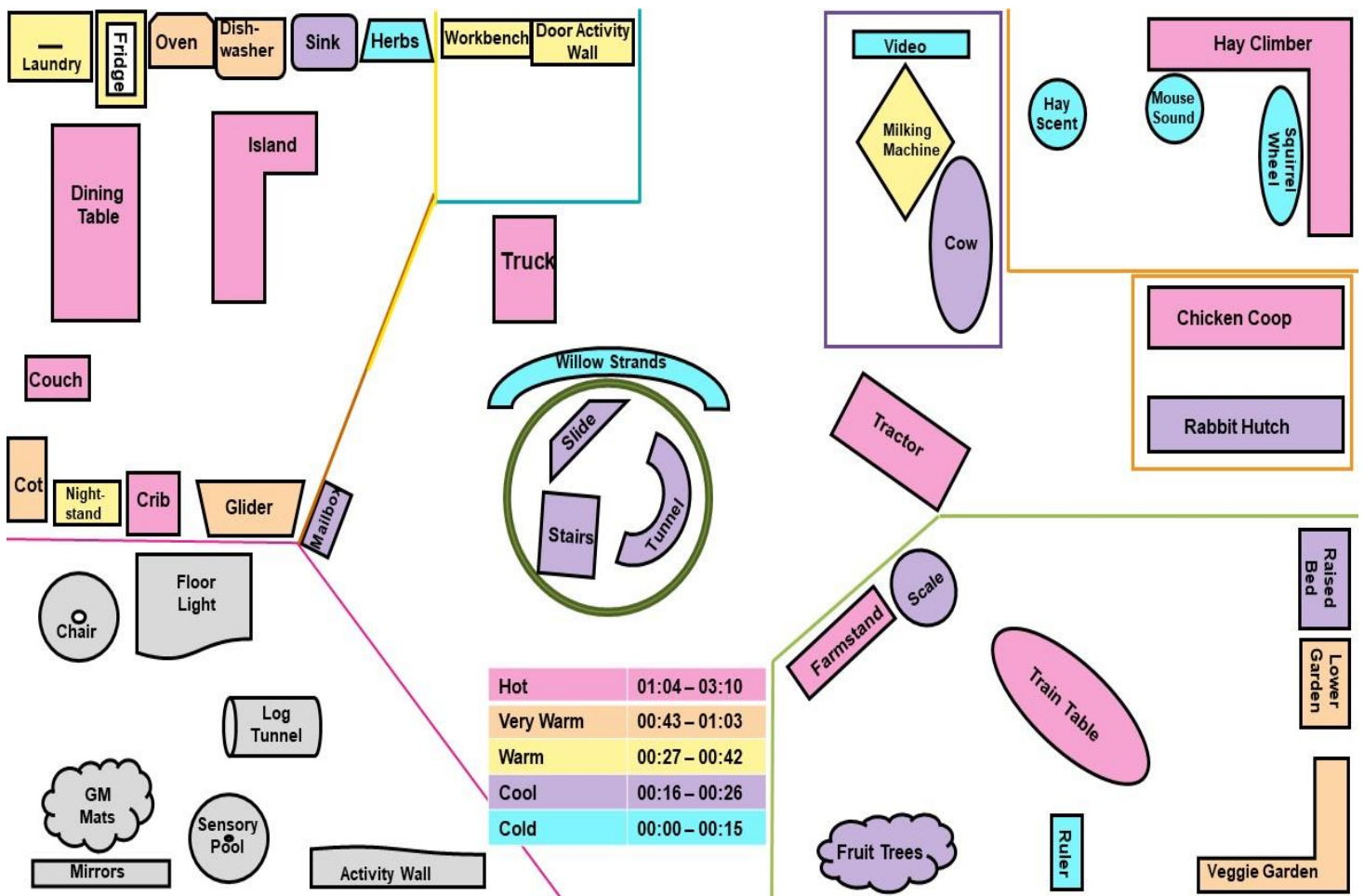


Figure 8: Holding Power Heat Map (Excluding Meadow)

The table to the right lists each instance of a child engaging with an element for an extended period of time, defined here as over 8 minutes. The Truck and Train Table clearly stand out as two attractions in which these extended engagements commonly take place, perhaps due to the fact that both elements encourage imaginative, story-based play, whether acting out situations themselves or with the various figurines on the train table.

Element	Dwell Time
Truck	24:52
Train Table	16:09
Train Table	12:26
Truck	11:58
Truck	11:36
Train Table	11:19
Crib	10:35
Tractor	09:12
Farmstand	08:25
Truck	08:10
Tractor	08:10
Train Table	08:04

Table 9: Extended Dwell Times



Visitation by Area

% of Visitors

***at least** one element in a space*

Area	% Visited
Barn	92%
Tree	75%
Farm & Market	73%
Milking Parlor	66%
Garage	65%
Kitchen	59%
Nursery	37%

Table 10: % Observations Interacting by Area

Average Dwell Time

not necessarily consecutively, but over the course of a visit

Area	Stay Time
Farm & Market	03:40
Garage	03:26
Barn	03:24
Kitchen	02:56
Nursery	01:51
Tree	00:50
Milking Parlor	00:42

Table 11: Average Dwell Time by Area

Keep in Mind...

- The Barn includes three elements with over 50% visitation rates: Tractor, Chicken Coop, & Hay Climber. Tractor is the most visited element of the exhibit.
- The Tree includes the 2nd and 3rd most popular elements: Slide and Stairs.
- Farm & Market includes the Train Table, the element with the 2nd longest dwell time.
- Garage includes the Truck, the element with the longest dwell time of any element in the exhibit.
- Both the Tree and Milking Parlor have fewer elements (four and three respectively).

The Meadow: Focused Study

Average Dwell Time: **07:45**

Maximum: **49:50**



Element	# Visited
Gross Motor Mats	15
Floor Light	12
Activity Wall	12
Sensory Pool	11
Circle Chair	8
Log Tunnel	8
Mirrors	3

Table 12: Meadow Element Visit Count



Element	Average Stay Time
Downtime ²	04:09
Mirrors	03:23
Sensory Pool	02:22
Log Tunnel	01:57
Floor Light	01:21
Gross Motor Mats	01:15
Activity Wall	01:11
Circle Chair	00:27

Table 13: Meadow Element Stay Time

In qualitative notes of the 20 timing and tracking observations, object play was seen in each. Children were both carried into the space, as well as entered it independently. Within the space it was common for the caregiver to physically guide the child to various elements such as picking them up from the sensory pool and setting them on top of gross motor mats. During observation there were also several instances of another caregiver in the space wearing their child in a carrier for the entirety of their stay.

² Significant time was spent as “Downtime” in which child was engaging in object play, but not at a particular element—such as playing by the adult benches or in their adult’s lap.

Comparison to 2016 Little Yellow House



Little Yellow House (2016)



Little Farm House (2023)

Little FarmHouse has 18 more distinct elements than Little Yellow House did.

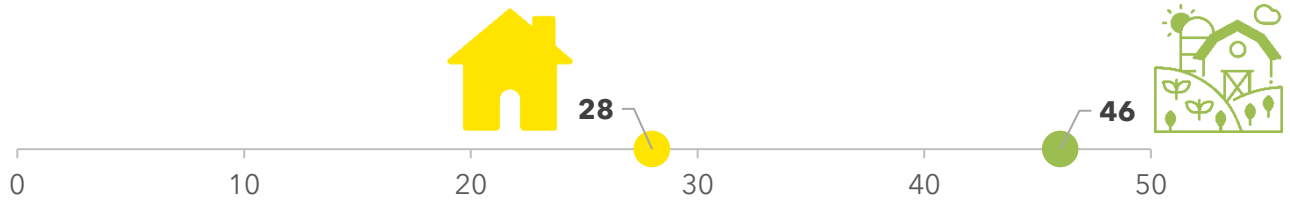


Figure 9: # of Elements in LYH & LFH

FarmHouse well over doubles the square footage of Yellow House

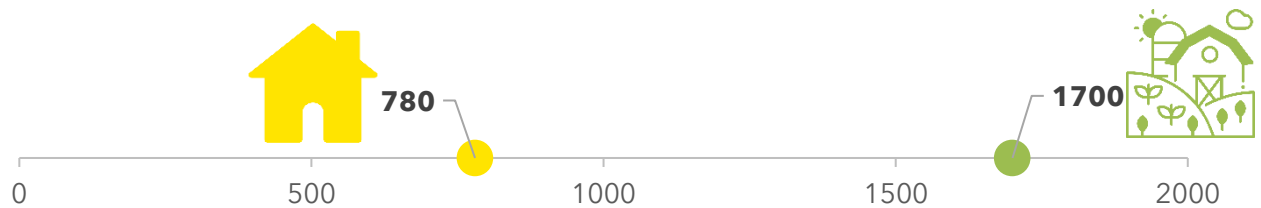


Figure 10: Square Footage of LYH & LFH

On average, children spent more time in FarmHouse than in Yellow House.³

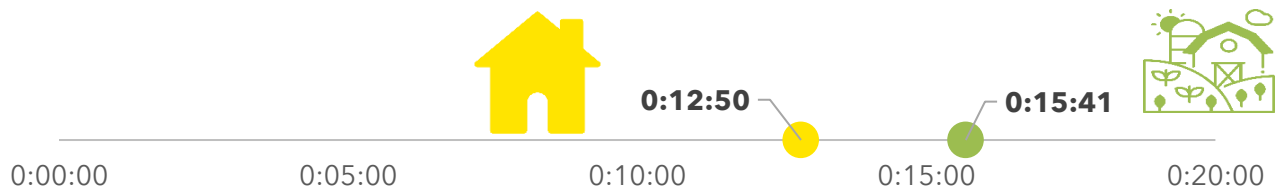


Figure 11: Average Total Stay Time of LYH & LFH

Children are moving through FarmHouse faster than Yellow House

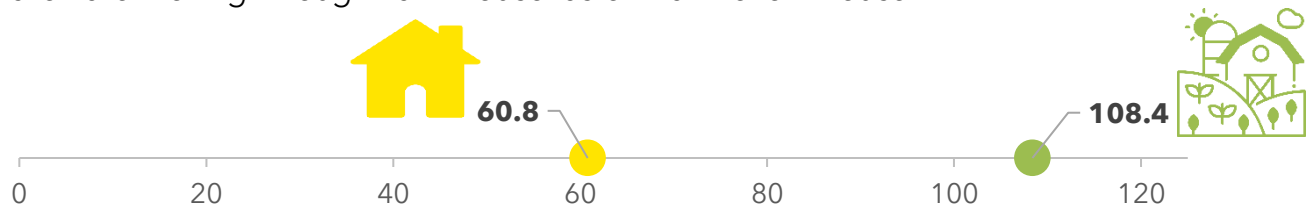


Figure 12: Sweep Rate Index (square feet per minute) of LYH & LFH

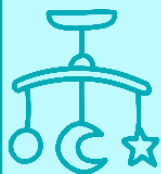
³ This finding was statistically significant with a one tail $p = .054$.

Time & Tracking Group Comparisons

Statistical tests were run to look for significant differences in timing and tracking metrics. Tests looked at variables related to sample demographics and the context of data collection. It should be noted that all demographic variables are as perceived by the data collector, not confirmed with the child or caregiver due to the non-intrusive nature of timing and tracking.

Gender

There were almost no statistically significant differences in perceived gender of the children in the sample. Given there was only one of the one hundred children observed who data collectors indicated as presenting in a non-binary way—caregivers were not overheard using she or he pronouns, clothing was not explicitly “girl” or “boy” clothing—the statistical tests were run only comparing those perceived and presenting as girls and boys.



The only metrics significantly different by gender were seen in the **Nursery**. First, the average percentage of nursery elements visited varied significantly by gender: 17.3% for the girls observed and 8.7% for the boys (two-tail $p = .016$). Secondly, the average combined dwell time of elements in the Nursery also varied significantly by gender: 59 seconds for the girls observed and 21 seconds for the boys (two-tail $p = .030$).

It should be noted that this result simply means the difference in average percentage of nursery elements visited by gender was not caused by chance. Many factors could have influenced this including but not limited to the children’s preference of elements, what toys they were used to playing with at home, and gender norms caregivers held and impacted how they influenced or guided their child’s play around the space. This caveat also applies to the differences described below that approached statistical significance; the results do not determine why the differences in visitation were seen, but rather that there is only a 15% chance the differences were caused by chance.

The average combined dwell time of elements in the Kitchen approached but did not reach statistical significance: 02:04 for the girls observed and 01:22 for the boys (two-tail $p = .150$). This was also true for the average combined dwell time of elements in the Garage: 01:44 for the girls observed and 02:52 for the boys (two-tail $p = .150$).

Age

As age was approximated by the data collectors, there is a level of error expected in the data. To help mitigate this, two age categories were condensed for statistical testing: three-years-old and younger and four-years and older. In theory, the latter group would then be just four- and five-year-olds, but given information learned in interviews, six year olds still occasionally played in the space.

The overall dwell time in Little FarmHouse was significantly shorter for those over the age of three, compared to those three and younger (two tail $p = .001$).

12:13
4 years old and older



18:39
3 years old and younger

Two areas also saw statistically significant differences in average combined dwell time of elements in that portion of the exhibit space: the Tree and the Garage.

The average overall dwell in the Garage area, as well as in the Tree, were both significantly shorter for those over the age of three, compared to those younger.

Garage

3 years and younger: 02:57

4 years and older: 01:24

(two-tail $p = .027$)



Tree

3 years old and younger: 00:51

4 years and older: 00:22

(two-tail $p = .004$)



Average dwell time in both the Barn and the Farm & Market area also approached statistical significance but did not reach the 95% confidence interval. For the Barn, children 3 years old and younger averaged 03:33 for stay time, while children 4 years old and older averaged 02:39 (two-tail $p = .146$). In the Farm & Market area, 3 years and younger stay time averaged 03:08, while 4 years old and older averaged 02:09 (two tail $p = .194$).

Though we cannot say for certain, the likely explanation for this difference is that the shorter time seen in the older age group is a result of the fact, that in general, more of the museum is geared towards that age group. Though each exhibit has something for families with children three and younger, the Little FarmHouse is the only space explicitly labeled for early childhood and those five and younger.

Museum Capacity Level

When comparing slow days (daily attendance 650 and less) to busy days (daily attendance 850 or more), there were no findings that reached statistical significance. Two areas approached but did not reach the 95% confidence interval: the Nursery and the Barn.

In the Nursery on slow days average dwell time was 00:56, while on busy days it was 00:20 (two tail $p = .103$). In the Barn, slow day stay times averaged 03:43, compared to busy days at 02:32 (two tail $p = .136$). Possible explanations include the tightness of those two spaces themselves and the maximum comfortable capacity. The Nursery is a relatively small area off the kitchen inside the "House," while two of the Barn's key elements are the Chicken Coop & Hutch, also a more enclosed space (pictured above).



Qualitative Behavioral Observations

The behaviors described are intended to provide snapshots of family learning experiences the exhibit can facilitate. It is not meant to give an exact percentage of how often a specific behavior occurred. That said, all behaviors described below occurred a minimum of five separate observations. This decision was made by the evaluation team who determined that this level of recurrence indicated the behavior was not a one-off, but likely a pattern of play afforded by the exhibit. When appropriate, observed behaviors will be connected to related outcome indicators.

Object Play

Object play was seen in almost every observation. Providing ample opportunities for object play was a key priority in the planning and design of the renovated early childhood space which is reflected in the prop heavy nature of the exhibit. Within the Little FarmHouse space, engaging in object play coincided with indicators for both:

- *Curiosity and Interest:* Child uses fine motor skills and hand-eye coordination.
- *Exploring & Experimentation:* Child explores and responds to sensory input.



Eggs (& Chickens): In over a third of the observations, object play was observed with egg props. Specific play behaviors included using the slider to mimic the chicken “laying the egg” and gathering the eggs together, both demonstrating the practice of fine motor skills. Beyond the tactile, sensory exploration, there were also a handful of instances in which the child used the eggs for auditory exploration, clapping or banging them together or against other objects to create different noises.

Object play also led to...

Fine Motor Skills

Child used watering can on tractor's oil funnel.

Cause & Effect Actions

Child rolled eggs down the slide.

Exploring Auditory Sensory Input

Child was shaking the oil container to create noise from rattling around the beads inside.

And Pretend Play

Such as with the baby doll described in the next section



Fruits and Vegetables: In addition to the eggs, fruits and vegetables were regularly collected in mass and moved from one location to another. In an often methodical fashion, children were observed “picking” produce from their place on the wall and moving them to containers such as the wheelbarrow, baskets, the bed of the tractor, and the scale at the farmstand . In addition to the fine motor skill practice involved, such as adapting their grip to the variety of food shapes, the transfer of the objects also provided a chance for more gross motor development: pushing the full wheelbarrow, walking while holding onto the fruits and vegetables or a basket they were in.

Pretend Play

Pretend play and/or storytelling behavior was also seen in almost every observation. Engaging in pretend play coincided with the following indicators:

- *Environmental & Cultural Connectivity:* Children practice caring for animals, babies, and plants.
- *Environmental & Cultural Connectivity:* Family makes farm-to-table connections.
- *Embracing Playful Discovery:* Child engages in pretend play and imaginative scenarios.



Baby Dolls: Pretend play with the babydolls was also a common occurrence. While caring for the dolls did occur in expected ways in the Nursey and Kitchen, where the props are originally set, such as putting the baby to sleep in the crib, feeding the child, or asking a caregiver for help reading a story, there were also more unexpected instances of object play with the dolls. While looking for a bathtub for the baby, a mom suggested the sink instead, a suggestion the child followed.

Pretend play also led to...

Problem-Solving & Novel Play

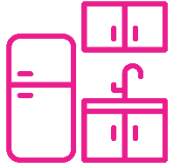
Child put baby doll in the scale at farmstand and pushed lightly as a swing.

Spontaneous Connections

Child “picked” carrot in Farm & Market area, bringing it back to the Hutch to “feed” the bunnies.

And Chances for Caregiver Scaffolding

Such as with the truck & tractor described in the next section.



Playing House in the Kitchen: Similar to baby doll centered play, observed play in the kitchen demonstrated another instance of the interconnectedness of object play and pretend play. Whether sweeping the area with a prop broom or removing food from the fridge to make a recipe based on the cookbook affixed to the island, object play was integral to the situations the children enacted. As noted by the caregivers in later sections of this report, much of the pretend play observed seemed to be imitating things they saw their caregivers do in everyday life. This also sparked opportunities for family learning with adults helping children problem solve tasks like fitting dishes in the dishwasher or accept an offer of “food” the child made for them.



Bunny Rabbits: While the chickens were a popular prop played with in conjunction with the eggs, when looking at pretend and object play that centered on the animal itself, the bunnies in the hutch were the more popular choice among our sample. Several observations saw a child select and hold a bunny from the hutch, only to continue to carry it around to all other elements visited for the rest of their time in the space. More explicit instances of care were also seen, including the example in the previous page (under ‘Spontaneous Connections’).



Growing Plants & Food: During observation, children also demonstrated care for the plants in the garden area of the farm & market. Watering can props were used to “water” the growing vegetables in the lower bed on several occasions. There were also instances demonstrating some of the children were making connections between the food they eat at home and food in the garden of the farm & market area. In one observation, a child pretended to eat one of the plastic apples, adding a sound effect for her bite into it. In other observations, children brought either baskets or the wheelbarrow into the kitchen in the house, using them for cooking.

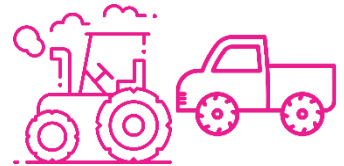
Caregivers Supporting Their Child(ren)'s Play

In roughly 2/3 observations, the caregivers provided some sort of scaffolding for their child(ren)'s learning. This scaffolding aligned with the following indicators:

- *Curiosity & Interest:* Child or caregiver directs the other's attention to something interesting (pointing, reaching, leading, beckoning, handing an object).
- *Embracing Playful Discovery:* Caregiver scaffolds child's learning by reading, modeling, explaining, prompting, providing physical support, etc.



Vehicles and Prompting: The two large vehicle elements- the truck and the tractor- both had strong attraction power, while possessing unique limitation



in that realistically only one child can be the "driver" at a time. At both, caregivers often supported their child by **prompting prosocial behaviors** such as taking turns and being aware of others, as well as waiting or redirecting to another element until the truck or tractor was free. The truck and tractor also both invited pretend play, an opportunity many caregivers took advantage of, furthering the pretend play with **prompting questions**.

Quick we have to fix the truck, but how?!

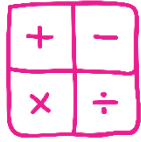
What are you going to do with the tractor today? Plow the field?



Milking and Modeling: The Milking Parlor was a particularly common spot for modeling. Given the life size nature of the cow, many children were drawn to it



and the milking machine. Often, caregivers stepped in here to show their child how it worked **modeling** "milking" the cow, sometimes followed by **hand over hand guiding**, before letting the child try the activity independently.



Garden & Market and Math Skills: In the Farm & Market area, some caregivers scaffolded their child's play and learning by encouraging the use of **math skills**, whether in picking the vegetables or selling them at the farmstand.



What's more 25 or 26 cents?

I'd like to buy 5 carrots and 3 corn and 1 tomato... Can you go pick those?

Caregiver Interviews

Overall Exhibit Impressions

The first question asked of caregivers was "What would you tell a friend or family member about the Little FarmHouse space," to elicit the primary aspects of the exhibit that families most valued. The following overall exhibit impressions come largely from that first question, though not exclusively.

Age Appropriate: First and foremost, caregivers noted they appreciated the fact FarmHouse was a dedicated exhibit for their children 0-5 years old. Visitors could tell the space and elements were designed particularly for this developmental age and their families.

That it's a great little section for like itty-bitty ones.

There's lots of age-appropriate things to do.

Not only that it was appropriate for early childhood, but caregivers noted it served well all ages within that 0-5 range and the vast developmental stages across those ages. This was noted both by caregivers with very young children who will age into the more advanced interactions and elements of Little FarmHouse as well as those with multiple children in the 0-5 year old age group.

This [Little FarmHouse] will probably be a fun area for him for many years.

There's lots of different activities for a pretty wide range of age children.



Safe: Also associated with the concept of “age-appropriateness” was the extra sense of safety the space gave caregivers. When asked to clarify what created that sense of safety, caregivers referenced a number of reasons including the props all being large enough to not worry about choking hazards, the cleanliness of props, the padding inside of the climbing structure, and, the most commonly cited, the gate that kept the exhibit enclosed. Caregivers expressed they appreciated this safety for the peace of mind it gave them, as well as the fact it allowed their child(ren) to be more autonomous and engage in independent play.

It's a really safe space region, to just kind of let them do their thing.

We liked it because it was still closed off too. So you can kind of let them run around a little more freely, while still keeping an eye on them, but don't worry so much that they're going to get away from you.



Lots to Learn: The educational value of the exhibit was also mentioned frequently by caregivers. The opportunities for learning were discussed in a general sense, as well as specifically surrounding *real life*: familiar and unfamiliar, farm life, and where food comes from.

It's really nice, and I like to say it's growing her brain...

I think it really shows like how things work for kids like farm to table...

I feel like you actually get to- the kids really get to enjoy the farm life; they get the vegetables. They get the chickens...

Engaging, Interactive, & Hands-on: Caregivers often used words such as “engaging,” “interactive,” and “hands-on,” when describing what they would tell a friend about the exhibit space. Beyond that, adults described enjoying that somewhere within the interactives and pretend play environments, children often encountered at least one thing familiar to them.

We have chickens at home, so she likes the ones here.

The kids can interact with so many things that are here.

I think because she sees me cooking a lot, and so she loves to be involved in that.

Outcome Indicator Connection

- *Environmental & Cultural Connectivity:* Child or caregiver make associations to past experiences or other events happening outside of their visit to the museum.

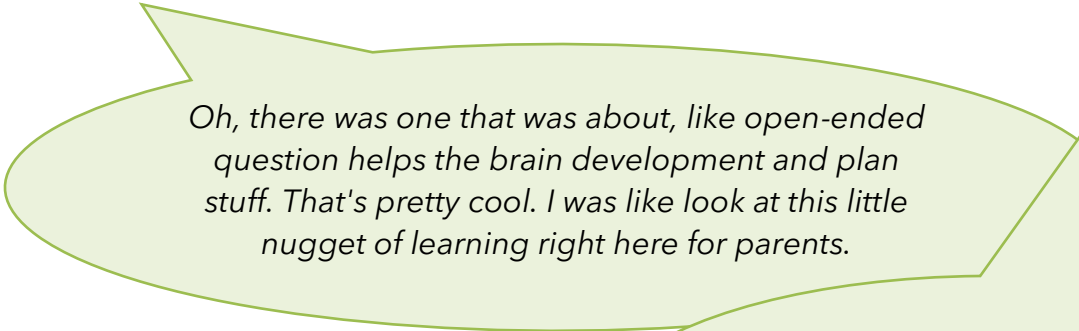


Signage

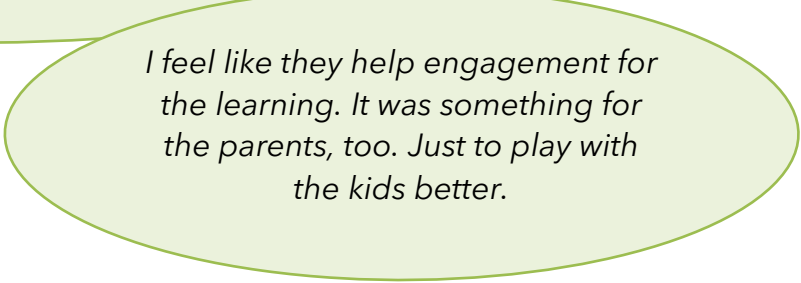
A particular area of interest was understanding how, if at all, adults were interacting with the signage in the space. Most caregivers reported not noticing the signage in the exhibit, though some with the caveat that they had noticed them on their first visit to the space for those returning. Others explained they planned to pay greater attention when their child was older and learning to read.

Roughly **20%** of caregivers brought up the “Ick Buckets” stationed around the exhibits for toys that children put in their mouth for staff to clean. The next most referenced signage was those outside of the Meadow, denoting the space for new or non-walkers and asking those entering to remove their shoes. The labels throughout the exhibit were also cited several times, as well as the Spanish translations, describing using them to help kids identify vegetables and fruits, teach new words, or to practice Spanish.

10% of those interviewed did speak about the “Play Tip” signs that provided child development insights and prompts for specific play, as seen below.



Oh, there was one that was about, like open-ended question helps the brain development and plan stuff. That's pretty cool. I was like look at this little nugget of learning right here for parents.



I feel like they help engagement for the learning. It was something for the parents, too. Just to play with the kids better.

Lessons Learned

Time & Tracking in a New and Non-Walker Space

The Evaluation team determined that the relative lack of representation for those under 24 months was likely due to Time & Tracking protocols in place. For example, every subject observed had to cross the threshold themselves, while many of FarmHouse's youngest visitors are carried in and around the exhibit, placed down only on occasion. At this point, a separate timing and tracking study with behavioral observations was planned for just within the Meadow with a sample of 20.

Interviewing Caregivers of the Very Young

Initial interview protocol called for recruitment and the interview to occur immediately outside of Little FarmHouse upon the family's exit; however, this was quickly seen to be an imperfect method. It was observed that given the young nature of the children with the caregivers, several groups were being systematically excluded from participation.

- Single caregivers were less likely to agree, given they did not have the option for the other adult to continue visiting the museum with the child(ren), while they responded to questions.
- Interviewers had difficulty stopping caregivers of more excited, hyperactive children who ran out of the space, with the parent quickly trying to catch up.
- Caregivers able to simply hold their child for the three questions, given the child would allow it, were much more likely to participate.

With these considerations, protocol was adapted to include a wider variety of recruitment methods. If families had spent at least 10 minutes in the Little FarmHouse space, data collectors could approach families still in the exhibit space, allowing parents greater ability to answer questions while their child played in the enclosed space. Walk and talk interviews were also implemented, where in the initial recruitment data collectors told caregivers they were happy to follow the family to the next exhibit space the child wanted to explore. These strategies were successful in ensuring the

sample was more representative of the full spectrum of families visiting the museum and Little FarmHouse exhibit.

Reaffirming the Need for Mixed Methods in the Study of Imaginative Play Spaces

Given the prop-heavy nature of the exhibit and its goal of encouraging imaginative, pretend play, time & tracking data alone did not tell the full story of a child's engagement. While data collectors were instructed to do brief resets before observations to mitigate issues such as a child not stopping at the chicken coop because both chickens were taken to the Nursery, the exhibit was still in active use by general admissions families during evaluation. That meant not every prop was where it was "supposed" to be. For instance, if data collection was exclusively quantitative time & tracking, these two interactions may look the same:

- During a child's third stop, they interacted with the tractor for 45 seconds, first playing in the driver's seat, then taking oil from the bed of the tractor to pour into a spout on the vehicle.
- During a child's third stop, they interacted with the tractor for 45 seconds. In the bed of the tractor, they banged together eggs another child had brought over to make different noises. They then put the eggs in the blender from the Kitchen that had also been left in the tractor bed by another guest, before finally putting them in the oil spout of the tractor.

Physically both children were engaged at the tractor element; however, the second was also very heavily engaged with the props not designed to be explicitly associated with that element (such as the eggs at the chicken coop), but rather left behind by another child. In this way, supplemental written in behavioral observations were critical to ensuring accurate depiction of play, especially as it related to props.

Standardizing Behavioral Observations

The free form qualitative behavioral observation protocol did have benefits: allow for data collectors to observe and document behavior beyond pre-conceived ideas of play in the area, there were negatives to the approach that were experienced as well.

The number of observations and level of detail varied by

- the individual data collector
- the observed child themselves
 - For example, a child rapidly going to many spots, often ended up with fewer behavioral observations, as data collectors had less down time to write these qualitative notes.

This informed a change in how behavioral observations were noted during another summative exhibit evaluation of a newly renovated natural science space.

- Free form notes were still encouraged, especially quotes from the child or caregiver or unusual means of engagement with an element.
- However, each element was also given specific behaviors to be either checked or left blank to denote the presence of absence of such behavior to remedy the lack of standardized seen in LFH behavioral observations.

Aligning Exhibit Evaluations to Organizational Impact Framework

The importance of spending time on audience impact strategy and creating a unique organizational framework with specific outcomes was very evident in this process, as well. Building upon prior work in this area with Kera Collective, the evaluation team was able to use those outcomes as a starting point for defining what they each looked like in Little FarmHouse. In turn, keeping those exhibit specific and larger organizational outcomes tightly connected ensured alignment in not only our goals, but how the success of the exhibit was defined and evaluated.

Appendices

A. Little FarmHouse Outcomes & Indicators

B. Little FarmHouse Time & Tracking Sheet

C. Little FarmHouse Meadow Focused Time & Tracking Sheet

Full appendices available upon request.