

# Findings and Implications of the Children's Museum Research Network

*Nicole Rivera, Stephen Ashton, Robin Meisner, Kari Nelson,  
Susan Foutz, Alix Tonsgard*

# History of the CMRN



## Learning Value of Children's Museum Research Agenda Symposium

**September 10-11, 2013**

Participants were asked to read the landscape review prior to the meeting. Over the two days, the group worked to generate a draft of a field-wide research agenda. Follow up webinars and sessions at Interactivity provided more feedback to support the development of the research agenda.

*Supported by a grant from the Institute for  
Museum and Library Services*



# The Research Agenda

The agenda “identifies and prioritizes the evidence most needed by the field to articulate and demonstrate the distinct learning impacts of children’s museums”.

Broad categories include:

- Characteristics of Children’s Museums
- Audience
- Learning Landscape

<http://www.childrensmuseums.org/images/learningvalueresearchagenda.pdf>).



# Children's Museum Research Network

- DuPage Children's Museum
- Thanksgiving Point Institute
- Minnesota Children's Museum
- Children's Museum of Pittsburgh
- The Children's Museum of Indianapolis
- The Magic House, St. Louis Children's Museum
- Children's Museum of Tacoma
- Boston Children's Museum
- Providence Children's Museum
- Children's Museum of Houston
- The Children's Museum of Denver at Marsico Campus
- Glazer Children's Museum
- Canadian Children's Museum (Canadian Museum of History)
- Port Discovery Children's Museum
- Children's Museum of Sonoma County

Made possible with a grant from



- Meetings at Interactivity
- Meetings at the University of Washington/  
Minnesota Children's Museum (2-day working  
meetings)

Information sharing and discussion through Groupsite  
Phone and Skype meetings as needed for individual/  
small group meetings

## Individual meetings between partner museums



# SIG#1 - The Nature of Learning Frameworks in Children's Museums

The CMRN designed a research study that looked specifically at institutional learning frameworks. Three research questions led the study:

1. What major vocabularies do these frameworks share? Where do they diverge?
2. What constructs do children's museums use and prioritize in their learning frameworks?
3. What learning theories do these frameworks implicitly and explicitly reflect or endorse?

Five museums from the CMRN provided their learning frameworks and participated in group interviews.

# SIG#1 - The Nature of Learning Frameworks in Children's Museums



## What is a learning framework?

A statement of “a museum’s most important ideas about learning and learners.”

- Provides a foundation for all educational activities.
- Guides planning and evaluation of activities.
- Not just for museum educators!

Vergeront, J. *Museum Notes*. May 20, 2015.



# SIG#1 - The Nature of Learning Frameworks in Children's Museums



## What is a learning framework?

- Clarifies how the museum understands learning.
- Aligns with the mission, vision, and goals.
- States the value of the museum to the community or learner by articulating what the museum values.
- It is a *process*, an ongoing conversation about purpose, audience, activities, and outcomes.



# SIG#1 - The Nature of Learning Frameworks in Children's Museums

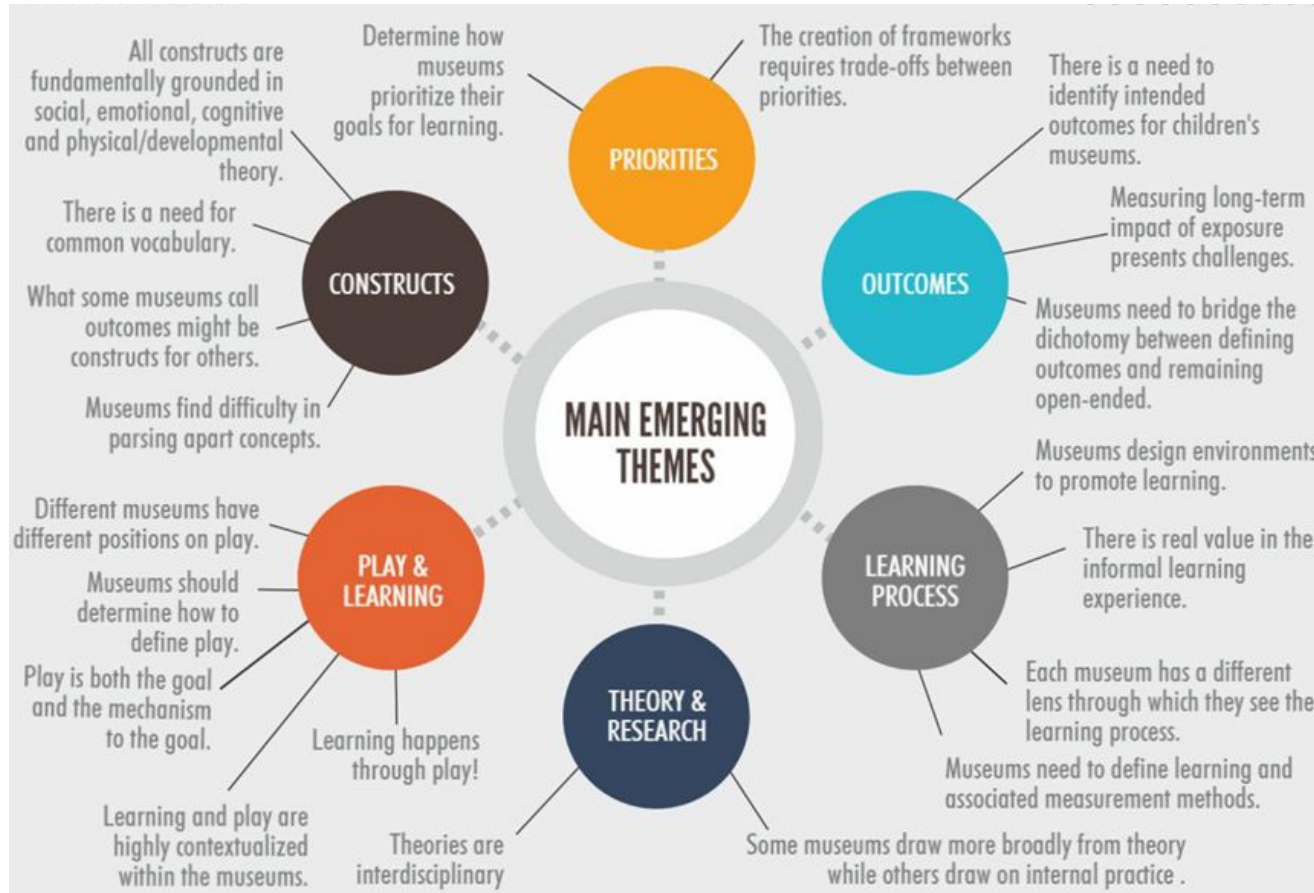
Three research questions led the study. Quick recap:

1. Shared and divergent vocabulary
2. Learning theories, either implicitly or explicitly, reflected
3. Constructs used and prioritized

Thematic analysis of documents provided by the five participating museums and group interviews with staff at each museum about ideas related to learning frameworks:

- Origin and development of the learning framework,
- Institutional views on learning and learning outcomes,
- How learning is measured, and
- Applicability to other museums or settings

# SIG#1 - The Nature of Learning Frameworks in Children's Museums



Six major themes were identified.

# SIG#1 - The Nature of Learning Frameworks in Children's Museums



## OUTCOMES

- There is a need to identify intended outcomes for CMs.
- Museums need to bridge the dichotomy between defining outcomes and remaining open-ended.
- Measuring long-term impact presents challenges.

# SIG#1 - The Nature of Learning Frameworks in Children's Museums



## CONSTRUCTS

- All constructs identified were grounded in social, emotional, cognitive, and physical/ developmental theory.
- Museums found it difficult to parse constructs.
- There is a need for a common vocabulary.
- What some CMs call outcomes might be constructs for others.

# SIG#1 - The Nature of Learning Frameworks in Children's Museums



The CMRN's review of five museums' learning frameworks revealed:

- Each reflected the institution's values and beliefs about learning.
- Grounded in a specific context.
- Just one perspective, not the only or the best perspective.

# SIG#2 - Exploration of play within children's museums

## The Problem of Play

Play is a central, defining concept for many children's museums, but it is also problematic.

- It is not well-understood, despite existing research.
- It is undervalued at a policy level.
- It is difficult to define.

Although play is a defining characteristic of children's museum experiences, even the small group of museums within the research network took very different positions on play — play was central for some, peripheral for others.

## Our Question

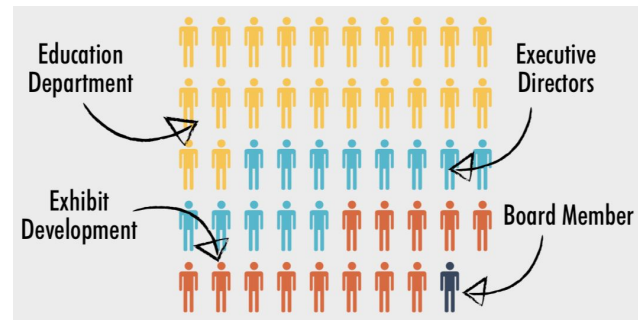
How do children's museums position themselves and their work around play?

# Study methods

Included **49 museums** across the United States

Sizes, locations, budgets closely matched to ACM membership

Semi-structured telephone interviews with **senior staff**



## Sample interview questions

- Is play in your museum's mission statement? What is the role of play in your museum's mission?
- How important is play to your museum's mission (on a scale of 1 to 7)?
- When was the last time you were part of a conversation among staff at your museum that was even loosely related to play?
- Does your museum have what you would consider to be a definition of play? Is this definition written down?
- How would you describe the relationship between play and learning?
- What are the benefits of play?



# Visibility of play in mission statements

Majority of museums said **play was part of their mission**

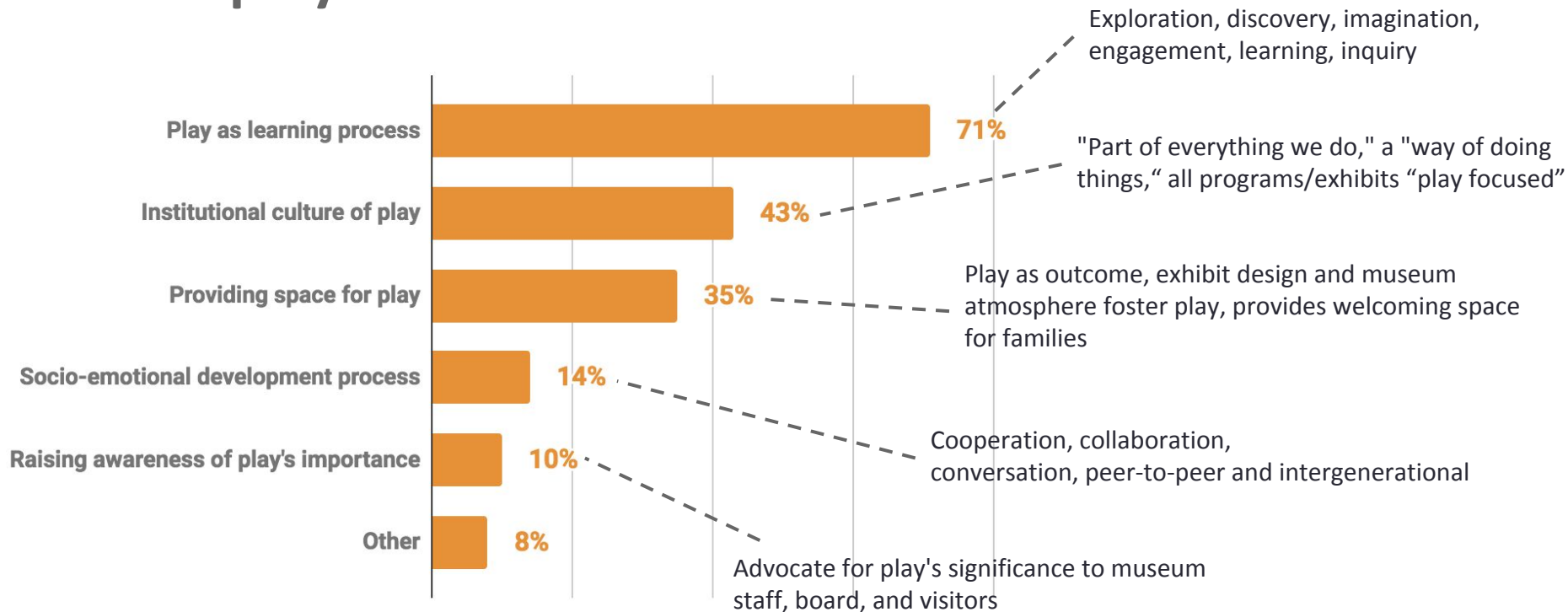
- “Play” is in mission (57%)
- “Play” is in other statement (14%)
- Play is implied (31%)

Majority said **play was very important** to their mission.

On a scale of 1 (not at all important) to 7 (extremely important)

- 7: 84%
- 6: 6%
- 5: 10%

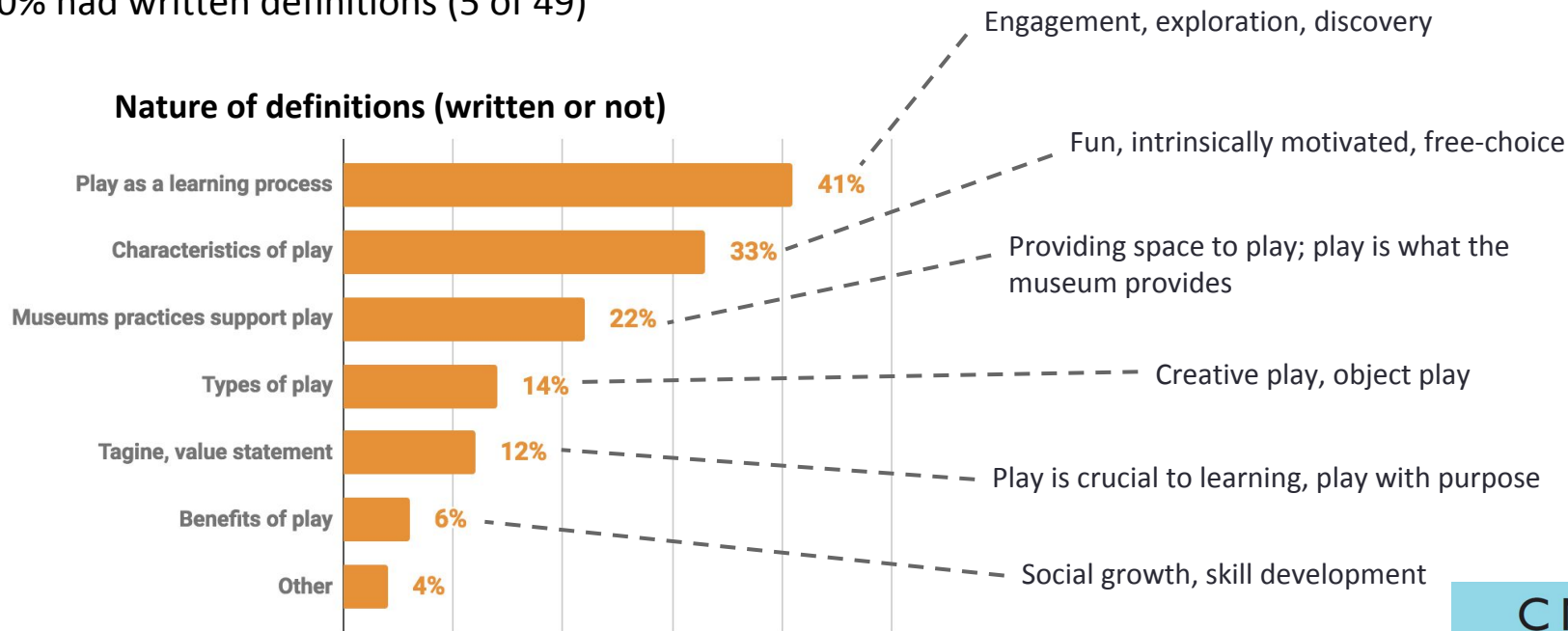
# Role of play in mission statements



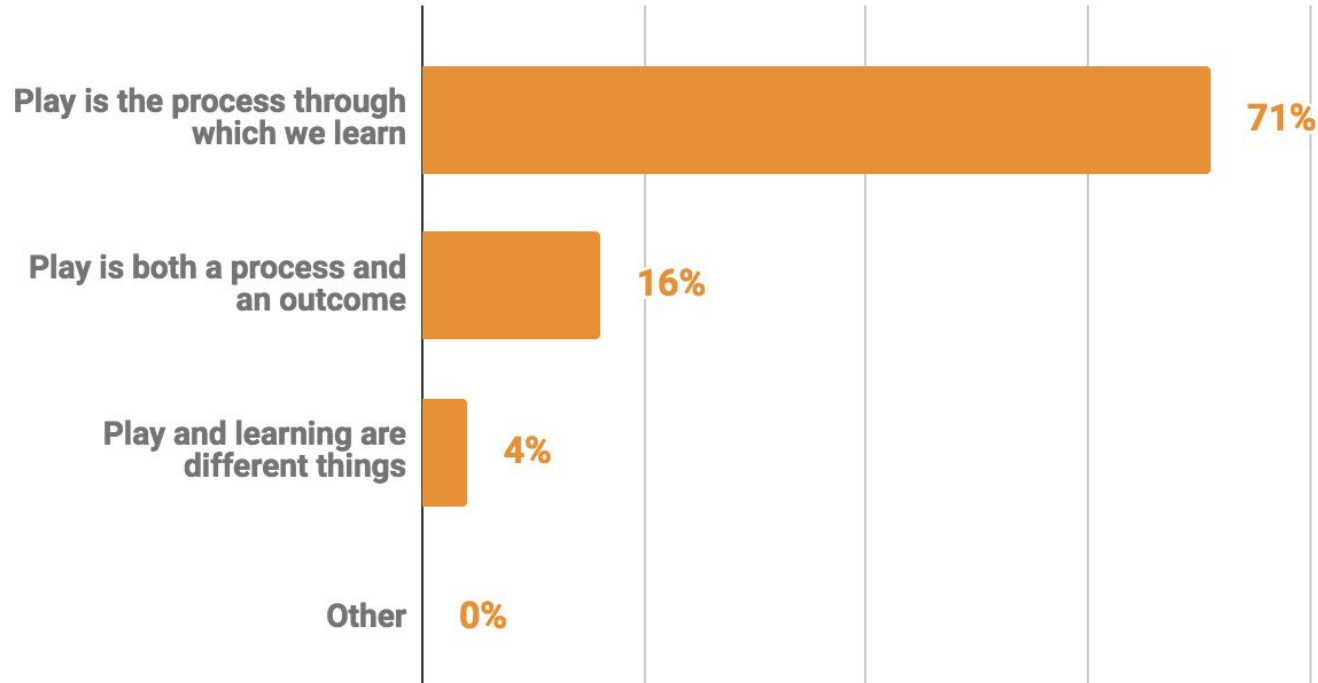
# Definitions of play

29% of museums had definitions of play used internally (14 of 49)

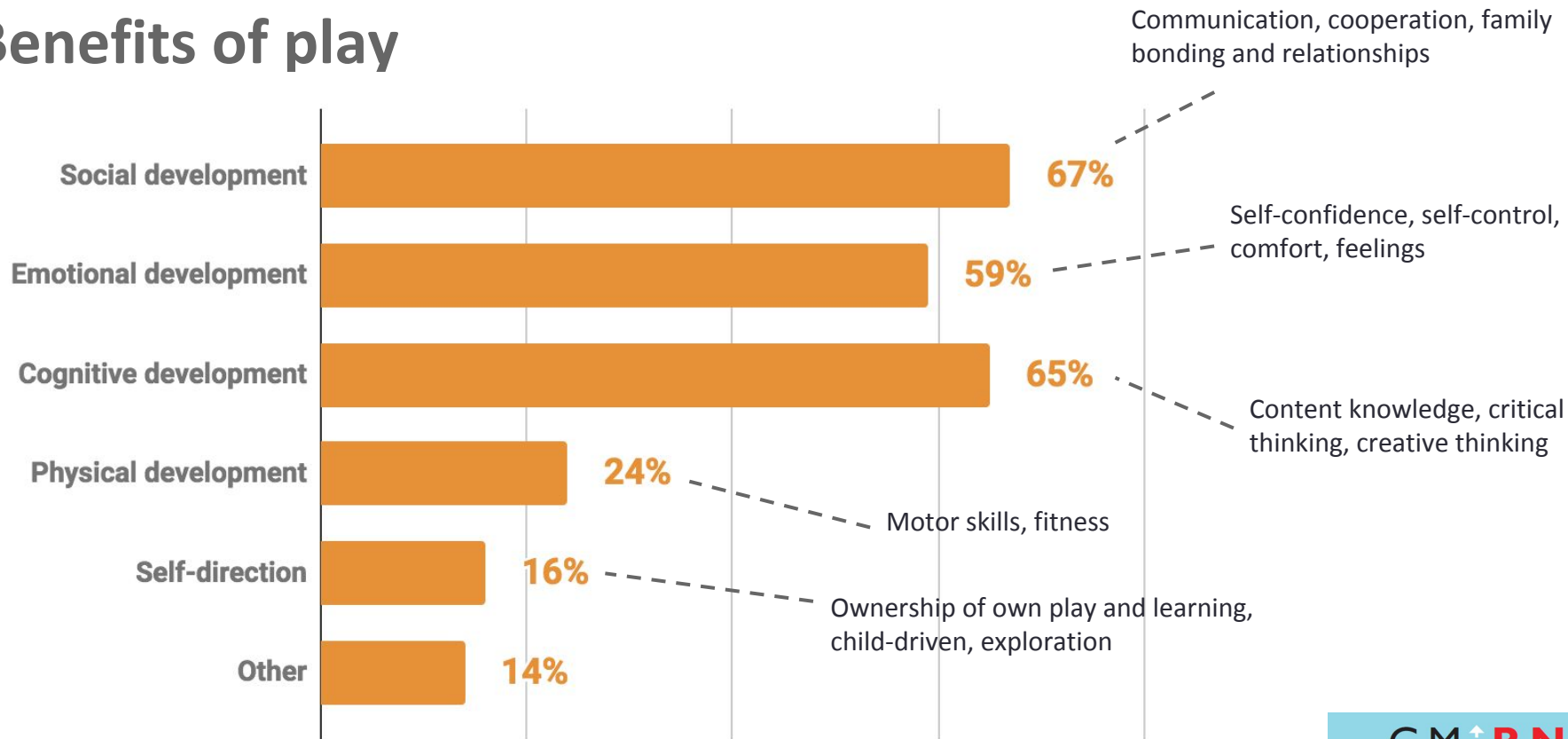
10% had written definitions (5 of 49)



# Relationship between play and learning



# Benefits of play



# Follow-up study

30 respondents, a subset of those who were interviewed (conducted via Survey Monkey)

## Prompting reflection

**57% reported speaking with a co-worker about play and their museum** after participating in the interview:

- The need for a more explicit position on play and its value
- A heightened mindfulness of play as a result of interview participation—how they think and talk about it, how it relates to their mission, what they currently do and things they may wish to change

**58% reported doing something *other than* talking** to co-workers:

- Seeking out more information on play, using journals, blogs, websites, etc. (50%)
- Individual reflective thinking about their institutions position on play (31%)
- Reviewing, updating, and/or sharing their own institutional documents (25%)

# Implications

This study showed that the children's museums represented here...

- **Strongly value play** as important to their missions
- Consider play to be a mechanism for learning and a way of supporting multiple facets of children's development

This view **closely aligns with existing research** on play and its value.

Nevertheless, children's museums **seldom defined play or how it leads to learning** in a formal way within their institutions.



# Implications

HOW DOES PLAY  
RELATE TO  
PRACTICE?

DO MUSEUMS NEED  
A STANDARD  
DEFINITION OF  
PLAY?

COMPARATIVE  
APPROACHES TO  
PLAY

There is a need for children's museums to...

- Discuss the aspects of play that they support or emphasize
- Articulate how they believe those experiences contribute to different forms of learning

Such conversations would help museums...

- Evaluate and argue for their unique learning value
- Advocate more effectively for the value of play for the individuals and communities they serve

# Study 3: Caregivers Understanding of Learning in Children's Museums

- What do parents/caregivers learn about their children from their children's museum experience?
- What is it about the children's museum experience that parents/caregivers feel contributes to that learning?

# Where the responses came from



Museum	Number of Participants	Percent
DuPage Children's Museum	62	28%
Children's Museum of Pittsburgh	42	19%
Thanksgiving Point	32	14%
Minnesota Children's Museum	31	14%
The Magic House, St. Louis Children's Museum	21	9%
Children's Museum of Indianapolis	19	9%
Children's Museum of Tacoma	9	4%
Boston Children's Museum	7	3%
Other	0	0%
<b>Total:</b>	<b>223</b>	<b>100%</b>

## Who the responses came from



Adults visiting a participating Children's Museum with at least one child. Sample was comprised of:

- More women than men (90% compared to 10%).
- Approximately equal proportions of museum members and non-members.
- Most of the respondents were between the ages of 30 and 39 (57%).

# Why did you go to the Children's Museum?



- An aspect of the child's experience: 26%
- Convenience: 26%
- Socialize/Interact with others: 19%
- Child's preference/choice: 17%
- Something specific the museum offers: 14%
- Special occasion: 6%
- Adult's preference/choice: 2%

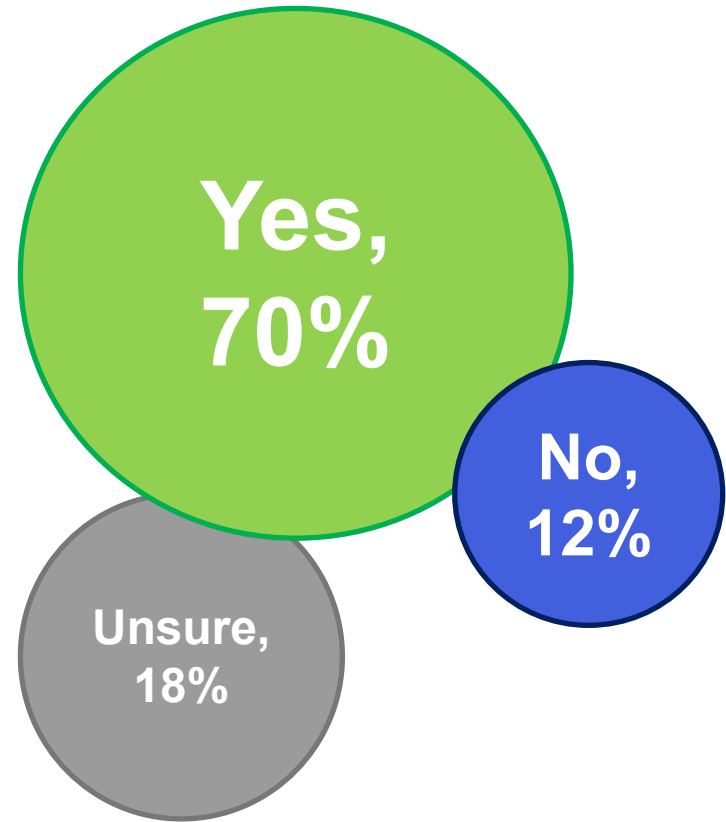
3 additional categories each had 2% or fewer responses

# During your visit, did you discover anything about your child(ren)?

<i>I discovered something about...</i>	Percent responding “Yes”
What my child(ren) is/are interested in or not interested in.	83%
How my child(ren) interact(s) with others.	70%
What my child(ren) is/are good at or not good at.	67%
How my child(ren) solve(s) problems	65%
How my child(ren) think(s).	64%
My relationship with my child(ren).	55%
How my child(ren) regulate(s) his/her/their emotions.	46%



**Do you think you  
observed anything  
about how your  
child(ren) learn?**





**Tell us what you observed about your child(ren)'s learning.**

- **Process of learning/How they learn: 66%**
- Interests or preferences: 17%
- Traits or characteristics: 12%
- How child interacts/social skills: 10%
- Skills or abilities: 9%

5 additional categories each had 6% or fewer responses



**Now think of a specific instance during your visit where you observed something about how your child(ren) learns.**

**Where were you in the museum, and what were you and your child doing?**



In their descriptions, adults  
focused on:

Exhibit name  
or area of the museum **69%**

Materials or  
objects **62%**

Other elements such as **facilitators, audiovisual elements, and printed materials** were mentioned by 5% or fewer respondents in describing the instance in which they observed how their child learns.



# What were you and your child doing [when you observed how they learn]?



- **Manipulating or using objects or materials: 49%**
- Observing, watching, looking: 25%
- Problem solving/Figuring out how: 20%
- Imitating/modeling: 10%
- Interacting with others: 8%
- Playing: 8%



Why didn't you observe anything about how your children learn?	Number of Participants	Percent of Participants
Already know how child(ren) learn(s)	8	33%
Not looking for it	7	29%
Playing and fun - not learning	5	21%
Museum environment challenges	4	17%
Extraneous pressures	1	4%
Other	3	13%
<b>Total responses:</b>	28	117%
<b>Total respondents:</b>	24	

What's your gut feeling about why you didn't observe anything about how your child(ren) learn?

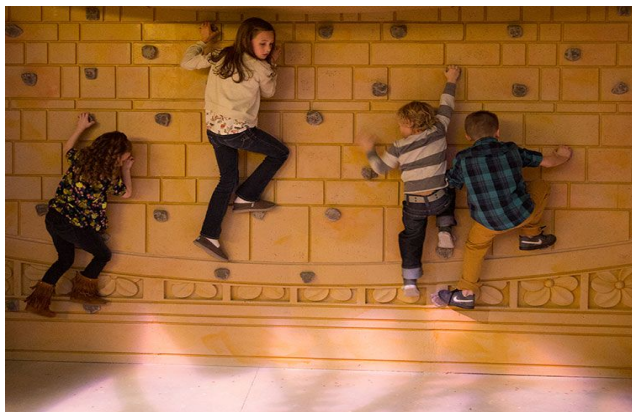
Tell us what it was about the children's museum environment that made it possible for you to observe how your child(ren) learn(s).

“Extremely Important”

Opportunity to watch my child(ren) play	65%
Materials/activities that I don't have access to at home	61%
Opportunities to watch my child(ren) interact with other children	42%
Activities that sparked conversations btw me and my child(ren)	42%
Activities that my child(ren) and I worked on together	39%
Signs that explained what my child(ren) might be learning	19%
Signs that suggested ways I can support my child(ren)'s learning	19%
Floor staff who engaged my child(ren) in conversation or action	16%
Floor staff who engaged me in conversation or action related to my child	15%
Floor staff who shared specific information	14%

**In your opinion, to what extent does the children's museum you visited present a unique opportunity for you to observe how your child(ren) learns, unlike any other place or experience?**

1=Not at all unique		2		3		4		5		6		7=Completely unique		Not applicable	
0%	0	1%	2	3%	6	10%	18	25%	44	23%	40	38%	66	0%	0



Total	Weighted Average
176	5.77

Unique aspects of the museum

Activities, exhibits or materials available	45%
Quantity and variety of activities or topics	27%
Presence of other visitors	10%
Designed for children/safe for children	9%
Hands-on opportunities	8%
Change or newness	6%
Caters to many ages	3%
Staff or facilitators	3%
Other	3%

Children’s behaviors encouraged at the museum

Exploring/discovery	14%
Play	13%
Interaction with other children	13%
Using materials and objects	10%
Creativity	6%
Having fun/Enjoyment	6%
Problem solving	5%
Being engaged (general)	5%
Plus 5 additional categories	



<b>Museum aspects that are not unique</b>	<b>Number of Participants</b>	<b>Percent of Participants</b>
Museum activities found elsewhere	10	6%
Interacation with other children elsewhere	5	3%
Not helpful in revealing learning	4	2%
Common materials	1	1%
Other	1	1%
<b>Total responses:</b>	<b>21</b>	<b>12%</b>
<b>Total respondents:</b>	<b>173</b>	

Similar places	Number of Participants	Percent of Participants
Other children's museums	9	5%
Home	5	3%
School	4	2%
Zoos, aquaria, or similar	3	2%
Park or playground	3	2%
Anywhere or everywhere	3	2%
Library	2	1%
Community activities	1	1%
Other	1	1%
<b>Total responses:</b>	<b>31</b>	<b>18%</b>
<b>Total respondents:</b>	<b>173</b>	

# What do parents/caregivers learn about their children from their children's museum experience?

- Interests
- Social Skills
- Strengths and weaknesses
- Thinking/problem solving skills
- Emotional regulation

*What if we intentionally marketed children's museums not just as places where children can learn, grow, and develop skills, but as places where parents can learn about their children?*



# What is it about the children's museum experience that parents/caregivers feel contributes to that learning?

## Main contributors:

- Opportunities to watch their children play and interact
- Unique materials

## Less impactful:

- Signage
- Floor staff

*What can we change about our current signage and floor staff practices to make a difference?*

*How could we test these changes?*



# Children's Social and Emotional Development

## SIG 4:

### PURPOSE

- To examine the nature and frequency of children's social-emotional behaviors in children's museums;
- To contextualize our understanding of children's social-emotional behaviors in children's museums by comparing them with social-emotional behaviors in “like” environments designed for play.



# Methods

- 468 observations of 4 – 5 year olds in the museum, using an adapted version of the Minnesota Preschool Affect Checklist (MPAC).
- 35 video-recorded observations of 4 – 5 year olds in the museum, conducted in exhibition areas designed to foster young children’s social-emotional development.\*
- 138 observations of 4 – 5 year olds at “like” sites, conducted at free spaces designed for children’s play.

\*RESULTS FROM THE VIDEO-RECORDED OBSERVATIONS ARE NOT INCLUDED IN THESE SLIDES



# Museum Sample: Sites

Site	Number	Percent
Boston Children's Museum	15	3%
Canadian Children's Museum	30	6%
Children's Museum of Denver	203	43%
Children's Museum of Houston	25	5%
Children's Museum of Indianapolis	20	4%
Children's Museum of Oak Lawn	16	3%
Children's Museum of Sonoma County	20	4%
Children's Museum of Tacoma	41	9%
Children's Museum of Pittsburgh	15	3%
Dupage Children's Museum	12	3%
Kohl Children's Museum	20	4%
Providence Children's Museum	15	3%
Thanksgiving Point	20	4%
Wonder Works	16	3%
<b>Total</b>	<b>468</b>	<b>100%</b>

## Comparison Sample: Sites

Site	Number	Percent
Bellevue Square Play Area	34	25%
Downtown Park	11	8%
Fircrest Tot Lot	7	5%
Howarth Park	12	9%
Lincoln Park	13	9%
Riverwalk Park	10	7%
Seattle Center Playground	18	13%
Southcenter Mall Play Area	4	3%
University Place	15	11%
University Village Playground	12	9%
Vios Cafe	1	1%
Volunteer Park	1	1%
Total	138	100%



# Measures Included

## Social group

Other children in the group?

Other children in the vicinity?

## Levels of adult interaction

Caregiver

Staff



## Museum Sample: Duration of Observations

Duration of observation	Number	Percent
1 minute	6	1%
2 minutes	22	4%
3 minutes	40	9%
4 minutes	48	10%
5 minutes	46	10%
6 minutes	29	6%
7 minutes	24	5%
8 minutes	33	7%
9 minutes	13	3%
10 minutes	203	43%
11 minutes	2	0.50%
13 minutes	2	0.50%
Total	468	100%

## Comparison Sample: Duration of Observations

Duration of observation	Number	Percent
1 minute	0	0%
2 minutes	5	4%
3 minutes	6	4%
4 minutes	1	1%
5 minutes	6	4%
6 minutes	6	4%
7 minutes	9	7%
8 minutes	8	6%
9 minutes	7	5%
10 minutes	89	65%
Total	137	100%

# MPAC Dimensions

1. **Affect**, positive and negative
2. **Involvement**, positive and negative
3. **Frustration**, positive and negative
4. **Unusual behavior**
5. **Leading, joining**
6. **Empathy, prosocial behavior**



# Summary of Findings

In the museum, children demonstrated more instances of:

- Negative affect
- Positive involvement
- Negative involvement
- Positive frustration
- Negative frustration
- Leading, joining
- Empathy, prosocial behavior

At comparison sites, children demonstrated more instances of:

- Positive affect



SLG4 → ①

- Identify qualities of environments — what role might they play in these results?
  - Adult expectations/roles?
- Emphasize value of CMs in these results
- Describe the richness of social/emotional behaviors in CMs from these results

Three directions →

Improve practice → Why we matter → What S&B looks like in CMs.

What can we say about how to facilitate S&B.

- Focus on leading/joining + empathy

Exhibit Space ②

Museum	Space
Boston - minimal loose parts.	- pretend play - kitchen, air plane, campground + health + wellness
Durfee - lots of loose parts	- physics, problem solving, building, persistence
Kohl - lots of loose parts	- pretend play - grocery, turn taking
Wonder Works - lots of loose parts	- building blocks, loose parts, train table
Oak Lawn - lots of loose parts	- pretend play - grocery, ice cream shop
Thanksgiving Pt. - lots of loose parts	- cause + effect, wind tubes, water play, STEM, earthquake table
Houston - lots of loose parts	- cause + effect, wind/air tubes
Dover - lots...	- dramatic play - Farmers Market, kitchen - animal/vet - balls/ramps/physics
Providence - lots...	- pretend play - market - immigration, 1960s
Indianapolis - lots...	- cause + effect - balls/ramps - block play - wind tunnel
Canadian CM - lots	- market/pretend play

Museum	Space
Tacoma - lots...	- pretend play - gross motor - sorting, grouping, costumes - cooperation/communication
Pittsburgh - lots...	- gross motor - art, humor, stories
Sonoma - lots...	- café, cooking, serving - cash register - dramatic play

→ lots of loose parts  
→ single load experience

(ALL)

(Some)

- req. collaboration, shared goal
- pretend play
- dramatic play
- adult invitations to engage

# So what?



Question: If a tree falls in the forest and no one's around, and it hits a mime, does anyone care?

# Why should you care?

Image credit:

<https://www.amazon.com/Far-Side-Vintage-Greeting-Envelope/dp/B07HLCKSF5>

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# Impact

There have been...

- **Presentations**
  - Several times at ACM InterActivity
  - Visitor Studies Association Conference
- **Publications**
  - Professional journals
  - *Hand to Hand* issue and articles
  - [informalscience.org](http://informalscience.org), IMLS Blog
- **Webinars**
- **Regional Workshops**
- **Infographics**

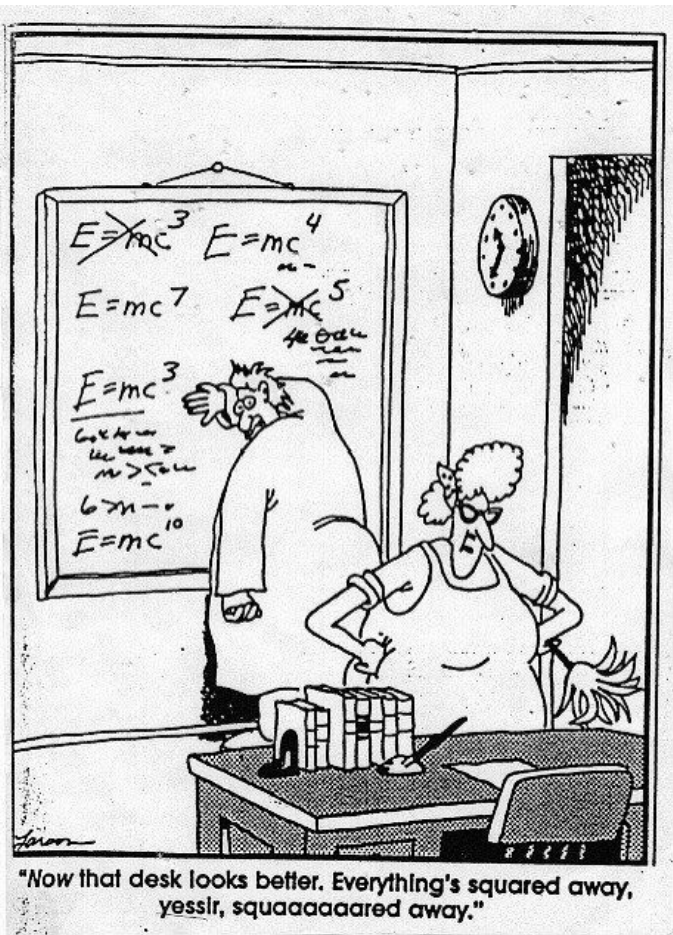


Image credit:

<https://www.pinterest.com/pin/237213105348064188/?lp=true>

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# This also happened:

American Academy  
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

## The Power of Play: A Pediatric Role in Enhancing Development in Young Children

Michael Yogman, MD, FAAP,<sup>a</sup> Andrew Garner, MD, PhD, FAAP,<sup>b</sup> Jeffrey Hutchinson, MD, FAAP,<sup>c</sup>  
Kathy Hirsh-Pasek, PhD,<sup>d</sup> Roberta Michnick Golinkoff, PhD,<sup>e</sup> COMMITTEE ON PSYCHOSOCIAL  
ASPECTS OF CHILD AND FAMILY HEALTH, COUNCIL ON COMMUNICATIONS AND MEDIA

Children need to develop a variety of skill sets to optimize their development and manage toxic stress. Research demonstrates that developmentally appropriate play with parents and peers is a singular opportunity to

abstract

FREE

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# Implications



The Vikings, of course, knew the importance of stretching before an attack.

Image credit:

[https://twitter.com/thefarside\\_ish/status/997455983977758720](https://twitter.com/thefarside_ish/status/997455983977758720)

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# Implications of SIGs:

How was the research conducted?

**SIG-2: Play:**  
Museum professionals  
across ACM.

**SIG-1: Learning  
Frameworks:**  
Small group of museums  
within CMRN.

**SIG-2: Caregivers'**  
**Perceptions of Learning:**  
Surveys and interviews with  
parents / caregivers.

**SIG-4: Social / Emotional  
Development:**  
Observations of children.

## We asked caregivers what they noticed about their children's learning at children's museums.



### CAREGIVERS LEARN NEW THINGS ABOUT THEIR CHILDREN AT THE MUSEUM.

Learning processes



Preferences



Traits and Characteristics



Skills



### CAREGIVERS VIEW CHILDREN'S MUSEUMS AS IDEAL PLACES TO SEE THEIR CHILDREN LEARN.

Caregivers stated that children's museums are unique learning environments because of the:

Variety of activities



Hands-on play



Spaces designed to support learning and development



### CAREGIVERS NOTICED THEIR CHILDREN LEARNING AT EXHIBITS AND PLAY-BASED ACTIVITIES.

This gave caregivers ideas for how they might encourage their child's interests and learning at home.

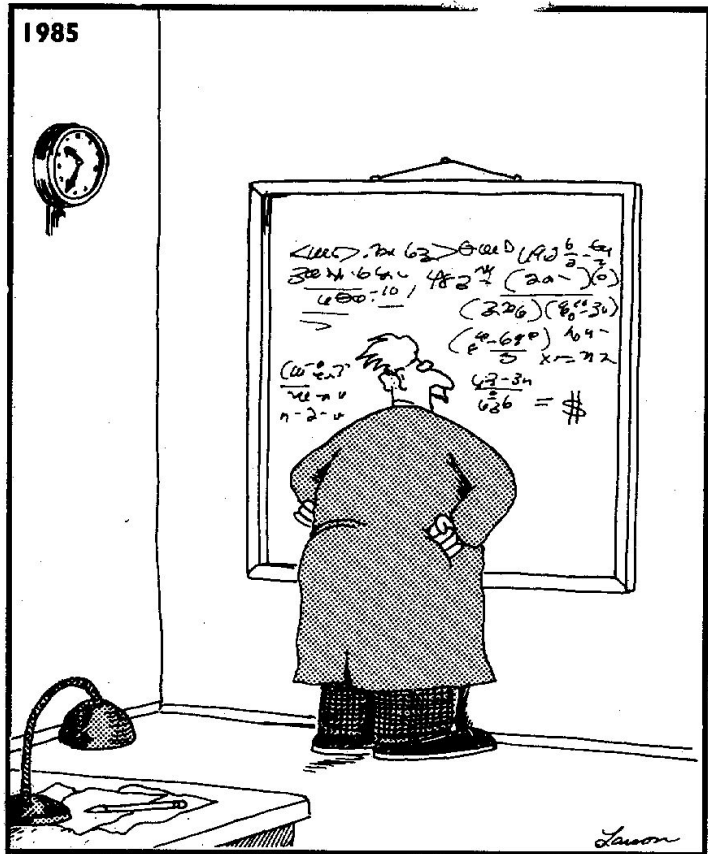


The next time you visit your local children's museum, take time to slow down and watch your child learn. Then, join in!



Visit [findachildrensmuseum.org/about](http://findachildrensmuseum.org/about) for more information.

1985



Einstein discovers that time is actually money.

# What's next for the CMRN?

Image credit:

<https://www.pinterest.com/pin/554013191645508966/?lp=true>

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"Now on to other business... Ole Johnson here has a new helmet design to show us!"

# Discussion and Next Steps

1. What are your key takeaways?
2. What could the CMRN do that would be of greater use for you?

Image credit:

<https://www.pinterest.com/stevecco/the-far-side/?lp=true>

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