AlegreMENTE / Happy Brain Exhibition

Summative Evaluation Report

Final Report: August 15, 2022

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BACKGROUND

Study Purpose & Methods

AlegreMENTE: Celebrando Conexiones Tempranas / Happy Brain: Celebrating Early Connections (hereafter referred to as *AlegreMENTE)* is a traveling exhibition designed for caregivers of children ages 0-5, seeking to convey research-based information that caregivers' playful, loving interactions supports children's brain development and has lifelong benefits. The bilingual, 1,500 square-foot exhibition was developed by the Oregon Museum of Science & Industry (OMSI). For summative evaluation, the exhibition was installed and tested in two locations – OMSI (a science center) and San Jose Children's Discovery Museum (CDM) in 2021-22. Evaluation focused on the use and response of caregivers within the target audience groups to the experience of exploring with their child(ren).

BACKGROUND

Exhibition Goals

Caregivers of young children (ages 0-5) were the target audience, with a focus on Latino caregivers. While the experience focused on play for young children, the exhibit messages were meant for their adult caregivers.

The exhibition's big idea reflected that the target audience for the exhibition's messages was adult visitors: **Research shows that your playful, loving interaction builds your child's brain and benefits your child for the rest of their life.** More specifically, the exhibition was designed to inform parents and caregivers about the neuroscience of the developing brain, while engaging families in developmentally appropriate experiences that support brain growth in the first years of life.

The 1,500 square-foot traveling exhibition was designed as a Spanish-first, bilingual exhibition, in collaboration with partners and advisors at Oregon Health & Science University, the Metropolitan Family Service "Ready, Set, Go!" Program, Vroom, and other organizations and experts.

In support of the messaging and experiential goals, *AlegreMENTE* was designed with several key strategies of representation, illustration of play, and inviting environment to promote adult-child engagement in interactive play on-site.

Key strategies that designers used to promote their goals included:

- Inclusive representation of race, gender, and caregiver roles and relationships
- Illustrations that model behaviors of adult-child interaction and connection
- Physically comfortable for both young children and adults
- Activities built to enable back-and-forth interaction and that assign roles for adults in the play
- Visual interest and interaction for both children and adults

Exhibition Design, Outcomes, & Indicators

The exhibition hoped to prompt adult-child interactive play beyond its walls - that caregivers can keep playing at home.

This objective was lofty, but the designers thought about different ways that their design choices were intentionally building toward that goal. Evaluators used the framework of the Theory of Planned Behavior (TPB), which is a theory focused on what is necessary to shift in an individual to lead to their ongoing behavioral change. The table below illustrates an overview of how the project team felt the exhibition's design supported future behavior change.

TPB Component	***AlegreMENTE* Design Strategies**	**Outcome** Caregivers will...	**Potential Indicators of Outcomes** Caregivers will...
Attitude about the behavior, whether it has value or benefit	Signage for caregivers about play behaviors, child development, and science of the "why" behind specific play behaviors. *Science Boost design elements and intro panels.	Understand that parent-child playful interaction is beneficial for young children and/or for their development.	• Be aware that the exhibition was designed to show benefits of play for children. (70%+) • Believe that brain development is one of the top 3 most important reasons why parent-child play is good for young children. (50%+) • Feel they learned something new about play behaviors and/or benefits for children (and can name what was learned). (30%+) • Look/read some signage while in the exhibit w/ child. (30%)
Normative Beliefs about what others expect of them	Interactive exhibition elements that model interactive play-strategies; reinforced with signage, activity stations, roles for adults, and materials. (Museum "norming" expected behaviors for parents.) *Try This design elements	Feel the exhibit validated or highlighted ways they are experts of their children's development, and that by connecting/playing with them, parents are helping their children.	• Report a sense that the exhibit validated that they are the most influential adult in their child's development. (50%+) • Report the exhibit reinforced that the play they already do with their child is helping the child. (50%+)
Perceived Behavioral Control, or the sense of ability to do the behavior	Designed with comfort and safety of *both* adults and small children in mind, to promote comfortable lingering and doing. Modeling only interactive play activities that any family could do at home.	Demonstrate comfort with a supportive caregiver role in their child's play. Feel they found at least one interactive play activity that they already do or could try.	• In the exhibition, take a supportive adult role at one or more of the interactive stations (e.g., co-player, facilitator, interpreter, supervisor). (70%+) • Able to name/identify specific types of interactive, adult-child play behaviors they encountered in the exhibition. (70%+) • Took one of the Vroom handouts home with them. (5%+)
Intent to Act → Action	The combination of everything above leads to the desired change. Offering take-home and posted information.	Intend to use (and then do use) one or more interactive play strategies at home.	• At the exhibition, can identify 1+ play strategy from the exhibition they plan to keep doing or newly start doing with their child. (50%+) • 4-6 weeks after visiting the exhibition, can identify 1+ play behavior they have done with their child (even if they did it previously) (30%+)

Background

>> Evaluation Questions

The summative evaluation of *AlegreMENTE / Happy Brain* was guided by several overarching evaluation questions, meant to consider the degree to which and ways in which the exhibition achieved its goals with adult caregivers who experienced the exhibition in its two locations.

The evaluation was conducted at the first two locations where the exhibition was installed – a science center (OMSI) and a children's museum (CDM). For the evaluation at both locations, the institutions made efforts to invite visitors from Latino community groups to come to the museum and explore the exhibition to ensure the inclusion of their perspectives in the summative study.

1. **To what extent does the exhibit experience in *AlegreMENTE* achieve its intended impacts with caregivers of young children?** In particular:
   - How well does it achieve these goals in a children's museum environment (compared with a science center)?
   - How well does it achieve these goals with Latino caregivers? Is there anything distinct in their response?

2. **What are key drivers to action in the exhibition?**
   - What exhibit components seem most effective at engaging adult interaction and/or leading to outcomes?
   - What outcome area(s) appear to be most activated by the experience (i.e., attitudes, norms, self-efficacy, or intention to act)?

3. **How effective is the exhibition at leading to play behaviors by caregivers in the 4-6 weeks after their exhibit experience?**

Methods: Observation

Observations: Timing & Tracking

We created an observational protocol for this exhibition that combined elements of exhibit timing and tracking, but more heavily emphasized coding of observable caregiver behaviors using a typology of adult-child interaction in museums (Adult-Child Interaction Inventory; Beaumont, 2010). Each observation focused on one adult caregiver's movement and behaviors, recording:

- Total stay-time;
- Elements the caregiver stopped at;
- Total time caregiver spent at an element;
- Caregiver behaviors interacting with child play at an element (co-player, facilitator, interpreter) and not interacting (supervisor, downtime)

Observations were un-cued and focused on a single caregiver per group. Notably, caregivers did not always stay side-by-side with a child during observations. Because exhibit goals were for the caregiver, observers focused on how the adult used the space and prompting of the adult to engage in playful interaction. Multiple caregiver behaviors were frequently recorded at a given stop, as adults shift between several roles.

Observation: Data Cleaning & Analysis

A total of 157 adults were observed and recorded during data collection; 89 at OMSI and 68 at CDM.

These data were first reviewed to filter out any tracks that had captured an incomplete exhibition visit. For example, if a caregiver entered the exhibition briefly, looked around a bit, but left very quickly – their observation does not represent the experience of visiting the exhibition (rather, it reflects the experience of passing through and choosing not to engage). Our data set filtered out 8 observations that were shorter than 2 minutes in duration (typically with fewer than 2 stops) and 3 observations where the data collector noted that it was an incomplete observation. This resulted in a final data set of 146 observations, with 79 from OMSI and 68 from CDM.

Remaining data were analyzed descriptively, including average stay-time, counts/percentages of visitors who stopped at each element, and frequencies of behaviors observed when stopped at an element and overall in the exhibition. Data were then compared between OMSI and CDM to look for differences in use by setting.

Methods: Exit Interview & Follow-up Survey

Exhibit Exit Interview + Questionnaire

To understand what meaning caregivers took from *AlegreMENTE*, we used a combined exit interview and questionnaire at the exit of the exhibition. We used open-ended questions to allow the caregiver to describe what they recalled or took away from the exhibition. Because exhibition outcomes included intent to engage in specific play behaviors at home, we used a structured questionnaire to present those play behaviors and allow caregivers to select what they already do at home and intend to try in the future. These questions were viewed and answered on a tablet, along with demographic data. Questionnaire data was then paired with interview data for analysis.

All data were collected by bilingual staff, who began each interaction by asking families if they preferred to be interviewed in English or Spanish. Questionnaires were presented in the language chosen by the visitor. A total of 157 interviews were collected, with 65 at OMSI and 92 at CDM. 42 interviews were conducted in Spanish. Not all adults completed the questionnaire (due to time and technical issues), so sample sizes vary.

Follow-up Survey

To explore whether or not caregivers actually followed through on intentions to play with their children following their visit, we used a follow-up online survey, distributed 4-6 weeks following the visitor's experience at *AlegreMENTE*. Caregivers were initially recruited to this study at the end of their exit interview at the museum. They were invited to provide an email address or SMS number to be contacted for a very short (<5 minute) follow-up survey, for which they would receive a $15 Amazon gift card.

In total, 66 visitors volunteered to be contacted for this portion of the evaluation (31 from OMSI and 35 from CDM). They were contacted on a rolling basis (timed so that the initial invitation was ~4 weeks from the date of their interview) via their preferred contact method, with 1 or 2 reminders. In response to this request, we received 32 caregiver responses about their ongoing play behaviors in the weeks following their visit (a 48% response rate, which is strong for a follow-up email survey).

Descriptive Analysis

Interview data were reviewed and a set of code books developed for categorizing the themes and ideas present in each caregiver's response to each question. Categories were designed to reflect both the exhibition goals and the words and phrases adults used to answer the questions. Each response was coded into the appropriate theme(s), with coding decisions reviewed and agreed upon by two evaluation team coders. Responses collected in Spanish were translated and coded by our team's bilingual evaluation partner, to ensure that any nuance of meaning in the original language was accurately reflected in the analysis.

Once qualitative data were coded, quantitative descriptive analysis was conducted, providing frequency counts of ideas that were expressed more and less often to each question. In addition, we further explored data to look for any areas of notable difference in the responses based on two variables: location (children's museum or science center) and ethnic identity (self-identified as Latino or not). Those are explored in sections at the end of this report.

RESULTS

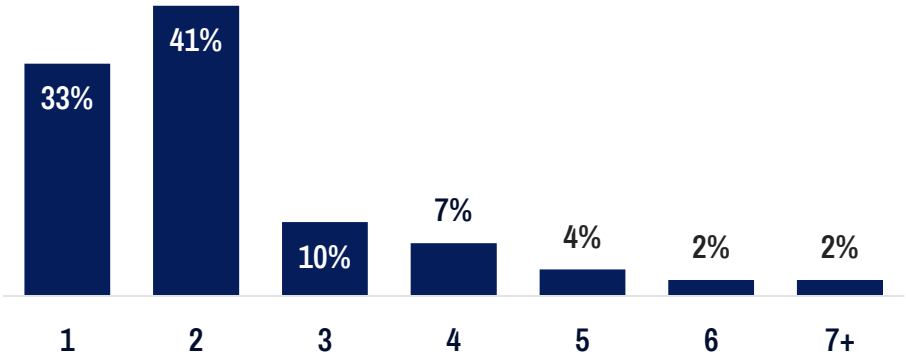
Study Participants: Demographics

Group Size & Composition

Groups observed and interviewed typically contained 1 to 2 adults and 1 to 2 children. There were no significant differences in group size or composition between the two museum locations in the evaluation.

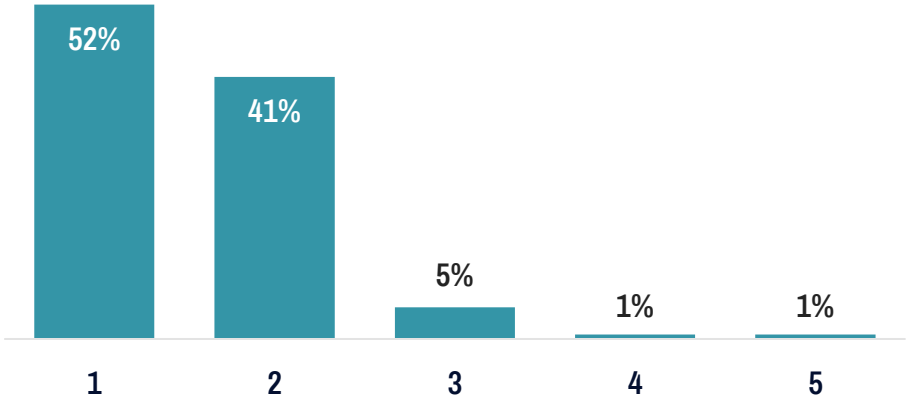
Exit Interviews – Number of Adults in Group

Self-reported via survey immediately following interview. (n=134)



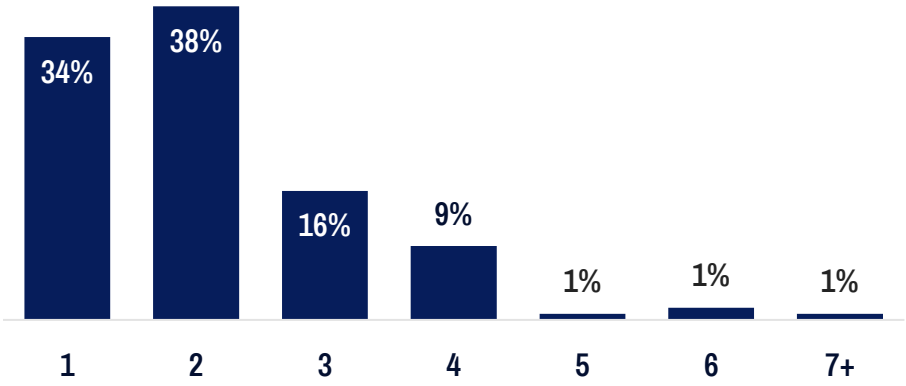
Observations – Number of Adults in Group

Based on adults present during observation. (n=141)



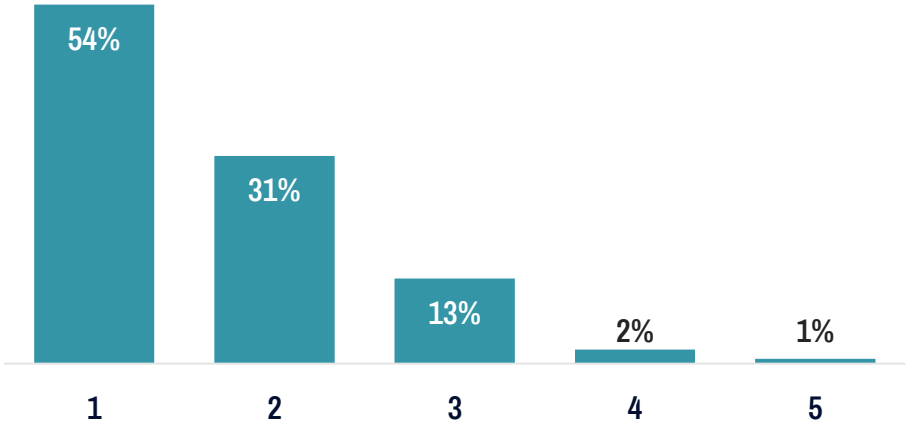
Exit Interviews – Number of Children in Group

Self-reported via survey immediately following interview. (n=134)



Observations – Number of Children in Group

Based on adults present during observation. (n=142)

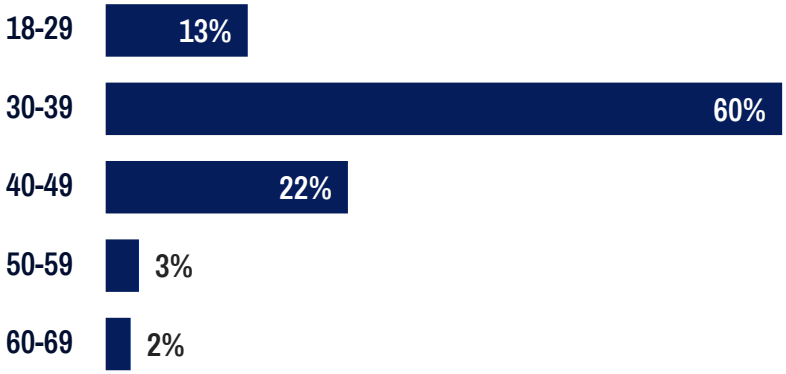


Ages of Adults & Children

Adults observed and interviewed were largely in their 30s, visiting with children 5 and under. There were no significant differences in ages represented across the two evaluation sites.

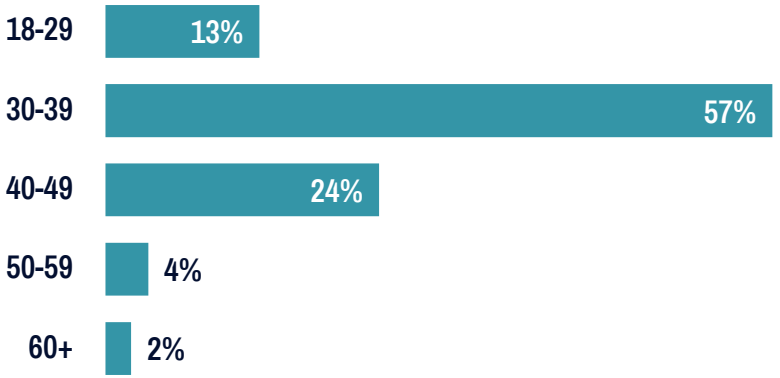
Exit Interviews – Age Ranges of Adults in Group

Self-reported age of primary adult who completed the interview and survey immediately following interview. (n=134)



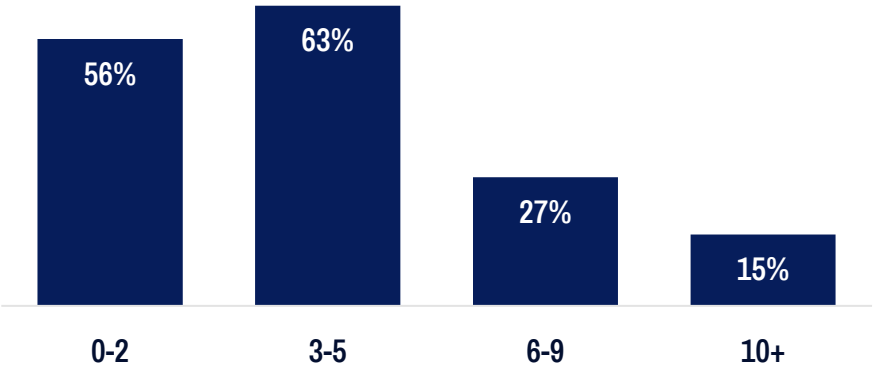
Observations – Approximate Age of Tracked Adults

Based on visual observation of the primary adult tracked in the observation. (n=141 tracked adults)



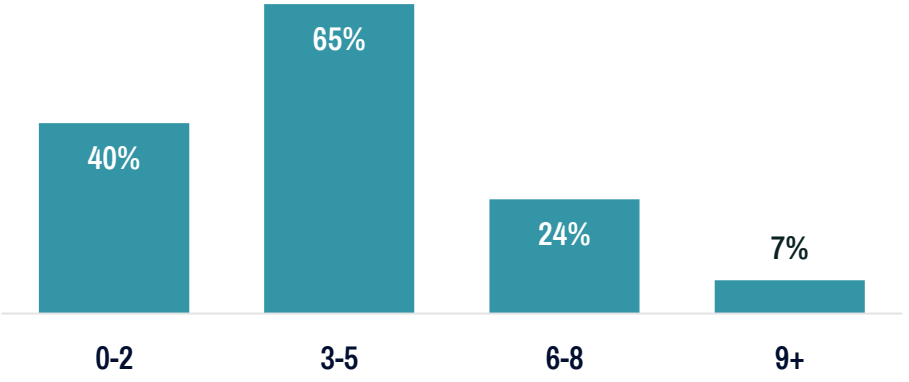
Exit Interviews – Ages of Children in Group

Self-reported via survey immediately following interview. Participants indicated any ages of children present in their group that day. Percentages show **how many groups contained children of that age**, so they will add up to more than 100%. (n=134)



Observations – Approx. Age of Children with Tracked Adults

Based on visual observation and best guess of the ages of any children accompanying the adult being observed. Percentages show **how many tracked adults were visiting with children of that age**, so they will add up to more than 100%. (n=146)

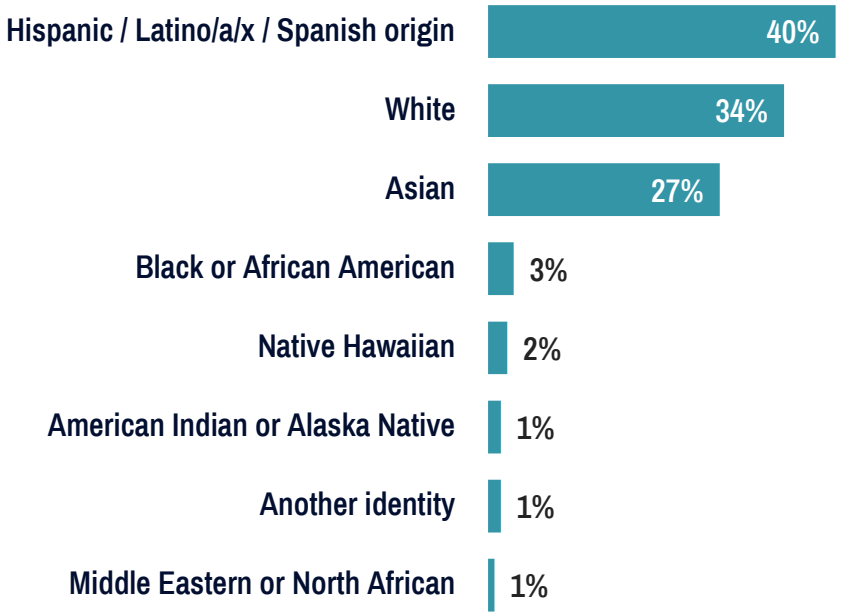


Race, Ethnicity, Gender, & Languages Spoken

Forty percent of the sampled visitors identified as Latino and 37% reported that Spanish is spoken in the home.

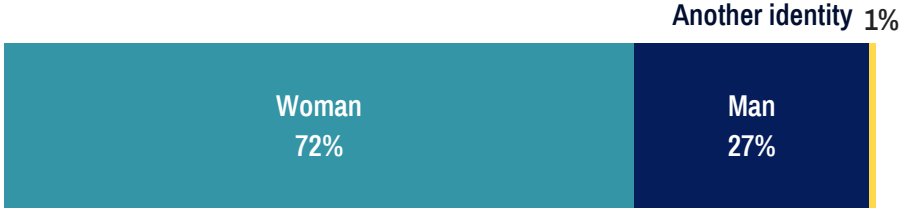
Exit Interviews – Race & Ethnicity

Self-reported via survey immediately following interview. (n=134)



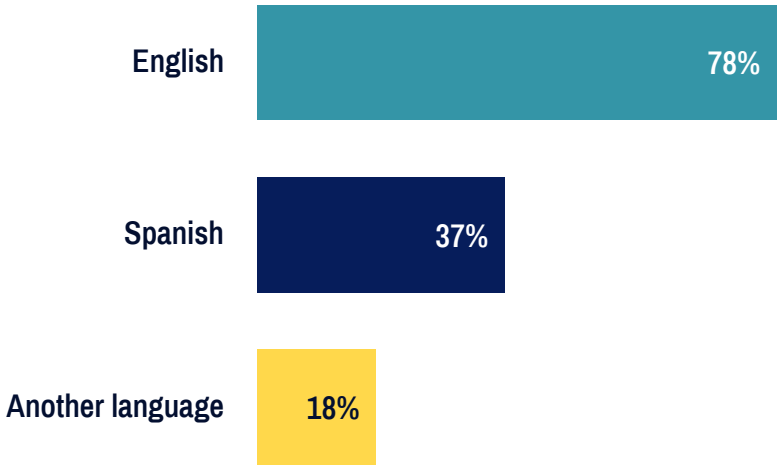
Exit Interviews – Gender of Primary Respondent

Self-reported via survey immediately following interview. (n=134)



Exit Interviews - Languages spoken at home

Participants were asked via survey immediately following their exit interview which languages they spoke at home. Other reported languages included Chinese, Mandarin, Japanese, Cantonese, Tagalog, Turkish, and Irish, among others. (n=134)



Chosen language for Follow-Up Survey

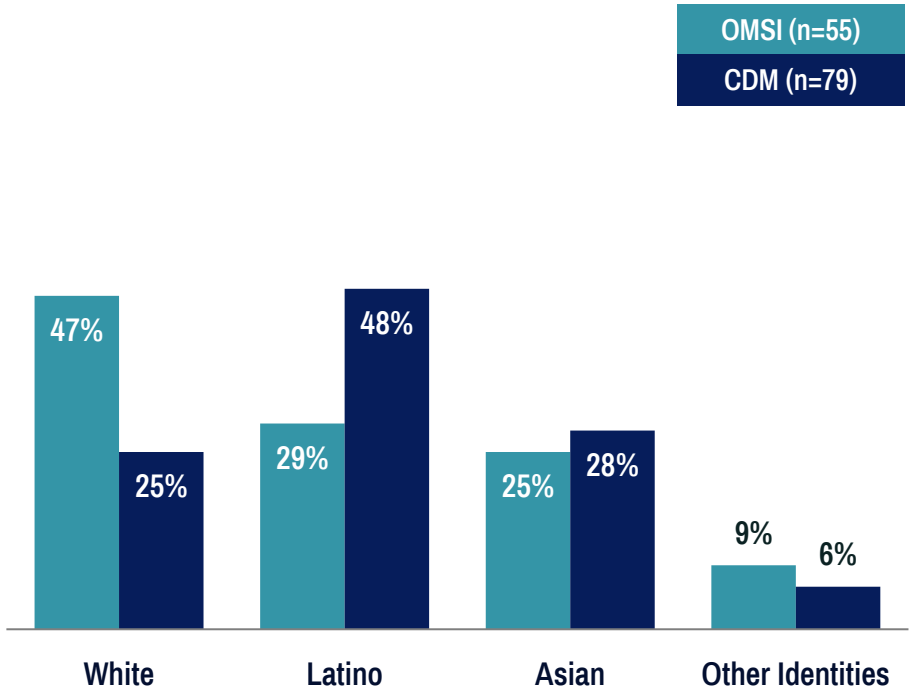
Participants had the option to take the Follow-Up Survey in English or Spanish. The survey sent to participants defaulted to the language they did their exit interview in, with the option to switch between English and Spanish. (n=32)

Differences by Museum: Race/Ethnicity & Languages

Visitors included in the study at CDM tended to represent a greater diversity of racial/ethnic identities; they were also more likely to speak Spanish at home. Beyond these factors, the samples from the two sites were demographically very similar, including the rate at which they opted to have the exit interview conducted in Spanish.

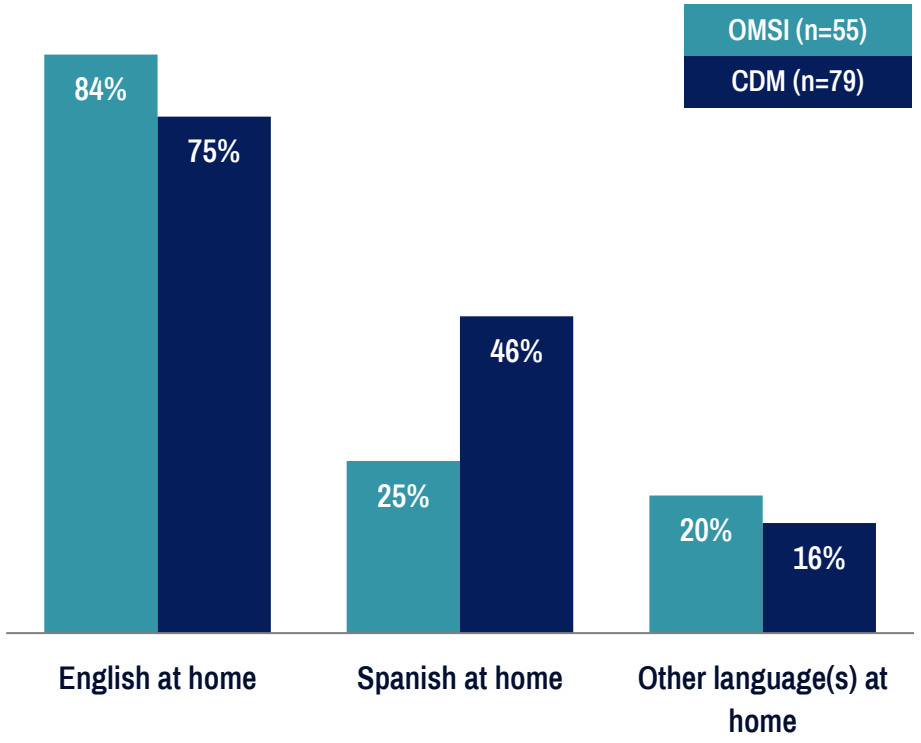
Self-Reported Race & Ethnicity, by Museum Site

Race/ethnicity categories self-reported via survey immediately following interview; for this graph, any visitor who selected an identity other than Asian, Latino, or white are combined (as there were very few in the other categories). Respondents could choose multiple identities that applied to them; percentages total more than 100%.



Languages Spoken at Home, by Museum Site

Self-reported language(s) spoken at home reported via survey immediately following their exit interview. Due to households that spoke multiple languages at home, percentages total more than 100%.



RESULTS

Exhibition Use & Behaviors

AlegreMENTE Exhibit Elements

The *AlegreMENTE* exhibition featured 10 distinct elements, each of which was geared toward helping caregivers of children aged 0-5 better understand how to support growing brains in this critical window of development.

Exhibit elements, listed and described in the table to the right, provided materials and guidance for a range of open-ended activities aimed at getting caregivers to take an active play role with their child. Through the play activities and supporting signage, encouraging interaction, the exhibition sought to model and guide parents to think about and understand how playful, loving interactions with children benefit their brain development over time.

Throughout this section of the report, results describe how visitors used each exhibit element. The focus is on how and where each element prompted adult-child interaction centered on play; specific categories of interaction are described on page 19. In addition, results share when adults were engaged in "downtime," or not attending to a child or the activity, stepping back, reading other material (e.g., a map), looking at a phone, or otherwise having a moment of rest.

	Element	Description
	**Lighting Up the Brain** **Illuminando el cerebro**	Interactive table illustrating how neurons make connections through lights and sound
	**Fount of Wisdom** **Fuente de sabiduría**	Information about brain anatomy and development for adults; interactive buttons with sound for children
	**Tell Me a Tale** **Cuéntame un cuento**	Table featuring stones labeled with words and images for creating and telling stories
	**Story Nook** **Rinconcito de historias**	Quiet area for sitting and reading books in both English and Spanish
	**Show Me Happy** **Cara feliz**	Large mirror with rotating wheel featuring different facial expressions to describe or imitate
	**Infant Pool** **Piscina infantil**	Pool-themed area designed for babies including high-contrast images, cushions, and a ball pit
	**Stack It Up** **Uno encima de otro**	Interactive table with stackable blocks and dowels, a scale, and a slot to deposit pieces down a ramp
	**Vroom Resources** **Recursos de Vroom**	Three-sided kiosk featuring resources for caregivers, videos, and take-home materials in many languages
	**A Space to Share** **Un espacio para compartir**	Table with paper and drawing supplies along with wall mounts to leave drawings for others to see
	**Happy Dance** **Fiesta alegre**	Interactive dance area with digital screen that tracks and reflects body movement

Where Caregivers Stopped: Observation Data

Element	OMSI % Stopped (n=79)	CDM % Stopped (n=67)
Happy Dance	68%	69%
Lighting Up the Brain	48%	66%
Infant Pool	46%	63%
Stack It Up	43%	61%
Fount of Wisdom	33%	54%
Tell Me a Tale	33%	52%
Vroom Resources	24%	39%
Story Nook	22%	27%
Show Me Happy	32%	21%
A Space to Share	16%	39%

The higher-energy exhibit elements, which included physical and tactile interactive elements, were the most well-attended at both institutions.

The four elements most frequented by caregivers at both institutions (where over 40% of tracked visitors stopped), included Happy Dance, Lighting Up the Brain, the Infant Pool, and Stack It Up. Happy Dance, in particular, was very attractive at both installations. Each of these elements provided physical interactions, tactile materials, and movement, that were likely highly stimulating for young children.

Elements where we saw lower attention tended to be those that focused on quieter or lower-energy activities such as drawing, reading, and looking in mirrors. These elements also frequently had smaller footprints or were tucked in a corner of the exhibition.

Exhibit elements at CDM tended to be more well-visited, compared to OMSI; this may be due to the exhibition having fewer entrance/exits and a quieter, more enclosed space at CDM. At both sites, the most frequented stops were highly-visible elements with the largest footprints in the exhibition.

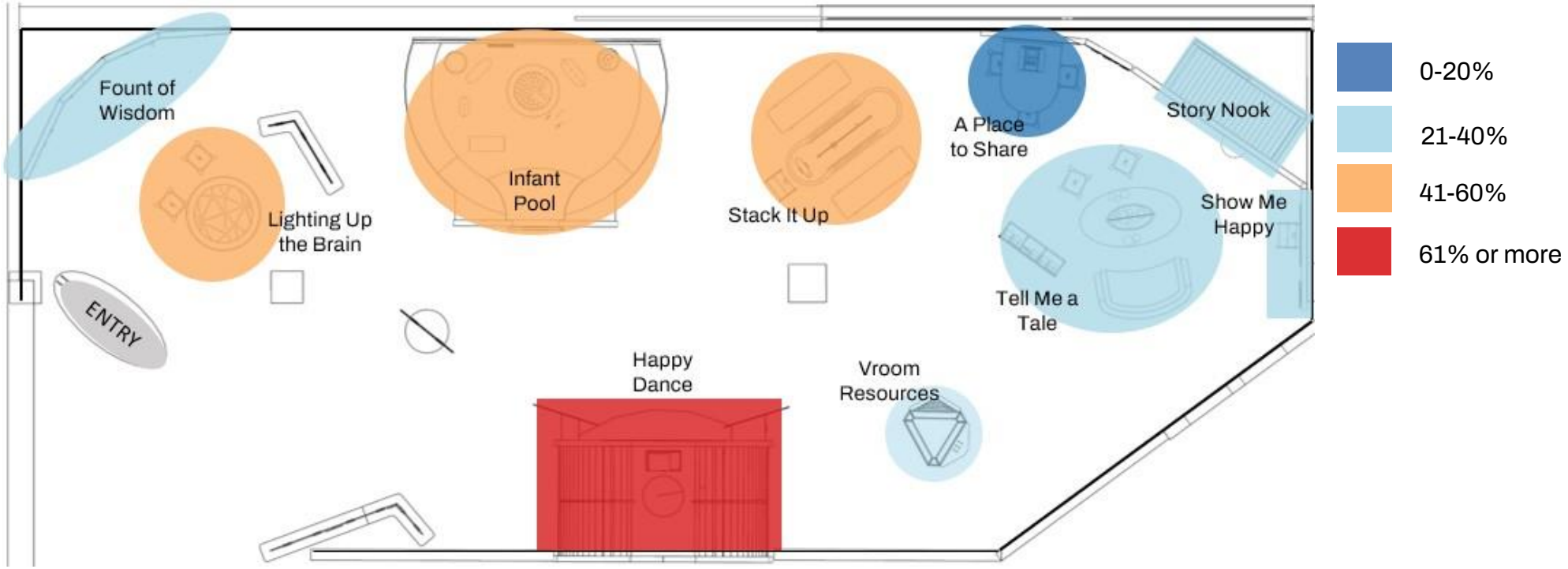
Where Visitors Stopped: OMSI

Caregivers at OMSI most frequently stopped at the large, central, and high-energy exhibit elements, such as Happy Dance and the Infant Pool.

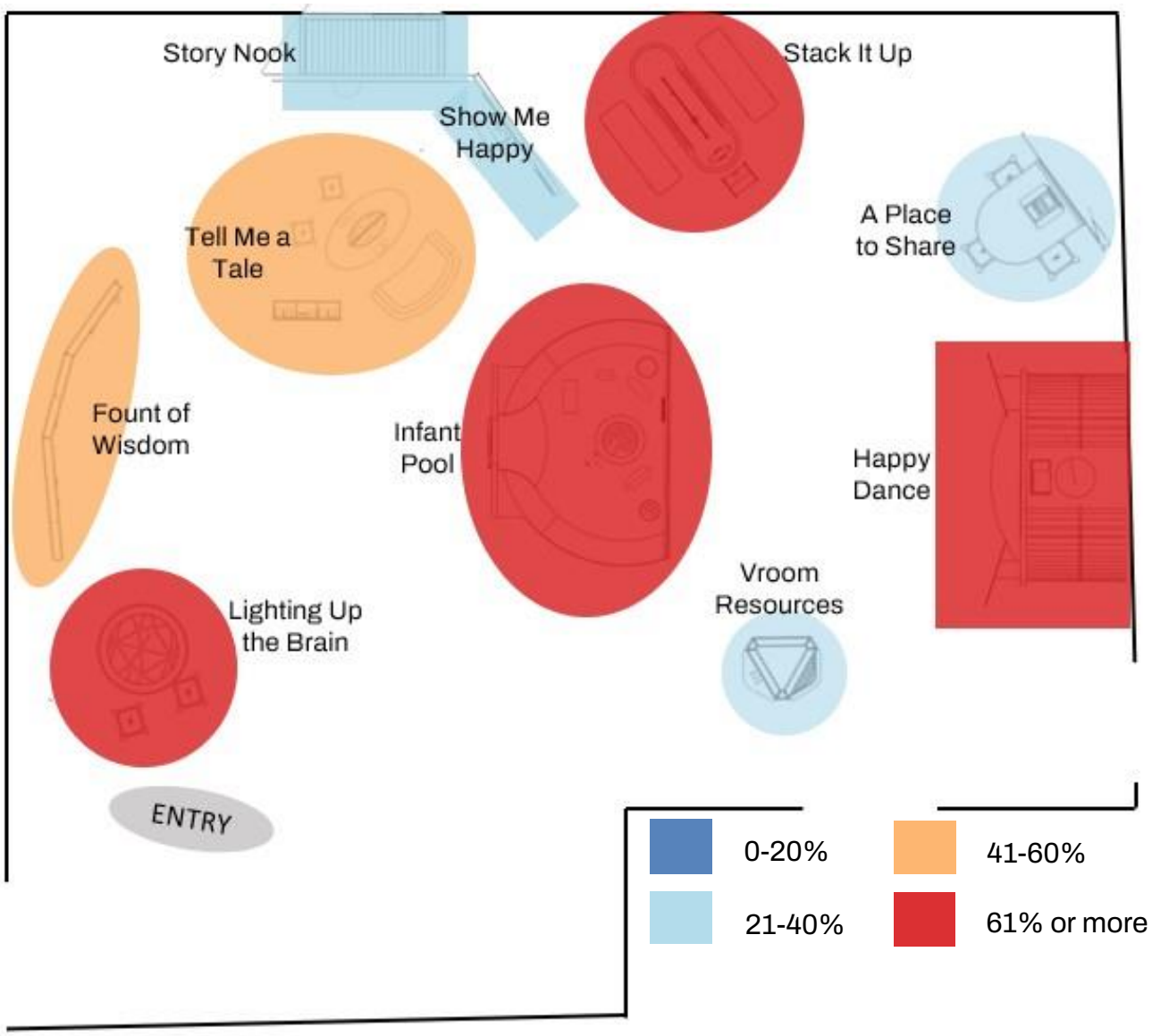
Groups may have been drawn to Happy Dance due to its large footprint, proximity to the entrance, sound, and the inherent fun of dancing as a play activity. Other exhibit elements that had high attraction were also in proximity to Happy Dance and provided opportunities to interact physically with materials or an interactive. These central elements also provided a line of sight throughout the exhibition, making them attractive places to dwell for caregivers who were playing a more supervisory role.

The elongated shape of the exhibition footprint, which caused elements to be spaced farther apart than they were at CDM, may have contributed to lower rates of use among the quieter, lower-energy activities, which also tended to be located further back from the main exhibition entrance.

For example, visitors may have seen the four elements set together in the far corner (A Place to Share, Tell Me a Tale, Story Nook, and Show Me Happy) as a single experience rather than individual elements. This clustering may have contributed to groups engaging with fewer elements overall in this area. A Place to Share had the lowest rate of attention among all elements at OMSI.



Where Visitors Stopped: CDM



Overall, exhibit elements were much more frequently used at CDM, possibly due to differences in the size and layout of the exhibition space.

Similar to element use at OMSI, caregivers seemed to be attracted to the larger, more interactive elements, which were again positioned centrally in the exhibition space at CDM. Happy Dance, Stack It Up, and the Infant Pool were all high attractors.

A Place to Share was positioned away from Tell Me a Tale and Story Nook at CDM, which may have contributed to higher rates of use among groups (compared to OMSI's installation). Nearly 40% of groups stopped at A Place to Share at CDM, compared to only 16% at OMSI. Similarly, the Vroom Resources were positioned between two high-traffic elements, which may have contributed to higher rates of use at CDM – 39% of groups stopped there, compared to 24% at OMSI.

The only element that had less use at CDM than at OMSI was Show Me Happy. This element, which is attached to Story Nook, is one of the quietest and least materials-based in the exhibition, which may contribute to its relatively low attraction factor.

Caregiver Roles by Exhibit Element

Observations focused on four roles that adults could take during interactions with children in the exhibit, described below.

This table summarizes how often each behavior was observed at each element. The rest of this section explores these data in detail.

Co-Player: Adult actively played with the child and participated in the activity at an exhibit element. This included the adult dancing, building, reading, drawing, and more.

Facilitator: Adult provided non-verbal scaffolding and/or reinforcement to support the child's play at an exhibit element. This included the adult physically showing the child how to do a task, smiling or nodding to encourage play, and more.

Interpreter: Adult provided verbal scaffolding and/or reinforcement to support the child's play at an exhibit element. This includes the adult giving praise, narrating the child's actions, answering questions, and more.

Supervisor: Adult was attentive to child, but played a behavior/safety monitoring role, rather than directly supporting the child's play. This includes keeping an eye on the child, intervening to solve conflict, taking photos, and more.

Observed play-supporting roles by caregivers at each exhibit element

At each stop, observers noted play-supporting caregiver behaviors; each role is described in the narrative to the left. Percentages represent the proportion of caregivers who stopped at that element and were observed taking a given role. Caregivers often exhibited multiple behaviors at one stop, so percentages total more than 100%.

Element	Co-Player % Observed	Facilitator % Observed	Interpreter % Observed	Supervisor % Observed
Story Nook	54%	9%	46%	40%
A Place to Share	51%	41%	49%	64%
Happy Dance	51%	22%	35%	54%
Stack It Up	41%	29%	37%	75%
Lighting Up the Brain	41%	18%	33%	44%
Fount of Wisdom	32%	21%	40%	44%
Tell Me a Tale	26%	16%	46%	52%
Infant Pool	21%	13%	35%	79%
Show Me Happy	21%	13%	31%	41%

Caregiver Roles: Whole Exhibition

***AlegreMENTE* prompted interactive play behaviors among the majority of caregivers in the exhibition, including over three-quarters of adults who engaged as a co-player at least once.**

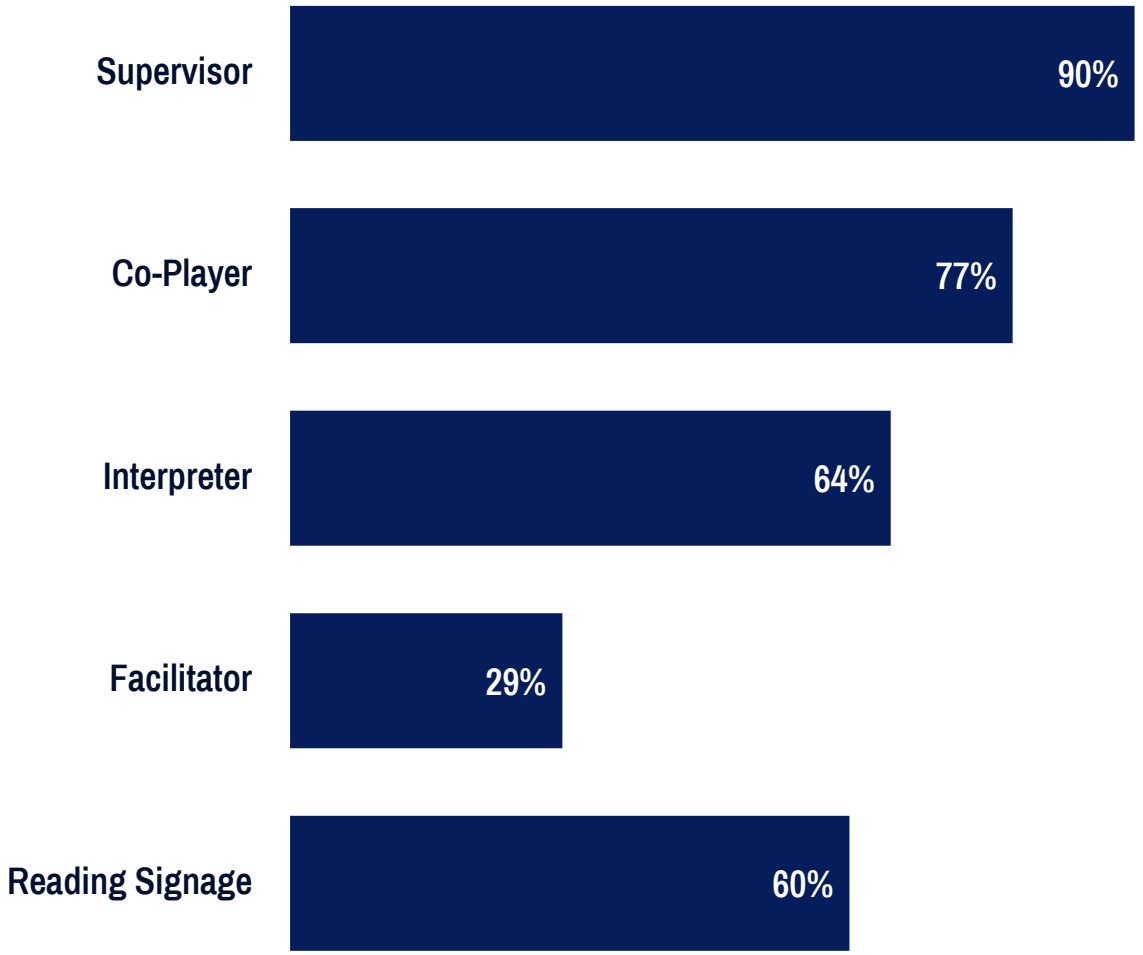
A notable finding here is that 77% of caregivers played an active co-player role with their child at least once during their visit. The Story Nook, Drawing Area, and Happy Dance were particularly strong at prompting co-play.

Adults more often verbally scaffolded play (Interpreter) rather than non-verbally (Facilitator), with 64% of adults overheard verbally supporting their child's play. It may have been that it was difficult for observers to distinguish non-verbal facilitation during the rapid movements of families around this playful exhibition.

Nine out of 10 adults observed in the exhibition played the role of Supervisor at least once. This role was most common at the Infant Pool area, with very young children and/or where caregivers sat and waited while children independently explored elsewhere in the space. In addition, 60% of adults were observed directing their attention to signage at least one time during their visit.

Percentage of observed adults that were seen engaging in one of the targeted adult roles at least once at an exhibit element during their time in *AlegreMENTE*

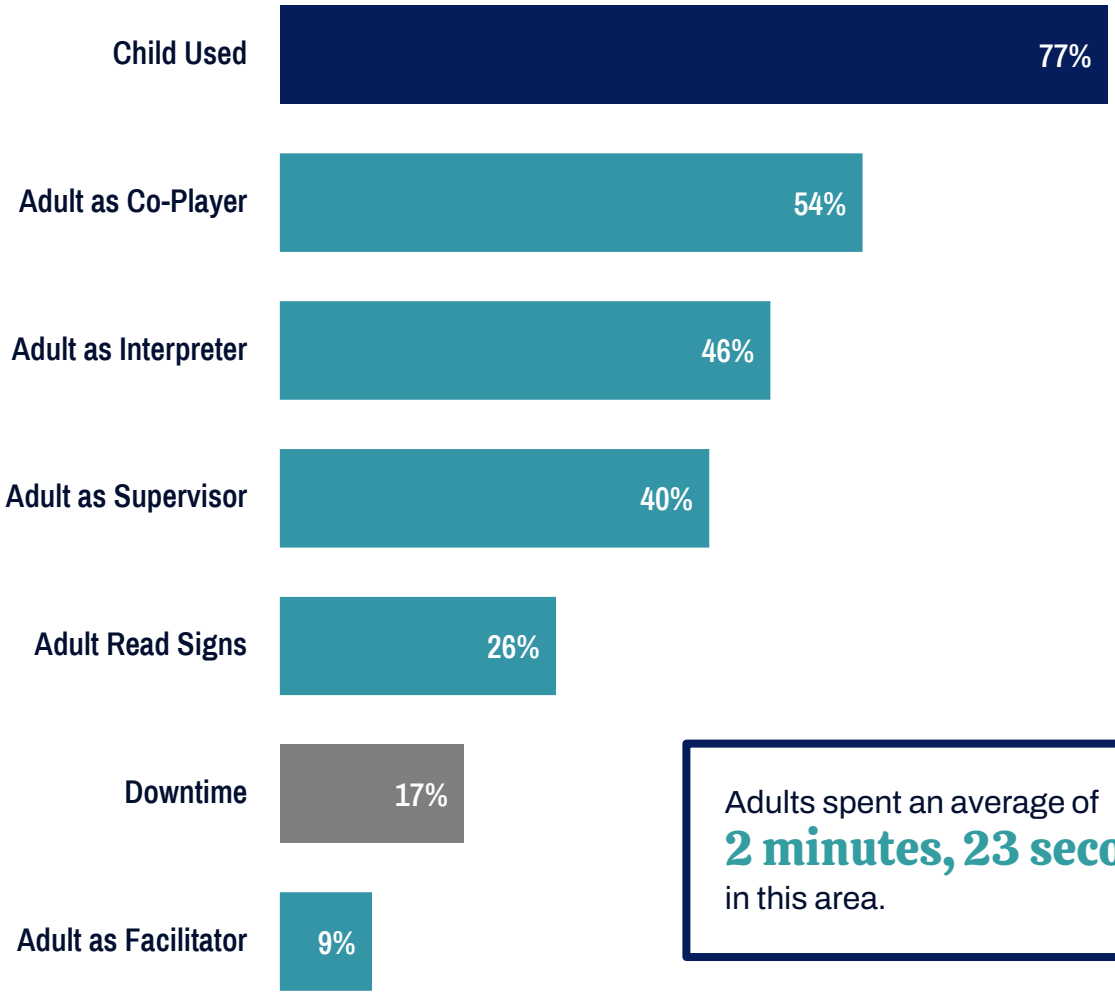
Percentage of observed behaviors of caregivers, aggregated across all observed elements. (n=146 caregivers)



Story Nook: Behaviors Observed

Frequency of types of caregiver behaviors recorded at the Story Nook

Percentage of caregiver observations where each behavior category was observed, among those groups where the observed caregiver stopped at this exhibit element. (n=35 caregivers)



Adults spent an average of
2 minutes, 23 seconds
in this area.

The Story Nook had the highest rate of caregivers acting as co-players among all exhibit elements in *AlegreMENTE*.

The Story Nook was very successful at prompting caregivers to act as co-players by looking at and reading books with their children. Additionally, nearly half of observed adults acted as an interpreter, supporting their children's interactions with books (even if the adult was not actively engaged in the play). Caregivers also spent a long time in this area – around 2.5 minutes on average.

Around 40% of adults were seen acting in a supervisory role in this area, which was the lowest rate of this role seen overall; likely because the activity was more stationary, quiet, and required less management of safety concerns. Around a quarter of caregivers attended to signage. Just 9% of adults supported play with physical scaffolding, likely due to the verbal nature of activities.

Rates of child use while the adult was present were lower at the Story Nook; this may indicate that caregivers used this area to sit and watch children elsewhere or looked through books themselves. Notably, although child use is lower, caregivers did not engage in substantial downtime.

Happy Dance: Behaviors Observed

About half of caregivers observed at this station engaged as co-players in the dancing activity; this was among the highest rates of co-playing observed.

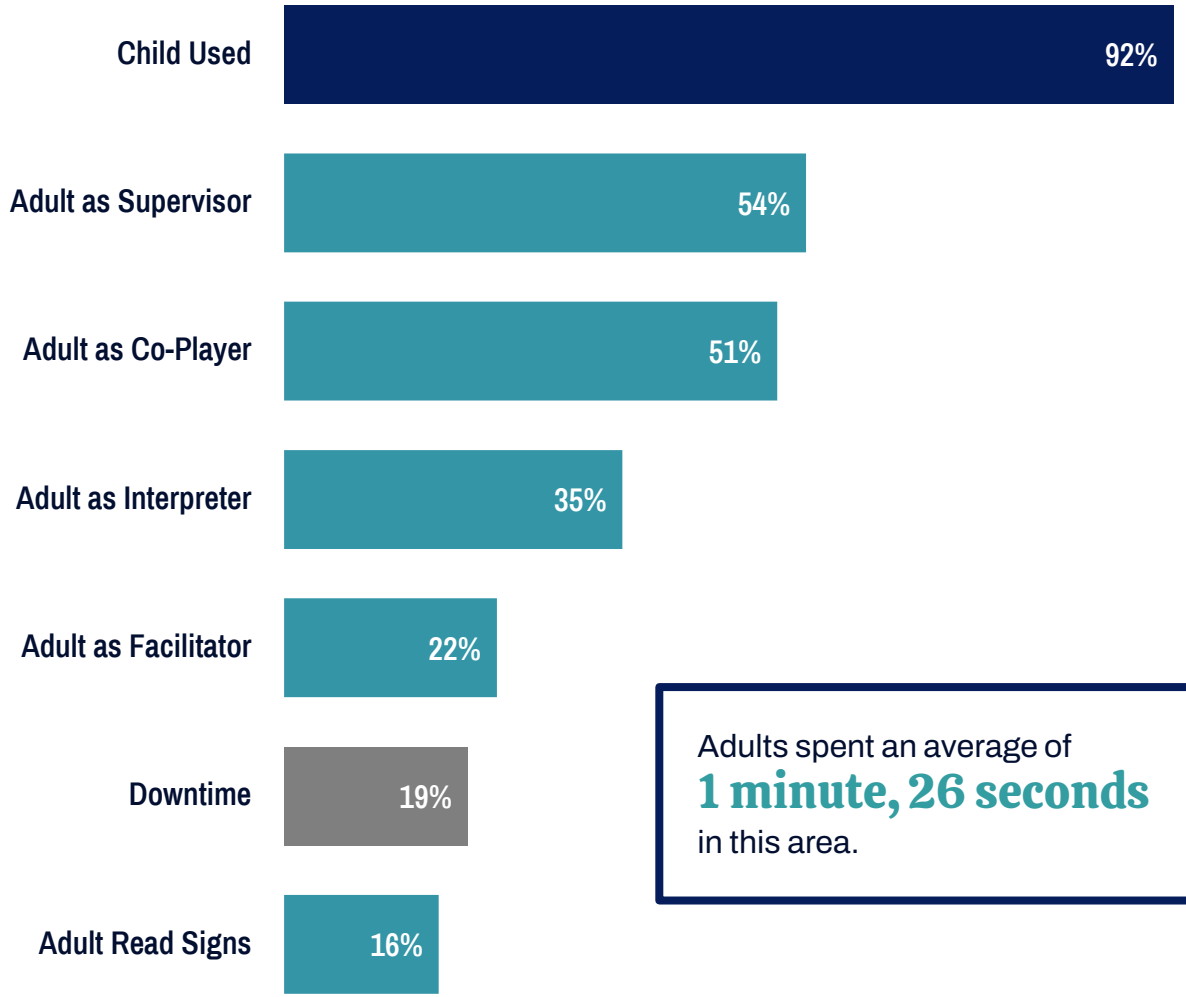
This element also resulted in relatively lower rates of caregivers observed taking a supervisory role, perhaps because the dancing activity was physically enclosed and contained and/or because the adults were actively engaging in play for more of their time at this element.

Over one-third of the caregivers observed here acted as interpreter, verbally instructing or guiding their child in how to engage and play with the interactive station, and around one-quarter were seen to non-verbally direct or scaffold their child's engagement.

Very little adult downtime was observed at this element, which was much more active and participatory and perhaps minimized opportunities for stepping back from the action. Reading of signage was not often observed; this was likely due to co-playing adults facing the interactive screen. Design emphasized interpretive text through on-screen prompts, and de-emphasized graphic panels at this element.

Frequency of types of caregiver behaviors recorded at Happy Dance

Percentage of caregiver observations where each behavior category was observed, among those groups where the observed caregiver stopped at this exhibit element. (n=100)

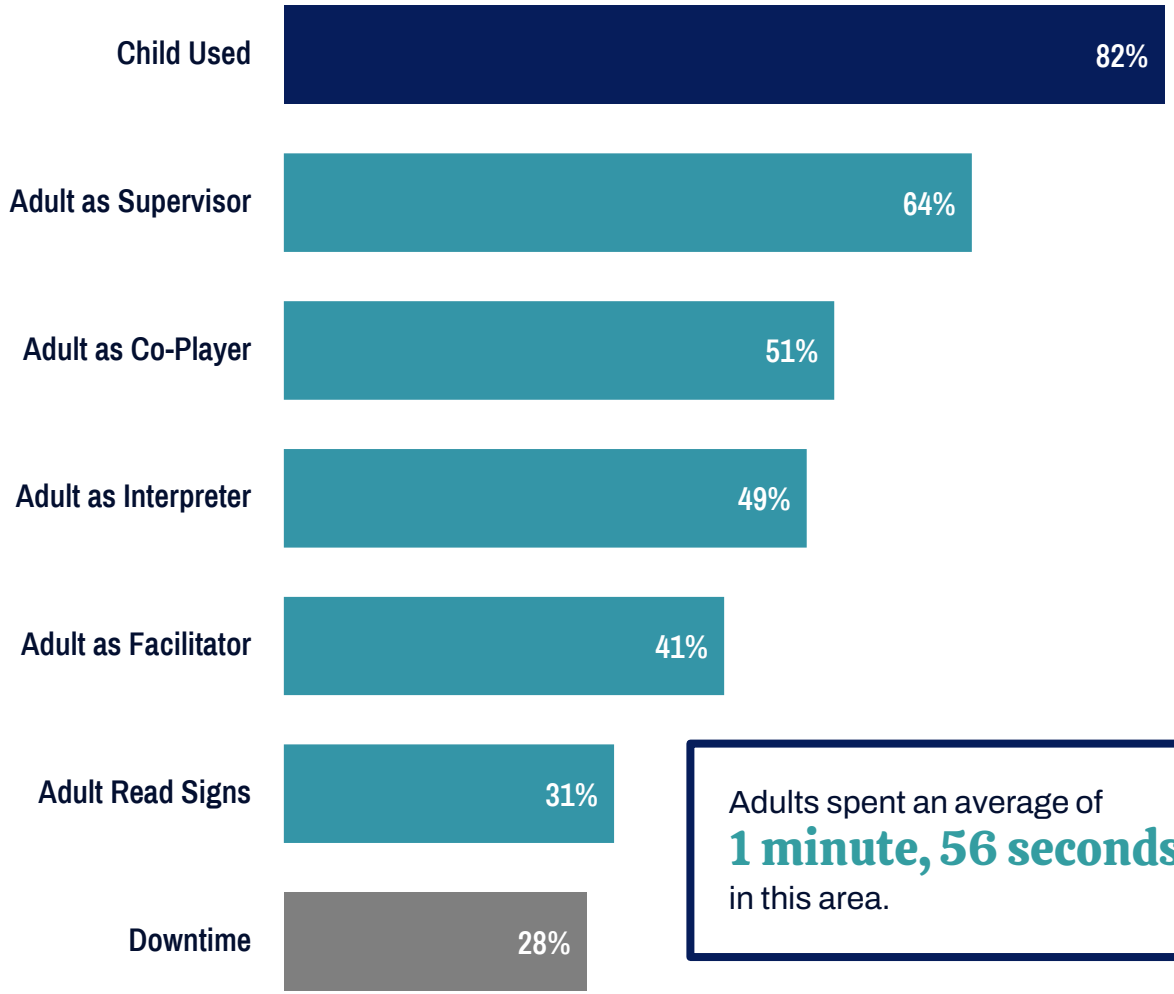


Adults spent an average of **1 minute, 26 seconds** in this area.

A Place to Share: Behaviors Observed

Frequency of types of caregiver behaviors recorded at A Place to Share

Percentage of caregiver observations where each behavior category was observed, among those groups where the observed caregiver stopped at this exhibit element. (n=62)



Adults spent an average of
1 minute, 56 seconds
in this area.

A Place to Share was an element that successfully prompted caregivers to step into a co-player role, with over half of observed caregivers at this station joining a child to draw with the materials provided.

Caregivers also tended to display interpreter and facilitator behaviors frequently at this exhibit element, verbally and non-verbally supporting their child in engaging with the activity. Between 40% and 50% of caregivers who stopped at this station showed those behaviors.

This was an element that also prompted slightly higher rates of adults reading the signage, with about 30% of those observed here showing attention to the interpretive signage. This was generally on the high end of how frequently adults were observed paying attention to the signs.

Although less often than other behaviors, over one-quarter of the caregivers observed were seen engaging in downtime at this element – moments when they were not attending to their child(ren) or the activity, stepping back, reading other material (e.g., a map), looking at a phone, or otherwise having a moment of downtime.

Stack It Up: Behaviors Observed

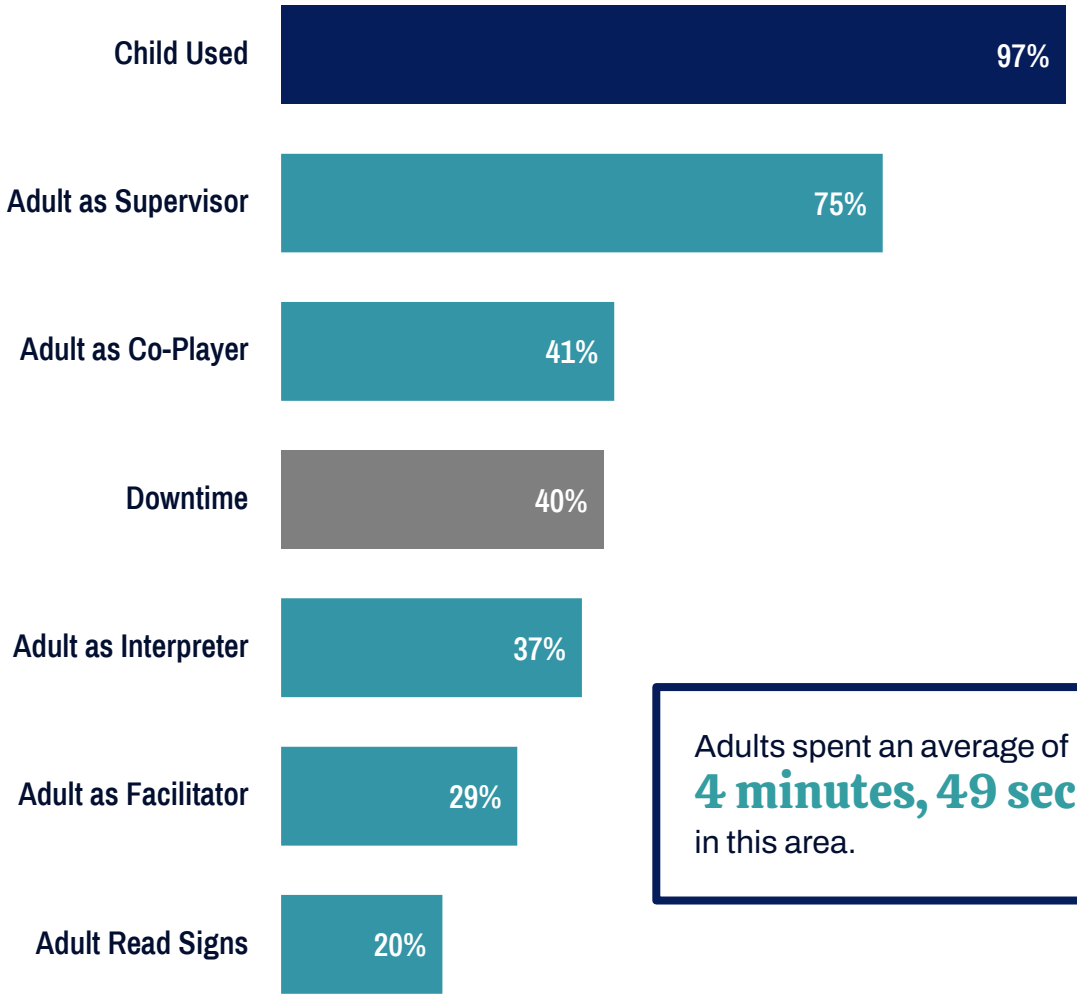
Stack It Up was an element where caregivers engaged for a long period of time, with average stay-times of around 5 minutes. While there, around 40% of caregivers acted as co-player.

Another element that strongly encouraged adults to become co-players with their child was the Stack It Up area. Forty-one percent of caregivers who stopped at this element played with the materials with their child, 37% acted as an interpreter, verbally supporting their child's exploration, and 29% acted as a facilitator, physically supporting the child's use of the materials (e.g., moving materials within reach, pointing or demonstrating what to do, etc.)

This was an area where caregivers were also often observed engaging in downtime, disconnecting (even if briefly) from watching the children. This was another area with adult seating and was positioned at both sites in a way that parents could be stationed as a "base" while children explored at this element or at other elements in the surrounding area.

Frequency of types of caregiver behaviors recorded at Stack It Up

Percentage of caregiver observations where each behavior category was observed, among those groups where the observed caregiver stopped at this exhibit element. (n=75)



Adults spent an average of **4 minutes, 49 seconds** in this area.

Lighting Up the Brain: Behaviors Observed

Adults most often acted as Supervisor or Co-Player at Lighting Up the Brain.

Caregivers who stopped at the Lighting Up the Brain interactive were most often observed taking on a supervisory role, a very similar number also acted as a co-player, helping to tilt the table and connect the neurons with their child.

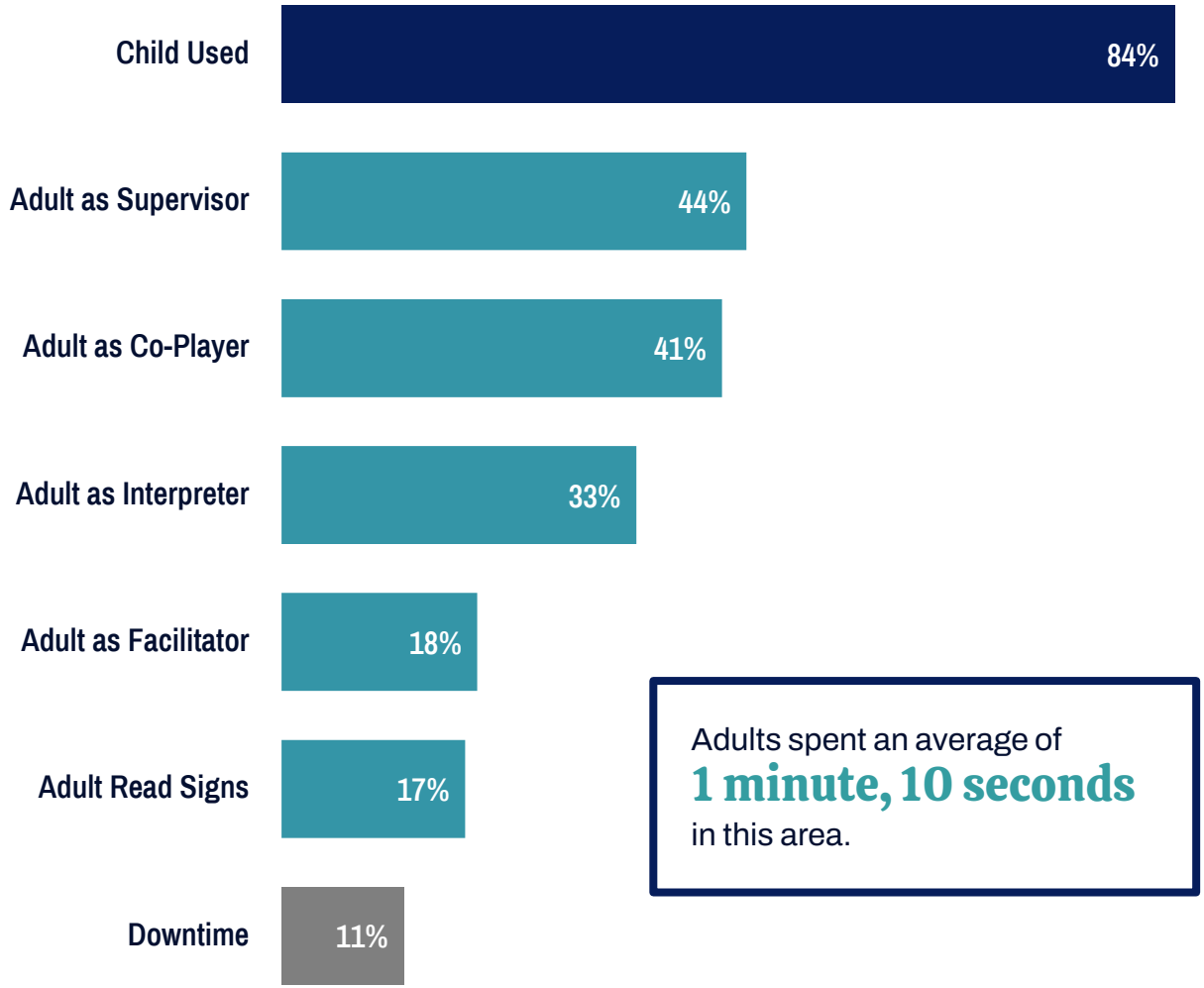
One-third of observed adults acted as interpreter at this element, by verbally guiding their child's play, explaining the activity, or answering questions. Non-verbal facilitation was less common at this element, with fewer than 1 in 5 adults displaying physical cues to guide or support the child in their play.

While there was ample written content on a sign next to the activity, only 17% of observed adults were observed reading signage at Lighting Up the Brain. Finally, about 1 in 10 observed adults were observed taking downtime at Lighting Up the Brain; these adults spent some or all of their time at the station sitting or standing back, talking with other adults, using their phone, or zoning out.

Caregivers spent between 8 seconds and 10 minutes at this stop, with an average time spent of 1 minute and 10 seconds.

Frequency of types of caregiver behaviors recorded at Lighting Up the Brain

Percentage of caregiver observations where each behavior category was observed, among those groups where the observed caregiver stopped at this exhibit element. (n=82)

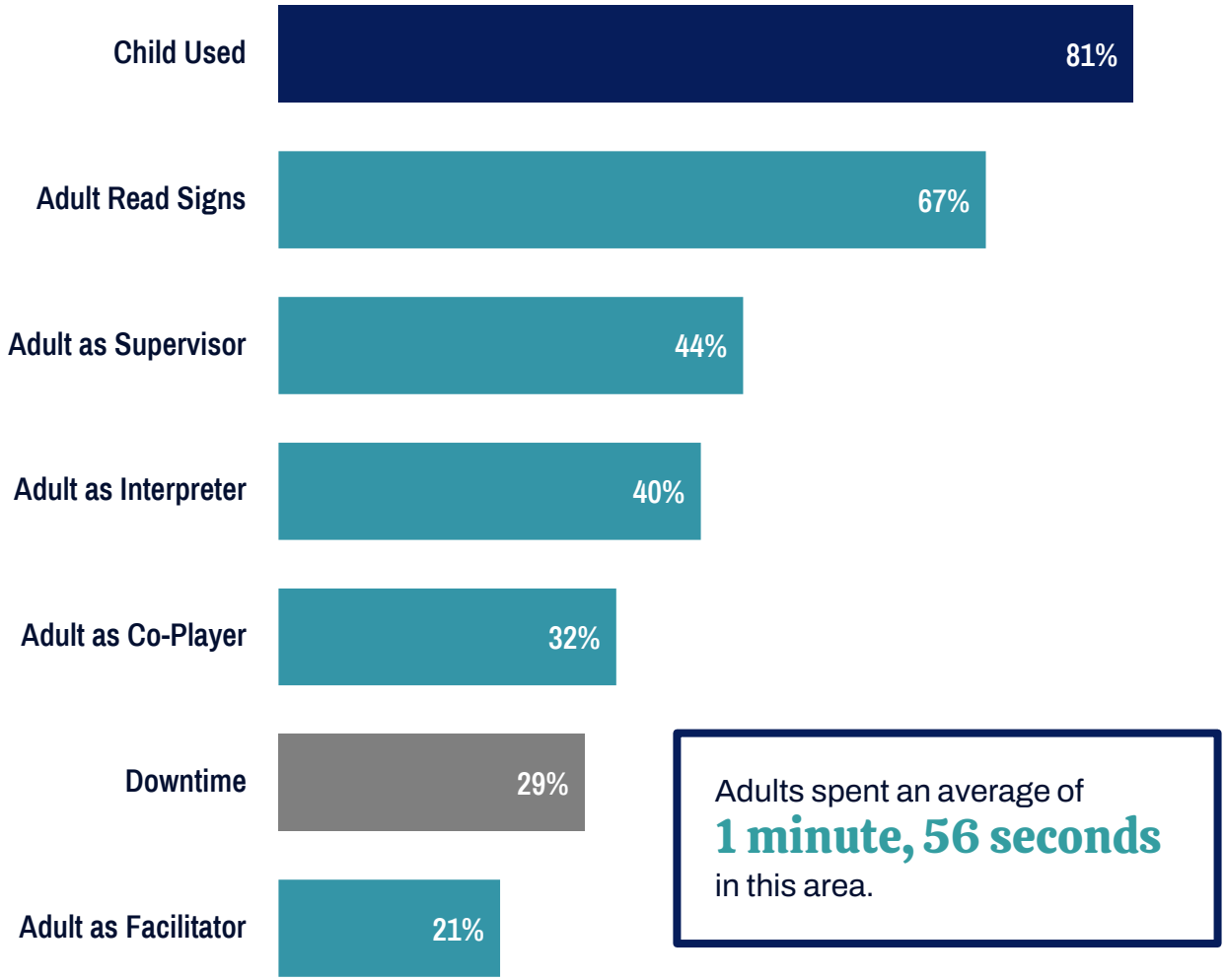


Adults spent an average of
1 minute, 10 seconds
in this area.

Fount of Wisdom: Behaviors Observed

Frequency of types of caregiver behaviors recorded at Fount of Wisdom

Percentage of caregiver observations where each behavior category was observed, among those groups where the observed caregiver stopped at this exhibit element. (n=62)



Adults spent an average of
1 minute, 56 seconds
in this area.

Fount of Wisdom featured the most written content among all of the exhibit elements, which resulted in high rates of reading among the adults who stopped at this element.

Fount of Wisdom had the highest rates of adults reading signs across all exhibit elements, with two-thirds of observed adults spending time reading interpretive content in this area.

Adults most commonly played a supervisory role for children at Fount of Wisdom, followed by providing verbal interpretation and scaffolding for children in the space. About a third of adults acted as a co-player, which in this area, most often translated to pushing the interactive buttons themselves alongside their children.

More than a quarter of adults were observed taking downtime in this area for part or all of their time spent. Caregivers were observed spending between 5 seconds and 15 minutes, 35 seconds in this area; the average stay-time was 1 minute and 56 seconds.

Tell Me a Tale: Behaviors Observed

Nearly half of caregivers at Tell Me a Tale were observed acting as an interpreter by providing verbal scaffolding, praise, or other spoken support to their child.

This element seemed to most lead adults to taking that interpreter role, to support a child's play. With, as was common, adults also acting in a supervisory role, keeping a close eye on their children for some or all of their time in this area.

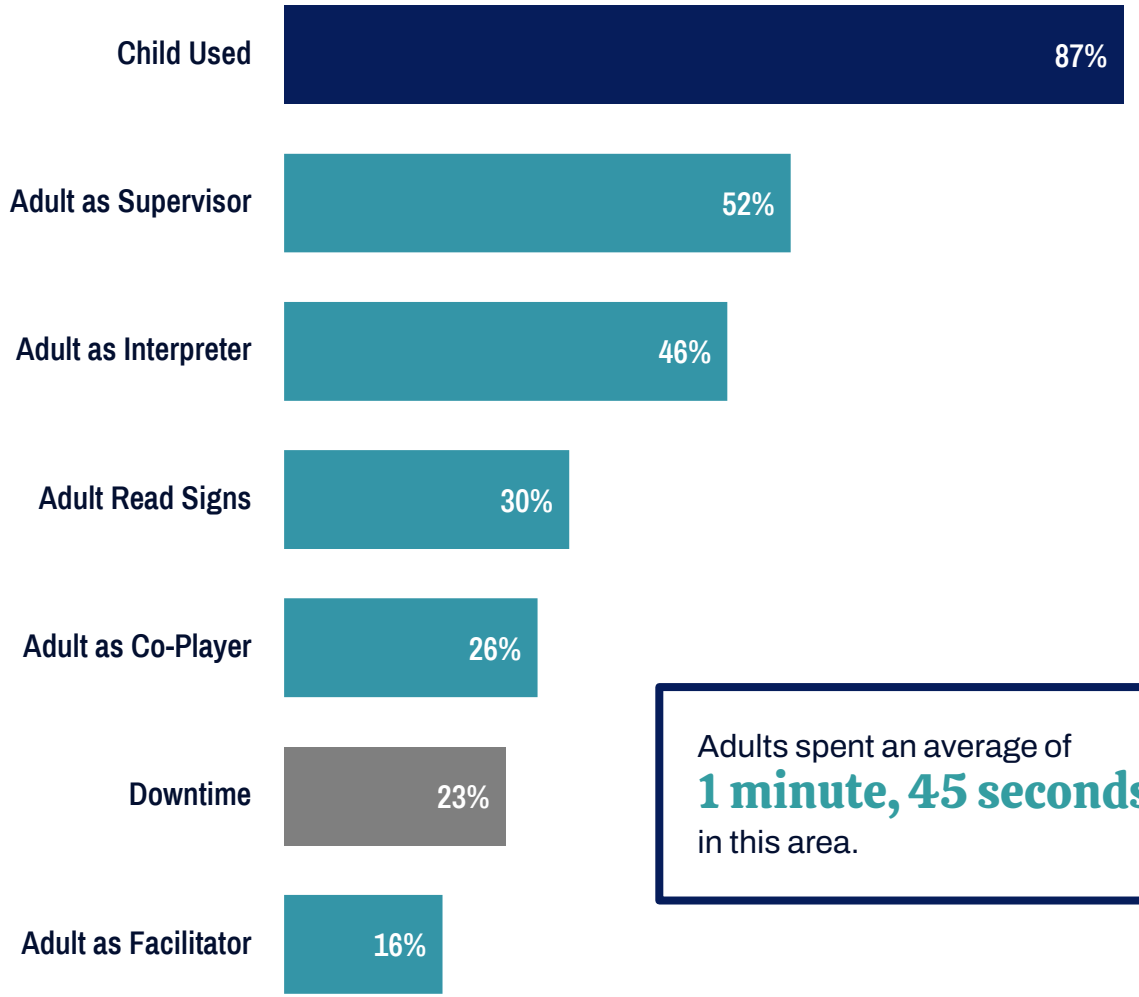
Thirty percent of adults in this area were observed reading signs. This is a relatively high rate of reading compared to the other exhibit elements.

This element did not seem to prompt co-play as much as others in the exhibition, with only about a quarter of adults actively playing with their child in the Story Stones area. This was among the lowest rates of co-playing in the exhibition, even though children played at this station at quite a high rate.

Adults acting as non-verbal facilitators were uncommon, likely due to the verbal nature of storytelling and story stones. Nearly a quarter of adults spent some or all of their time at Tell Me a Tale in downtime, in which they stepped away or checked out from the exhibit.

Frequency of types of caregiver behaviors recorded at Tell Me a Tale

Percentage of caregiver observations where each behavior category was observed, among those groups where the observed caregiver stopped at this exhibit element. (n=61)

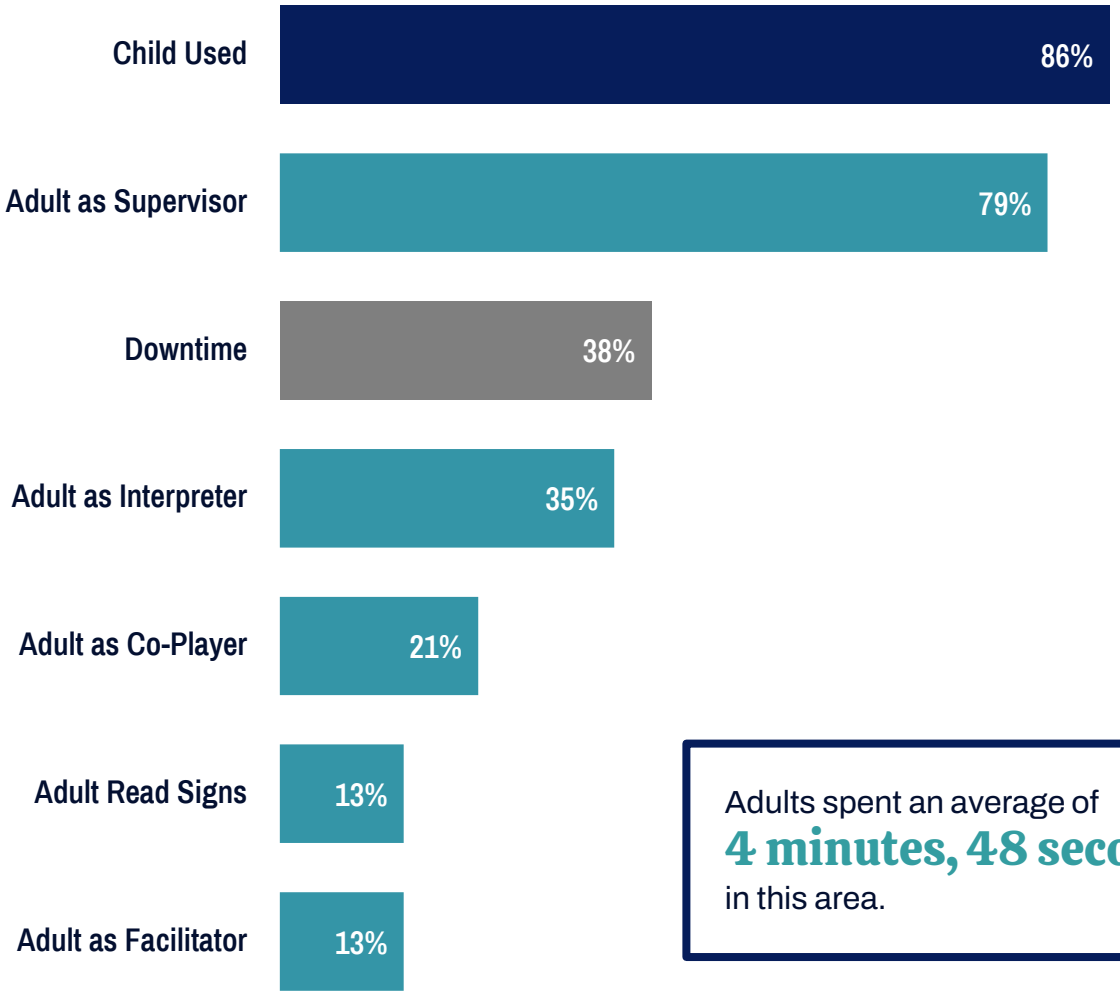


Adults spent an average of **1 minute, 45 seconds** in this area.

Infant Pool: Behaviors Observed

Frequency of types of caregiver behaviors recorded at the Infant Pool

Percentage of caregiver observations where each behavior category was observed, among those groups where the observed caregiver stopped at this exhibit element. (n=78)



Adults spent an average of
4 minutes, 48 seconds
in this area.

Caregivers were observed acting as supervisors in the Infant Pool area more than any other part of *AlegreMENTE*.

This area was designed to be safe and enclosed for very young children. Perhaps in response to this, caregivers who entered this area tended to dwell longer than most other areas, with an average stay-time of almost 5 minutes. Another factor with stay-time, noted by data collectors, was that this element provided seating for adults, and sometimes (especially at CDM), adults would use this area as a "base", while they supervised their older children independently exploring other areas of *AlegreMENTE*. This also likely contributed to the much higher rate of engaging in downtime than was seen in most parts of the exhibition.

About a third of observed adults supported play activities through verbal scaffolding while in the Infant Pool area. Adults acting as co-players and offering non-verbal facilitation were less common. This seemed to be an area where, more often, adults monitored children playing on their own.

While there was interpretive content in the area, only 13% of adults were observed reading any signs.

Show Me Happy: Behaviors Observed

Show Me Happy was generally less used, and caregivers spent very little time at this exhibit element. With that, there were also relatively few observations of caregivers engaging in interactive roles.

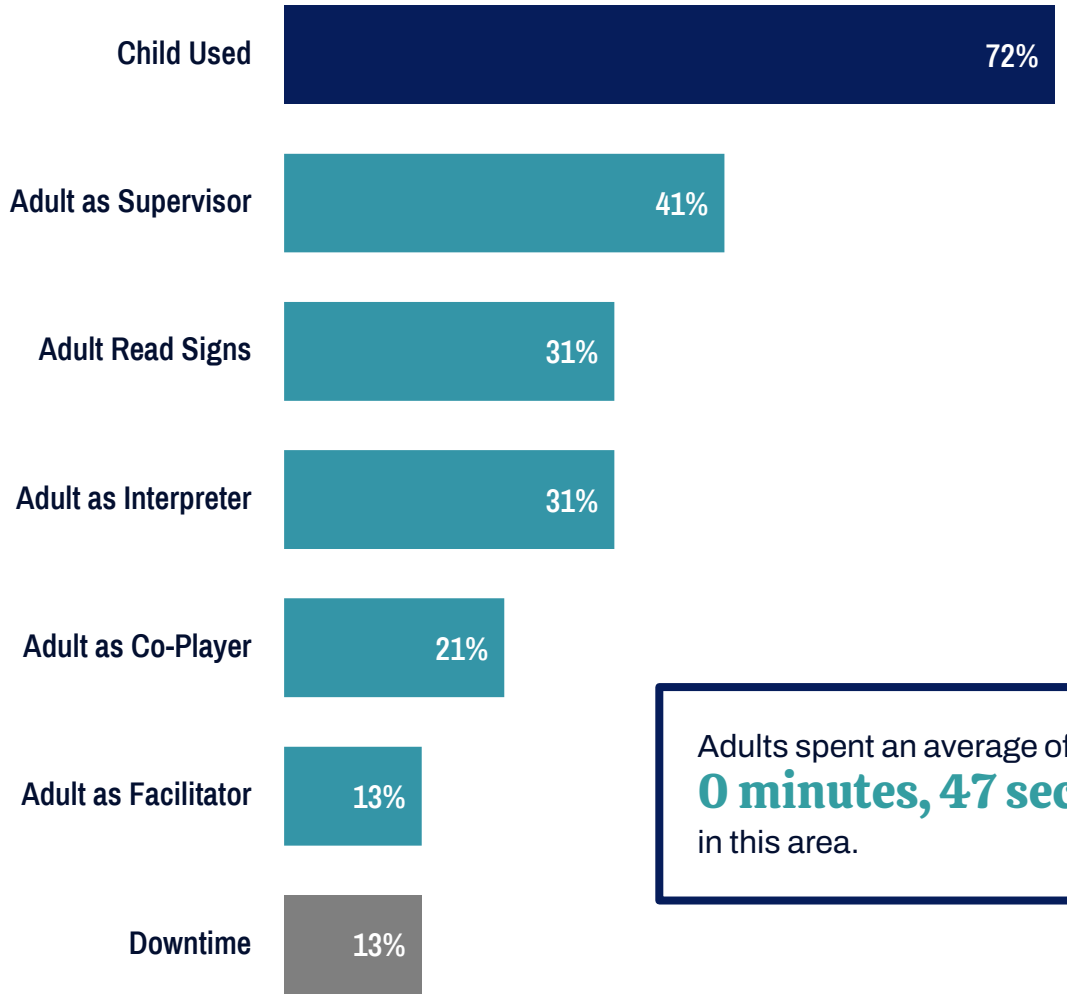
Observed adults tended to act as supervisors most often at Show Me Happy, rather than co-playing or providing scaffolding for the activity. This may be due in part to the short time, on average, that groups spent at this exhibit element. Most groups spent less than a minute here.

Adults who stopped at this element rarely acted as facilitator, co-player, or interpreter. Around 30% were observed attending to the signage at this station.

Just under a third of caregivers read interpretive signage in this area, and 13% spent some time disengaged from the exhibit.

Frequency of types of caregiver behaviors recorded at Show Me Happy

Percentage of caregiver observations where each behavior category was observed, among those groups where the observed caregiver stopped at this exhibit element. (n=39)



Adults spent an average of
0 minutes, 47 seconds
in this area.

Vroom Resources: Observed Behaviors

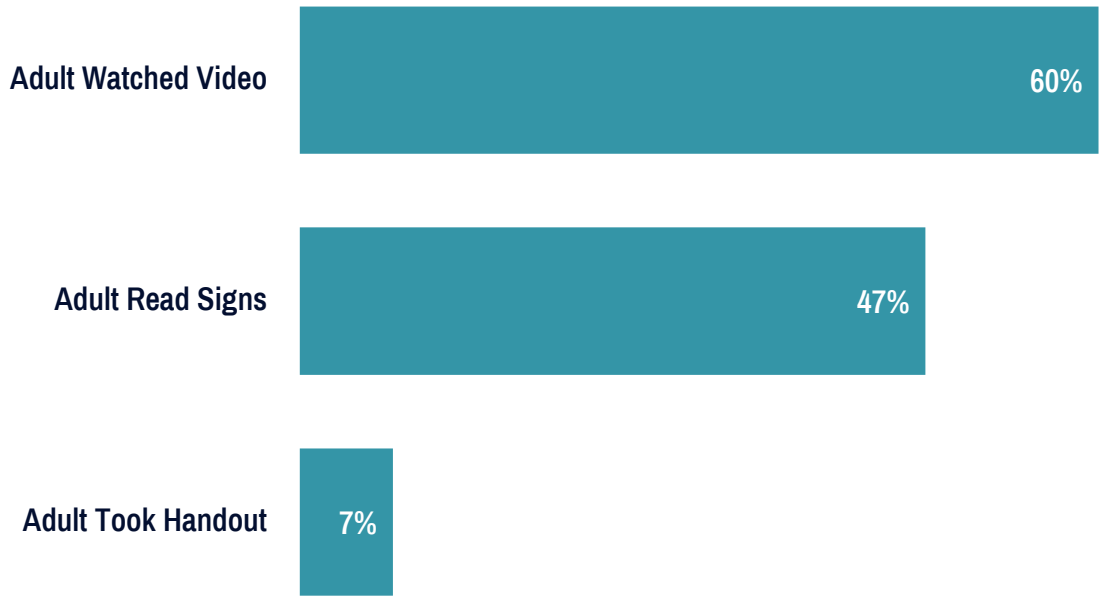
Vroom Resources were an element in the exhibition that mainly provided information for adults without major interactive components for children. Of the caregivers who stopped at the kiosk, most watched video material and about half attended to the signage.

The kiosk was a very different element than the others in the exhibition, and, as expected, caregivers spent far less time at this station (39 seconds, on average) than the more play-centered areas. Those who did stop at the kiosk tended to either attend to the video material and/or the printed material while they were at the kiosk.

Notably, very few (only about 7% of those who stopped, or 3 observed caregivers) were seen to take one of the handouts from the kiosk with them.

Frequency of types of caregiver behaviors recorded at the Vroom Resources

Rates of observed behaviors of adults. (n=45)



Adults spent an average of
0 minutes, 39 seconds
in this area.

Most Enjoyed Elements of *AlegreMENTE*

In exit interviews, caregivers most often talked about specific exhibit elements as the things they most enjoyed about *AlegreMENTE*. However, a substantial number of interviewees praised it for being interactive and age-appropriate for their young children.

Two-thirds of interviewed caregivers mentioned specific exhibit areas as what they most enjoyed about the exhibition, with Happy Dance brought up most often – more than a quarter of caregivers interviewed named that element. Generally, the elements named as most enjoyable lined up with the elements that were observed to be most used.

Caregivers also noted *broader* attributes of the exhibition as what contributed to their enjoyment, which included opportunities for hands-on learning, activities that were developmentally appropriate for young-children, and bilingual content providing a family-centered cultural lens.

A few visitors interviewed noted enjoying design aspects in *AlegreMENTE*, most commonly the colors and graphics and/or content about brain development.

What caregivers described as the most enjoyable aspects of *AlegreMENTE*

Categories represent common themes within adult responses to the question, "What did you like most about this exhibit?" in the exit interview. (n=157)

	Response Code	Example Quotes
67%	**Specific Area or Activity** **26%** - Happy Dance **19%** - Reading & Telling Stories **15%** - Infant Pool **12%** - Stack It Up **10%** - A Place to Share **13%** - Other Areas	*"Happy Dance -- interactive, bright and fun."* *"The little play area with balls [infant pool area]. Our kid enjoyed playing with the balls."* *"El área de los bebés - está todo muy seguro. Los botones y el área de bailar. Porque es divertida."* [The area for babies--everything is very safe. The buttons and the dance area. Because it's fun.]
18%	**Hands On Interaction**	*"Hands-on, rolling, she didn't really figure out the dancing. Buttons were loud. Tactile."*
14%	**Child Friendly**	*"It's nice, more child-friendly. She's a toddler. She likes to rock."*
13%	**Bilingual / Culture Focus**	*"Los libros bilingues, todo bilingue. La representación de nuestra cultura.* [The bilingual books, everything bilingual. The representation of our culture.]
8%	**Design Elements**	*"The variety. The different corner, the story, the dancing, the both languages, very colorful, very inviting."*
7%	**Brain Development**	*"Como han expuesto el cerebro en palabras simples. Llega la información rápidamente.* [The way they have shown the brain in simple words. The information is quickly understandable.]
11%	**Other Comments**	Other miscellaneous comments that did not fit into the codes above, with only a few mentions of each idea.

RESULTS

Caregiver Takeaways about Play

Key Ideas Caregivers Took Away

In exit interviews, the core message about brain development was the most frequently mentioned takeaway from *AlegreMENTE*. Sixty-three percent of caregivers named one or more of the various interaction-related categories.

The awareness of the brain development message was quite strong; many of these comments referenced specific activities caregivers can do to foster healthy development in children. Named actions most often included playing, telling stories, and spending meaningful time together.

Other key takeaways related to the exhibit's main ideas included naming specific play activities they had seen, done, or remembered; positive adult-child interactions; and family relationships. These comments sometimes overlapped; and overall, **63% of interviewed caregivers named one or more of the play/interaction takeaways as coming from *AlegreMENTE*** (in teal in the table).

In addition, **20% of visitors felt the exhibit was about language and culture**, drawing on the Spanish-first bilingual approach to the exhibition. Although this was not the intended main message, it was clearly an important theme for visitors.

What caregivers described as the key message of *AlegreMENTE*

Categories represent common themes in adult responses to the question, "What would you say is the main message of this exhibit?" in the exit interview (n=157). **Categories listed in teal** represent themes that align with the intended objectives of the exhibition.

(of 157 adults)	Response Category	Example Quotes
32%	Brain Development	*"Simple ideas to do with children to inspire their brain to develop."* *"Optimized for brain development. Storytelling. Interactions, making this... Outside it's more physically driven, here it's more mentally driven."*
20%	Language & Culture	*"El bilingüismo es algo que podemos uplift. … Para mis hijos bilingües es una manera de comunicarse con sus familiares que no hablan el idioma."* [Bilingualism is something we can "uplift." … For my bilingual children it's a way to communicate with their relatives that don't speak the language.]
15%	Specific Play Activities	*"Creative storytelling, expressing yourself, relaxing, reading, it was screenless."*
15%	Adult-Child Interactions	*"Interacciones y bonding con los niños."* [Interactions and bonding with children.]
11%	Family Connections	*"Healthy relationships, family relationships."*
14%	Don't Know / Unsure / Vague	*"I'm not sure. I haven't read the signs."*
6%	Other Comments	Other miscellaneous comments that did not fit into the codes above.

Specific Concepts about Play Noticed in Exhibit

Specific messages caregivers noticed about the benefits of play in *AlegreMENTE*

In exit interviews, within the adults who responded "Yes" to whether they noticed information about the benefits of play in the exhibit. (n=90) These categories represent themes in their responses to the follow-up question, "What did you notice on that topic?"

(of 90 adults)	Response Category	Example Quotes
44%	Adult-Child Interactions	*"I noticed some in the dance area, how children mimic the adults' movements."* *"Sobre la conexión que se hace con los niños cuando interactúas con ellos. El que aprendan."* [About the connection that is made with children when you interact with them. That they learn.]
30%	Specific Activities or Areas	*"In the book, and dancing, and art areas we saw those messages there."* *"The information is clear. Copy cat dance. It explains why it's good for them."*
19%	Brain Development	*"To make connections, help develop child's neural connections in brain."*
6%	Language / Culture	*"Bilingual information in each area and flyers [from the Vroom Kiosk]"*
19%	Vague / Unrelated	*"Maybe it was information, directions? Understand better as parent."*
7%	Don't Know / Unsure	Respondents who indicated they had noticed information about play but did not answer the follow-up question about what specifically they noticed.

Overall, 41% of interviewed adults reported noticing information about why it's good to play together *and* were able to name specific ideas that they recalled seeing. They most often noticed content about adult-child interactions.

The interviews directly explored if and what information caregivers picked up about the benefit of play. When asked directly, 57% of caregivers felt that they had noticed such information. Of these, most could identify what information they recalled seeing, with **41% of all interviewed adults also able to name specific information they had seen about play.**

The benefit of adult-child interaction was the most common theme adults remembered, followed by general statements of where they remembered seeing information about play. A smaller number recalled the specific information about the benefit to brain development. **Just under half of these caregivers (26 people) reported that something in the information was new or surprising.**

Again, a small percentage responded about the language themes (not play) or struggled to identify specifically what they remembered seeing.

Reinforcement of Prior Knowledge & Beliefs

Sixty percent of caregivers interviewed reported that *AlegreMENTE* reinforced something they felt they already knew or believed; most often, they already knew or believed aspects of the core exhibit themes about the value of play.

Building from findings of OMSI's remedial evaluation, the summative interviews explored what caregivers encountered in the exhibit that reinforced or reaffirmed information they already knew or believed. This was generally true, with the majority of interviewed caregivers agreeing that they encountered something they knew; **45% of all caregivers interviewed said yes to this question *and* were able to name something specific that they encountered that reinforced what they already knew.**

The three themes that centered on the exhibit's main messages were, by far, the most commonly mentioned ideas that caregivers already knew something about and were bolstered by *AlegreMENTE*. Another 10% of caregivers noted the language in response to this question, although, in this case they often connected it with prior knowledge about the opportunities for language development in early childhood.

Concepts about the benefits of play that were reinforced by *AlegreMENTE*

In exit interviews, caregivers were asked whether they noticed anything in the exhibit that confirmed an existing belief they had about play. Of those who answered "Yes" (n=94), these categories represent themes in their responses to the follow-up question that asked them to describe that prior belief or knowledge that was reinforced.

(of 94 adults)	Response Category	Example Quotes
29%	Adult-Child Interactions	*"Confirms what I knew. The stacking, teaching words, interacting with your kid."* *"Lo de interactuar niños y papás, lo aprendí bastante, reafirmar esto. Es algo muy importante."* [The part about interacting between kids and parents, I learned a lot, reaffirmed this. It's something very important.]
27%	Brain Development	*"[I already knew that] connecting with them develops their brain."* *"Me recordé que debemos usar nuestro cerebro para que se haga más fuerte."* [I remembered that we need to use our brain so that it will get stronger.]
26%	Importance of Play Behaviors	*"[It reinforced that it's] Important to read with kids, drawing."*
10%	Language / Culture	*"[I knew about] dual language exposure, early neural connections."*
11%	No Answer / Off-Topic	*"The kids learned something new."*
6%	Other Comments	Other miscellaneous comments that were not specific enough to be coded, including vague positive comments about the content.

Beliefs about Importance of Adult-Child Play

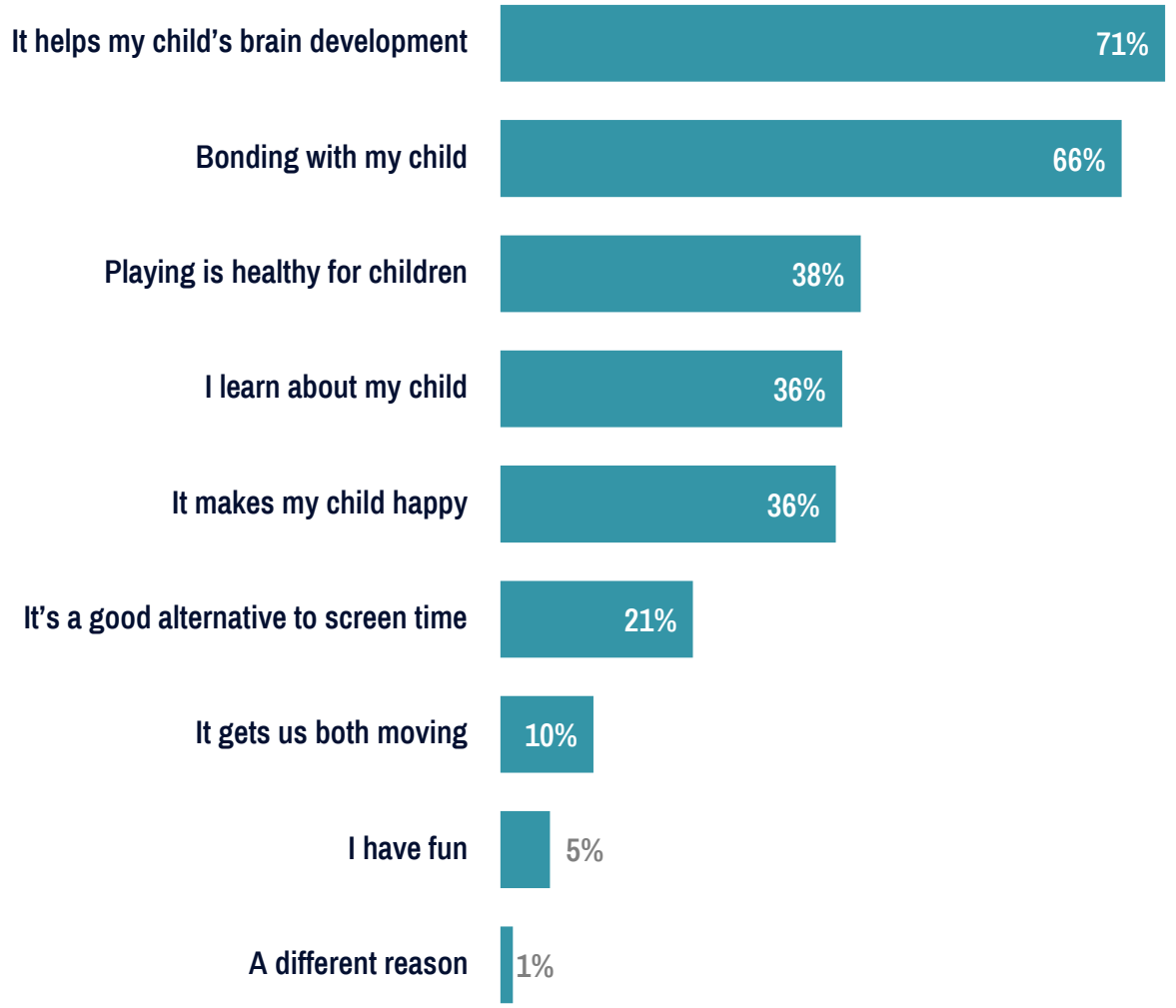
When caregivers had to select the three main reasons that they felt, at the exit of the exhibit, were the most important reasons for adults to play with their children, brain development was selected by 71% of caregivers.

While we cannot be sure of the interaction of the exhibition's messages and caregivers' prior knowledge (as discussed on the previous page), the evaluation did reveal that caregivers leaving *AlegreMENTE* largely believed that supporting brain development was one of the most important reasons for adults to play with their children. On par with that belief, in caregivers minds, was the value of bonding between caregiver and child, which was selected as a top priority by nearly as many interviewed caregivers.

All of the other options provided were selected far less often – by about one-third or fewer of parents interviewed. Beliefs about adult-child play being healthy, allowing the adult to learn about the child, making the child happy, and reducing screen time seemed to be more idiosyncratic priorities. Very few caregivers felt the benefit for movement or for the *adult* to have fun were main important reasons for adult-child play.

Top reasons caregivers felt interactive play was important after *AlegreMENTE*

Immediately following their exit interview, caregivers were asked via survey to select the **three most important reasons** for adults to play with their children from a list of statements. (n=151)



What Caregivers Remembered After 4-6 Weeks

When a sub-sample of caregivers were surveyed weeks later, they were asked to recall anything they remembered about the exhibition. While half focused on specific activities, 41% of caregivers remembered the messages of brain development or adult-child interaction.

As expected, most responding caregivers recalled elements of the exhibition experience, including being able to name specific areas that were enjoyed, and were similar to those mentioned in exit interviews; **Happy Dance was among the most memorable elements weeks after a visit**.

But perhaps more importantly, 41% of responding caregivers reported the thing they recalled was the exhibit's content (the rows highlighted in light yellow, in the table to the right) – particularly the messages around brain development, which was mentioned by 28% of the responding caregivers.

Sixteen percent of responding caregivers remembered that it was bilingual, and a few visitors connected that recollection with the exhibit design, including depictions of Latino families and culture.

What caregivers recall about their visit to *AlegreMENTE*

Categories represent common themes in adult responses to the question, "What, if anything, do you remember about this exhibit – what you did, what you enjoyed, what it was about?" in the follow-up survey. (n=32)

	Response Category	Example Quotes
Exhibit-focused themes		
53%	Specific Area or Activity	*"We remember the place where you can dance and see your shadows, books, the blocks you can build with younger kids, the circle thing you can roll the ball around in, an area to write stories, and the little connection blocks."*
22%	Exhibit Design	*"I remember the colorful decoration and there seems to be a "happy family" theme."*
9%	Age-Appropriate Activities	*"There was a lot of different puzzles and activities that my kids who vary in developmental age both enjoyed."*
Content themes		
28%	Brain Development	*"De el cerebro de los niños como se conecta con nuestra ayuda."* [About children's brains, how they connect with our help.]
13%	Adult-Child Interactions	*"...I like how it allows multiple people to play on it at the same time and there is no "right" way to play with it. I like how the whole exhibit is very open and there are a variety of different actions you can take, whether that is reading, dancing, stacking, etc."*
16%	Bilingual / Culture Focus	*"I really enjoyed the reading area they had, how it was set up and the books being bilingual."*
16%	Other Comments	Other comments that did not fit into the codes above, including general praise, a request for less text throughout the exhibit, a visitor that didn't recall anything, and off-topic responses.

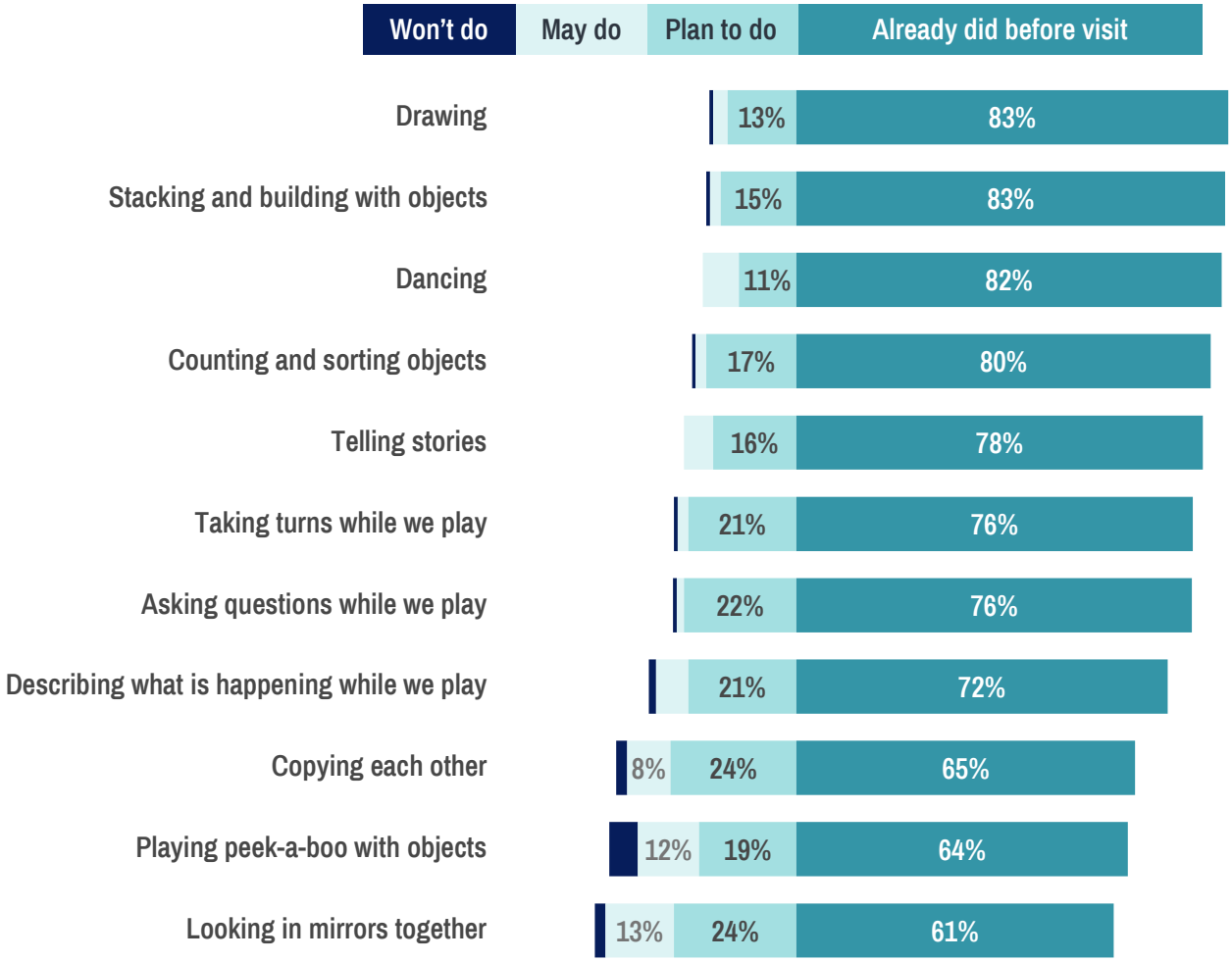
RESULTS

Intent & Play Actions at Home

Established & Planned Play Activities

Play activities that caregivers do at home, and their intention to try new play behaviors after their visit.

After their exit interview, caregivers were asked via survey to select which play activities they were already doing at home. If they reported not doing an activity, they were asked to rate their likelihood to do that activity at home in the future. (n=144)



While the exhibition hoped to encourage new caregiver play behaviors, the data collected at the exit indicated that all of the targeted play activities are already regular behaviors of families.

The dark teal bars in the graph to the left showcase the play activities that caregivers reported already doing at home. **Each activity was reported as already in their play rotation by over 60% of caregivers.** And for nearly every activity, caregivers reported they intended to continue doing that play activity with their child.

For most behaviors, if a caregiver indicated it was *not* something they regularly do at home, they did report they planned to start doing it at home. This was particularly true for the common activities, such as drawing, playing with objects, dancing, storytelling, turn-taking, asking questions, and describing.

The play activities that had relatively less prior use at home were also the activities where more caregivers reported they were unlikely to start doing them. Notably, these are three activities that are often intended for very young children. Caregivers of slightly older children may have felt their children had grown out of those forms of play.

What Happened at Home: Post-Visit Play Activities

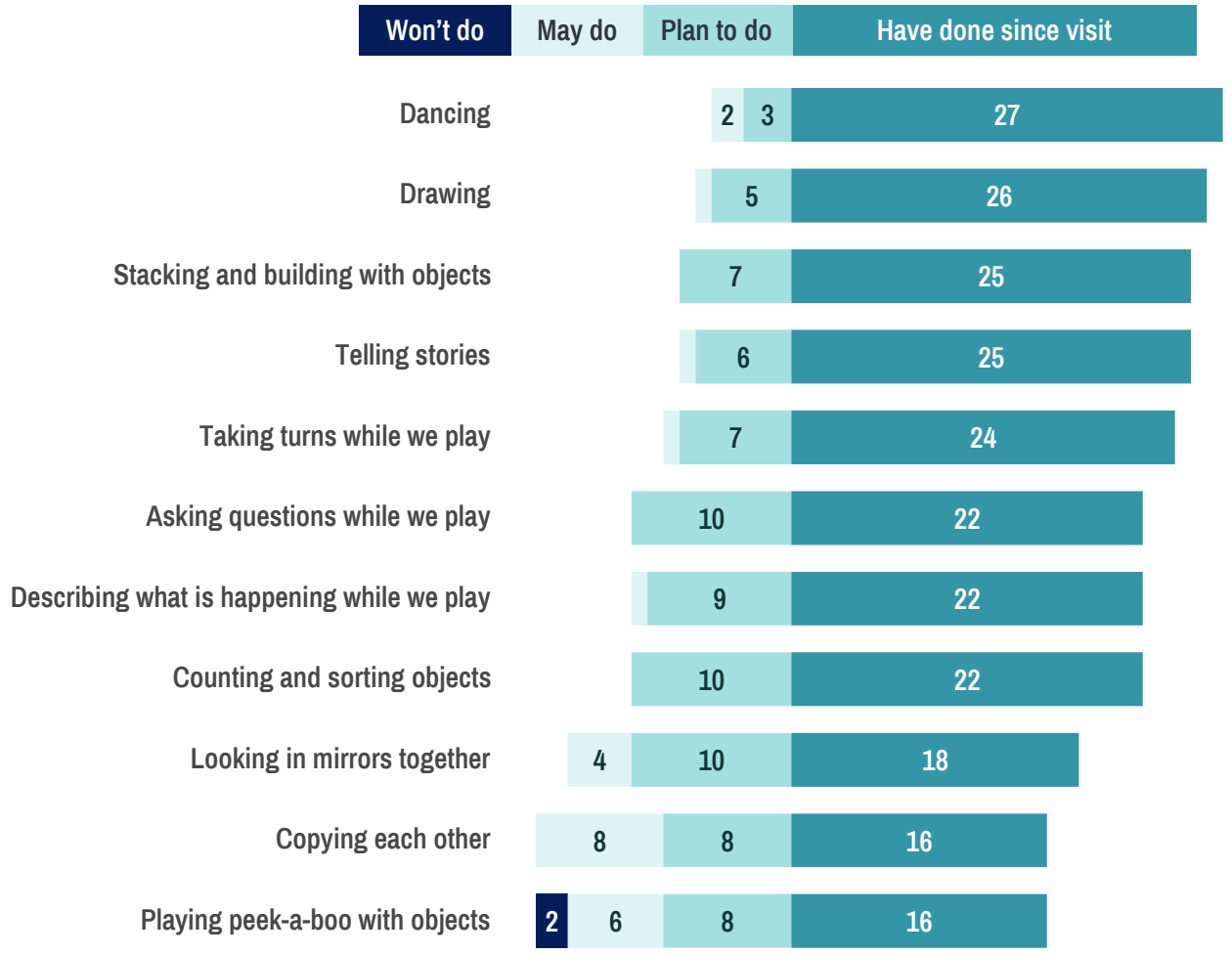
The follow-up survey with caregivers, 4-6 weeks post-visit, confirmed that many of these targeted activities were part of their regular play with their child.

In the follow-up survey with caregivers, the emphasis was on the play activities they engaged in during the 4-6 weeks since their visit. In this, **75% or more of responding adults reported having engaged with their child in dancing, drawing, stacking/building with objects, storytelling, and turn-taking**. Slightly fewer (69%) reported taking roles of asking questions during play, describing play, or counting and sorting objects. With all of these behaviors, nearly all caregivers who hadn't already done the activity expected they would do it soon.

As with exit data, the three play activities that seemed to get least broad traction were the three most associated with very young children – looking in mirrors together, copying each other, and playing peek-a-boo. More parents seemed less inclined to do that kind of play, likely because it wasn't appropriate for their child's age.

Reported at-home play activities that occurred in the weeks following a visit to *AlegreMENTE*, and intentions to try new types of play in the future

Four to six weeks after their visit, caregivers were asked via survey to select which play activities they had done at home since their visit. If they reported not doing an activity, they were asked to rate their likelihood to do that activity at home in the future. (n=32)



What Happened at Home: Other Post-Visit Play

In addition to the provided list of play activities, nearly all caregivers indicated *other* types of interactive play they had engaged in with their child in the 4-6 weeks after their visit. Physical activities and creative play were most common.

While we provided a list of play activities that were of interest to the exhibition, we allowed caregivers space to describe any other type of play that they had done with their child. Nearly all caregivers indicated they had done some other type of play (beyond the list on the prior page). When describing that play, about half included physical play, such as sports and playground games.

Other descriptors of play fell into line with ideas and themes that were included in the exhibition, including creative play (activities with connections to the arts); imaginative play (make-believe or storytelling); and sensory play (with materials).

Caregivers also noted play that dovetailed with everyday life and activities, including play while helping with things like cooking or cleaning. A few also specifically noted school readiness play, with a goal of learning numbers, letters, shapes, and STEM concepts.

Other activities caregivers engaged with their child in after visiting *AlegreMENTE*

In the follow-up survey, adults were asked whether they engaged in other types of play with their child since their visit. For those who answered "Yes", these categories represent the types of play they reported participating in. (n=28)

	Response Code	Description
50%	**Physical Play**	Sports, playing on playgrounds, running, walking, hide and seek, and other physical activities
36%	**Creative Play**	Singing, listening to or playing music, drawing, crafting, and other creative or artistic activities
25%	**Imaginative Play**	Playing pretend or make-believe, telling stories, and other types of open-ended mental or imaginative play
21%	**Sensory Play**	Exploring touch and textures through sensory play with water, play doh, dirt, and other materials
14%	**Practical / Life Skills Play**	Helping with or play involving cooking, baking, cleaning, and other everyday tasks
14%	**School Readiness Play**	Play activities considered traditionally educational such as learning numbers and shapes, STEM activities, and other play activities centered around school readiness
21%	**Other Types of Play**	Other miscellaneous comments that did not fit into the codes above

RESULTS

Latino Families

Distinctive Outcomes: Latino Families

There were extremely few differences in responses between caregivers who identified as Latino and those who did not. Both audience segments seemed to connect with the exhibition's main ideas in very similar ways.

Latino caregivers did not appear to differ from non-Latino visitors in how they responded about the exhibit's main message, awareness of its play-focused content, reinforcing of prior knowledge, or belief about why play matters. Interestingly, there was also **not a significant difference in the rate at which Latino respondents noted the bilingual signage or depiction of culture** as what they enjoyed or the main idea; this was mentioned fairly evenly by caregivers across identity groups.

There were a few significant differences (shown right). Latino respondents were less likely to name a specific element of the exhibit as what they enjoyed, and less often reported engaging in several at-home play activities. They also reported a higher likelihood of intention to start or continue playing peek-a-boo with objects at home; but other than that item, intentions to play at home were consistent across groups. Results were similar for those who speak Spanish at home.

Significant differences between Latino and non-Latino caregivers' responses

Areas of significant difference across all data based on Pearson's Chi-squared test, comparing presence or absence of a theme in responses.

What Caregivers Liked (n=157)	Non-Latino	Latino Caregivers
Latino families were **less likely to name a specific exhibit area when asked what they liked most** about *AlegreMENTE* during their exit interview. Other than this, answers to this question did not differ significantly.*	72%	54%

Prior Play Activities (n=144)	Non-Latino	Latino Caregivers
Latino families were slightly **less likely to report dancing as a play activity prior to their visit** in their exit survey.*	88%	74%
Latino families were slightly **less likely to report counting as a play activity prior to their visit** in their exit survey.*	86%	72%
Latino families were slightly **less likely to report looking in mirrors as a play activity prior to their visit** in their exit survey.*	69%	48%

Continued/Planned Play Activities (n=144)	Non-Latino	Latino Caregivers
Latino families were **more likely to intend to start or continue playing peek-a-boo** with their children in their exit survey. There were no other significant differences in continued or planned play activities.*	65%	83%

**p-value < 0.05*

Distinctive Outcomes: Interviews in Spanish

While there were few differences based on ethnic identity, caregivers who chose to be interviewed in Spanish showed they had connected with several of the exhibit's key ideas better than those interviewed in English.

The language of the interview seemed to have a much stronger relationship to how a caregiver thought about the bilingual/cultural approach than did ethnic identity. Specifically, **caregivers interviewed in Spanish were *more* likely to mention the bilingual elements as what they liked** about the exhibition, but were *less* likely to identify the language/cultural elements as the main idea. Those who were interviewed in English, regardless of ethnicity, seemed to note the bilingual design and more often interpret that the language itself was part of the main message.

Moreover, **those interviewed in Spanish were more likely to identify one of the exhibit's themes of play and adult-child interaction** as the main idea. They also more often selected "brain development" as one of their most important benefits of adult-child play, but with the relatively small Spanish-speaking sample this difference did not reach statistical significance.

Significant differences between responses based on the interview language

Areas of significant difference across all data based on Pearson's Chi-squared test, comparing presence or absence of a theme in responses. Where noted differences showed a p-value between 0.05 and 0.01.

What Caregivers Liked (n=157)	Interviews in English (n=115)	Interviews in Spanish (n=42)
Caregivers who chose to be interviewed in Spanish were **more likely to mention that language or cultural elements as what they liked most** the exhibition. Other than this, answers to this question did not differ significantly.*	9%	24%

Main Takeaway from Exhibit (n=157)	Interviews in English	Interviews in Spanish
Caregivers who were **interviewed in Spanish were more likely to name one of the big idea themes (about play or adult-child interactions)** as the exhibit's main idea.*	58%	76%
Caregivers who were **interviewed in English were more likely to name the language or cultural elements** as the exhibit's main idea.*	23%	10%

Beliefs about Value of Play (n=144)	Interviews in English	Interviews in Spanish
Caregivers who were **interviewed in Spanish slightly more often selected "brain development"** as one of their three most important reasons for adult-child play. (ns)	67%	83%

**p-value < 0.05*

RESULTS

Differences for Children's Museum Visitors

Differences in Exhibition Use by Museum-Type

The main difference between the science center and children's museum audiences was in how they used the exhibition. Visitors at the children's museum spent longer and visited more of the exhibition.

The observational data revealed that, on average, caregivers at CDM spent more than 6 minutes longer in *AlegreMENTE*, compared to caregivers at OMSI. In this extra time, caregivers also stopped at 1 or 2 more of the exhibit elements. The comparison of where caregivers stopped (p. 15 of this report) reiterates this finding, with more elements having more visitation at CDM.

One reason is likely the layout of each installation. OMSI's exhibition was slightly more spread out and had half-height walls; inside, caregivers and children could see the rest of the busy museum floor. At CDM, the exhibition was in an enclosed gallery, with only one exit. Once inside, the lack of distractions and a single exit seemed to promote lingering. This could also reflect differences in visitation patterns between children's and science museums, with children's museum visitors often more inclined to stay in a single exhibit for as long as the child is engaged, without trying to see everything in the museum in a single day.

Significant differences in exhibition use between caregivers at OMSI and CDM.

Areas of significant difference across all data based on Welch Two Sample t-test for average time spent and total stops.

Total Time Spent (n=141)	OMSI	CDM
Caregivers at CDM spent significantly longer in the whole exhibition compared to those observed at OMSI, on average.**	9 minutes 44 seconds	16 minutes 8 seconds

Total Stops (n=146)	OMSI	CDM
Caregivers at CDM stopped at significantly more exhibit elements compared to those observed at OMSI, on average.***	3.6 stops	4.9 stops

****p-value below 0.01*
****p-value below 0.001*

Differences in Preferences by Museum-Type

There were no significant differences in any of the outcome areas explored between these two museum types. In terms of takeaways and intention to play at home, caregivers from the two institutions were very similar.

Only two other areas of difference were observed in the data. One was in the observational data, where it appeared that caregivers at the children's museum were more likely to engage in the interpreter role to support their child's play. This is the role in which the adult supports a child's play and learning through verbal scaffolding, support, and encouragement. This behavior was exhibited by more than three-quarters of caregivers at CDM, but by just around half of OMSI caregivers. But all other play-supporting behaviors were similar.

The only other difference was that OMSI visitors were significantly more likely to describe liking that it was hands-on or tactile. This may reflect a difference in expectations of the museum-types; science centers may not have as many tactile experiences for very young children, and families appreciated this addition. In contrast, in children's museums those types of tactile experiences for young children are more often the norm in exhibits.

Significant differences in caregiver behavior and preferences at OMSI and CDM.

Areas of significant difference across all data based on Pearson's Chi-squared test about the frequency with which adult were observed taking particular roles and what categories they mentioned in their interviews.

Adult Roles (n=146)	OMSI	CDM
Caregivers at CDM were observed serving in an Interpreter role significantly more often than caregivers at OMSI. All other roles (Co-Player, Facilitator, and Supervisor) did not differ significantly between sites.***	52%	79%

What Caregivers Liked (n=157)	OMSI	CDM
Caregivers at CDM were significantly less likely to report liking tactile or hands-on experiences as compared to caregivers at OMSI.***	31%	10%

****p-value below 0.001*

CONCLUSIONS

Summary of Goals & Actual Results

The table below presents a high-level overview of the summative evaluation results with respect to the goals set for *AlegreMENTE*, which were presented in greater detail on page 5 of the report. Detailed takeaways about these outcomes are presented on the pages that follow.

Outcome Caregivers will…	**Goal: Planned Indicators of Outcomes** Caregivers will…	**Achievement: Key Indicators from Evaluation Data**
Demonstrate comfort with a supportive caregiver role in their child's play. Feel they found at least one interactive play activity that they already do or could try.	• Take a supportive adult role at one or more of the interactive elements (co-player, facilitator, interpreter, supervisor) (70%+)	• 77% of caregivers engaged as a co-player while in *AlegreMENTE* • Every caregiver except one engaged in one of the supportive adult roles at least once.
	• Able to name/identify specific types of interactive, adult-child play behaviors they encountered in the exhibition. (70%+)	• 78% spoke in their interview about types of play from the exhibition
	• Took one of the Vroom handouts home with them. (5%+)	• 7% of caregivers took one of the Vroom kiosk handouts about play
Understand that parent-child playful interaction is beneficial for young children and/or for their development.	• Believe that brain development is one of the top 3 most important reasons why parent-child play is good for young children. (50%+)	• 71% believed that supporting brain development is one of the three most important reasons for adult-child play
	• Be aware that the exhibition was designed to show benefits of play for children. (70%+)	• 63% felt that the exhibit showed themes of play benefits or brain development
	• Feel they learned something new about play behaviors and/or benefits for children (and can name what was learned). (30%+)	• 41% could identify specific play-related content they encountered; fewer than 20% felt they were new ideas
	• Look/read some signage while in the exhibit w/ child. (30%)	• 60% of adults were observed looking at exhibit signage
Feel the exhibition validated or highlighted ways they are experts of their child's development, and that by connecting/playing with them, parents are helping their child.	• Report the exhibition reinforced that the play they already do with their child is helping the child. (50%+)	• 45% could identify a specific idea, related to their children, that they felt had been confirmed or reinforced in *AlegreMENTE*
	• Report a sense that the exhibit validated that they are the most influential adult in their child's development. (50%+)	• Caregivers generally did not articulate the higher-level idea of being the most influential adult to their children
Intend to use (and then do use) one or more interactive play strategies at home.	• At the exhibition, can identify 1+ play strategy from the exhibition they plan to keep doing or newly start doing with their child. (50%+)	• 100% of caregivers interviewed already did at least one of the play behaviors, and all intended to continue playing at home
	• 4-6 weeks after visiting, can identify 1+ play behavior they have done with their child (even if they did it previously) (30%+)	• 100% of caregivers surveyed 4-6 weeks post-visit continued engaging in interactive play with their children in multiple ways

Exhibit Play Outcomes

***AlegreMENTE* was extremely successful at prompting caregivers to practice and think about playful interactions with their child while they were exploring the exhibition.**

AlegreMENTE was designed to give caregivers prompts, opportunities, and scaffolding to engage in a variety of forms of playful interaction with their young children. The idea of these approaches was creating a space where caregivers could explore and "practice" interactive play, in hopes it would further encourage and support play at home. **The original exhibition goals and evaluation indicators were that caregivers would**:

1. In the exhibition, take a supportive adult role at one or more of the interactive stations (e.g., co-player, facilitator, interpreter, supervisor). (70%+)
2. Able to name/identify specific types of interactive, adult-child play behaviors they encountered in the exhibition. (70%+)
3. Took one of the Vroom handouts [with play ideas] home with them. (5%+)

To the right, we highlight key data that illustrate the degree to which each of these indicators was met in the summative evaluation data. **The numbers in the list above correspond to the takeaways to the right.**

1

77% of caregivers engaged as a co-player while in *AlegreMENTE*

The exhibit far exceed its goal, with every caregiver except one taking on at least one of the four behaviors during a visit. More importantly, over three-quarters of caregivers actively engaged in play while visiting.

2

78% spoke in their interview about types of play from the exhibition

In all of the interview questions asked, a portion of adults mentioned specific play activities from the exhibition – whether it was what they liked (67%), how they thought about the main idea, or what they noticed about play. Taken together 78% of caregivers made such a comment at least once in their interview.

3

7% of caregivers took one of the Vroom kiosk handouts about play

The target for this indicator was set quite low, as visitors frequently do not opt to take handouts from exhibitions. However, a handful of caregivers observed did take these resources as an at-home reminder of what they encountered.

Awareness Outcomes

***AlegreMENTE* was mostly successful at meeting its goals of building caregiver awareness about ideas around the benefit of adult-child play.**

AlegreMENTE was designed to help caregivers understand that adult-child playful interaction is beneficial for young children and their brain development. During planning, the team articulated four potential indicators of those outcomes, which were adjusted slightly as a data collection strategy was developed. **The original exhibition goals and evaluation indicators were that caregivers would**:

1. Believe that brain development is one of the top 3 most important reasons why parent-child play is good for young children. (50%+)
2. Be aware that the exhibition was designed to show benefits of play for children. (70%+)
3. Feel they learned something new about play behaviors and/or benefits for children (and can name what was learned). (30%+)
4. Look/read some signage while in the exhibit w/ child. (30%)

To the right, we highlight key data that illustrate the degree to which each of these indicators was met in the summative evaluation data. **The numbers in the list above correspond to the takeaways to the right.**

1

71% believed that supporting brain development is one of the three most important reasons for adult-child play

Caregivers across institutions and demographic groups roundly agreed that brain development is a main benefit of play, with the value for bonding selected very highly as well.

2

63% felt that the exhibit showed themes of play benefits or brain development

While this did not quite reach the 70% target, the majority of caregivers were able to articulate these themes. Notably, another 20% focused on the theme of language and culture, being very influenced by the bilingual design.

3

41% could identify specific play-related content they encountered, although fewer than 20% felt they were new ideas

While nearly all visitors were engaged in playful behaviors during their visit, it seemed harder to articulate in an interview what content they encountered on that topic. They also seemed to *feel* they were familiar with the content.

4

60% of adults were observed looking at exhibit signage

Although adults were often distracted from written material while managing small children, the majority did pay some attention to signage while in *AlegreMENTE*.

Reinforcing Outcomes

***AlegreMENTE* was moderately successful at creating a sense that the exhibition reinforced or validated caregivers' beliefs about the value of their existing knowledge and practices.**

Designers knew that the exhibition showcased interactive play that would not be entirely new to caregivers, and hoped that the exhibition experience would also reinforce for these visitors that they already engage in behaviors that are beneficial for their child. **The original exhibition goals and ideas for evaluation indicators were that caregivers would describe their sense of reinforcement in one of two ways**:

1. Report the exhibit reinforced that the play they already do with their child is helping the child. (50%+)
2. Report a sense that the exhibit validated that they are the most influential adult in their child's development. (50%+)

To the right, we highlight key data that illustrate the degree to which each of these indicators was met in the summative evaluation data. **The numbers in the list above correspond to the takeaways to the right**

1

45% could identify a specific idea, related to their children, that they felt had been confirmed or reinforced in *AlegreMENTE*

While more visitors (60%) agreed with the general sense that they felt the exhibit had confirmed something they previously thought or knew, this question proved a more difficult idea for caregivers to re-articulate in-the-moment at the exhibition's exit. Nevertheless, almost half could identify ideas from the exhibition that they felt they either knew or believed previously, and had reconfirmed in the exploration.

2

Caregivers did not articulate the higher-level idea of being the most influential adult to their children

The phrasing of the higher-level idea in indicator 2 may or may not be true in parents' belief systems, but it was not an idea they were able to articulate as coherently in an immediate exit interview at the exhibition. Had we included more attitudinal rating scales in the measurement, we may have found this statement resonated with caregivers' believes; however we opted not to use such measures to focus on other priority outcomes and minimize the cognitive load for the interview, given that responding adults were juggling small children at the same time.

Behavioral Outcomes

Visitors were committed to engaging in play behaviors with their children, before, during, and after the visit. The exhibition may have reinforced this commitment, but there was already a strong culture of play among visitors beforehand.

At its core, *AlegreMENTE* was intended to encourage a variety of at-home play behaviors between caregivers and their children. Through the modeling, information, and encouragement of the exhibition, it was hoped that families would start or continue to engage in specific play activities. **The exhibition goals focused on two indicators, one focused on intent (while at the exhibition) and one examining what happened in the weeks after a visit:**

1. At the exhibition, can identify 1+ play strategy from the exhibition they plan to keep doing or newly start doing with their child. (50%+)
2. Four to six weeks after visiting the exhibition, can identify 1+ play behavior they have done with their child (even if they did it previously). (30%+)

To the right, we highlight key data that illustrate the degree to which each of these indicators was met in the summative evaluation; **the numbers above and in the takeaways to the right correspond.**

1

100% of caregivers interviewed at *AlegreMENTE* already did at least one of the play behaviors, and all intended to continue playing at home

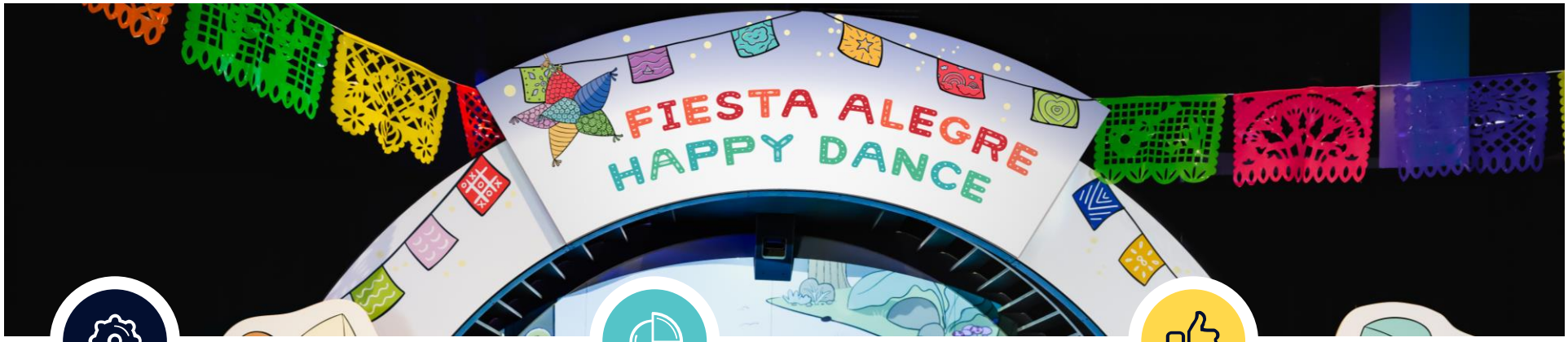
Most of the play behaviors presented in the evaluation were already in the at-home play repertoire of caregivers who came to this exhibition. In collecting data at the exhibition, we learned that they typically do most of the activities, intend to continue doing them, and are likely to try any of the ones they don't already do regularly.

2

100% of caregivers surveyed 4-6 weeks post-visit continued engaging in interactive play with their children in multiple ways

Again, the parents who responded to the follow-up survey universally reported playing with their children in multiple ways in the weeks since visiting the exhibition. Notably, nearly all of them also volunteered a range of other ways that they played with their children – with many examples of play that were not on the constrained list of options we'd shown in the survey.

Bilingual & Spanish-First Interpretation



Impact for Everyone

Attention to the bilingual approach and design elements occurred evenly across caregivers, not just among those who identified as Latino. In fact, there were very few differences in outcomes between Latino and non-Latino caregivers. For primarily English-speaking caregivers, the bilingual / Spanish-first design was so striking that they interpreted the language to be part of the exhibition's main idea.

Supporting Spanish Speakers

While there were no differences in content outcomes for Latino caregivers, in a few areas, visitors who were more comfortable in Spanish better connected with the exhibit content – recognizing its ideas about play, play activities, adult-child interaction, and the importance to the developing brain at a higher rate. For them, language wasn't the *point* of the exhibition, but it facilitated their understanding in ways that are likely more difficult in English-only exhibitions.

Success with Design

In addition to the language, the design used to deliver the bilingual and multi-cultural interpretation also stood out to visitors; 22% of the follow-up survey respondents mentioned the color, characters, and happy tone of the exhibition as memorable. Recall of design and tone is not common for exhibition visitors, and this speaks to the resonance of the overall exhibition design.

Museum Types

***AlegreMENTE* was successful at achieving outcomes in both a science center and a children's museum. Differences in use of the exhibition may reveal insights for exhibit design and/or visitor mindsets in each space.**

Intergenerational groups spent much longer and used more of the exhibit elements in the children's museum than at OMSI. Substantial differences in exhibition layout and gallery environments in the two locations make it difficult to attribute differences to museum-type or design, but there are some indications.

Enclosed Design: CDM's installation was in a fully enclosed gallery with one entrance/exit, compared with a more "open plan" at OMSI. It seems very likely that a more contained space minimized visual distractions, which can draw people out of an exhibition to explore other options. Additionally, and importantly for young children, it added a layer of safety; caregivers could confidently let children explore a space that was safe, age-appropriate, highly engaging, with minimal worry that a child could "escape" without notice. This can contribute to a more relaxed experience for the group.

Children's Museums

Caregivers here may be more prone to spending long amounts of time at a single exhibition or activity. It is common here for the child to lead exploration, with families staying in any area for as long as the child is engaged and enjoying whatever play activity it holds, including exhibits visited time and time again. There may be fewer groups arriving with a sense of needing to get through the whole museum.

Science Centers

Visitors at OMSI were more likely to enjoy the tactile nature of this exhibit, which may speak to expectations at science center *and* to the value of providing so many tactile experiences for children under 6, which is not universal in a science center. Children's museums, in contrast, are centered on tactile experiences for preschoolers. In this way, *AlegreMENTE* added value for these families during a science center visit.

Exhibition Design for Families with Young Children

Attraction to High Energy Elements

The timing and tracking data showed that families were drawn most often to the particularly high-energy and movement-centered elements in both institutions, with Happy Dance being broadly popular, enjoyed, and memorable. Physical, active, and developmentally appropriate play opportunities seem an important addition to any exhibit targeted to this group. While co-play was seen at these elements, in some cases adults seemed to take more of a supervisory role, managing safety and other concerns that accompany high-energy physical exploration.

Quieter Elements Supported Co-Play

The Drawing Area and Story Nook, two quieter elements, showed high rates of adult-child interaction, particularly the role of co-player. The Drawing Area, in particular, was underutilized at OMSI, perhaps due to the draw of the higher-energy elements or its location somewhat tucked away on the side of the gallery. Less physically active elements could get more attention when intermixed with higher-energy elements. Avoiding the creation of a "quiet zone," which can easily be accidentally overlooked, may help families discover the potential for play in lower-energy, but highly interactive, areas.

Acknowledgements: We would like to thank the data collectors from OMSI who contributed to this summative evaluation. Their skill at collecting data using multiple methods, bilingually, and using culturally responsive approaches was instrumental to this study and its findings. We would also like to thank Kirsten Buchner of Insight Evaluation Services for her consultation and support in the instrument development and analysis of all of the bilingual/bicultural elements of this study.

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