



Caregivers' understanding of learning in children's museums

Special Interest Group – 3
Data Analysis
November 16, 2017

Research Questions

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

1. Select the children's museum where you were recruited for this study.

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%
Total:	223	100%

2. Why did you go to the children's museum that day?

Coding Rubric

Code	Code description	Examples
1	Something specific the museum offers	activities, exhibits, events, quantity of things to do, engaging staff
2	Socialize/ interact with others	quality family time, playdate with friends, meet other children, invited by our friends
3	Aspect of the child(ren)'s experience	fun, interactive, hands-on, educational, opportunity for play, keeps the kids busy, engaging
4	Convenience	hot day, live nearby, only thing to do, received a free pass, needed to get out of the house, membership makes it easy
5	Child's preference/ choice	child asked, child's favorite place, child loves the museum
6	Adult's preference/ choice	good memories from their childhood, prefer the museum to their child using screens, curious about the museum and wanted to go
7	New or unique experience	it was a new experience for us, wanted to do something we hadn't done before, give the kids something different to do
8	Museum's reputation	I had heard great things about it, I heard the museum was awesome
9	Special occasion	Last outing before school starts, birthday, special outing, grandchildren visiting from Texas
10	Other	Field trip, trying to make the most of our August days, we had not been to the museum in a couple of months
77	Did not provide relevant answer	
99	Blank	

Question 2

Results

Why they went to the museum	Number of Participants	Percent of Participants
Aspect of the child(ren)'s experience	56	26%
Convenience	56	26%
Socialize/ interact with others	40	19%
Child's preference/ choice	37	17%
Something specific the museum offers	31	14%
Special occasion	12	6%
Adult's preference/ choice	5	2%
New or unique experience	5	2%
Museum's reputation	3	1%
Other	5	2%
Did not answer question	1	0%
Total answers:	251	117%
Total respondents:	214	

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

I discovered something about...	Yes		No		Unsure		Not applicable		Total
what my child(ren) is/are interested in or not interested in.	82.61%	171	13.53%	28	3.38%	7	0.48%	1	207
how my child(ren) interact(s) with others.	70.05%	145	23.67%	49	5.31%	11	0.97%	2	207
what my child(ren) is/are good at or not good at.	66.67%	138	21.74%	45	9.66%	20	1.93%	4	207
how my child(ren) solve(s) problems.	65.22%	135	25.12%	52	7.73%	16	1.93%	4	207
how my child(ren) think(s).	64.25%	133	24.15%	50	10.63%	22	0.97%	2	207
my relationship with my child(ren).	54.59%	113	38.16%	79	6.76%	14	0.48%	1	207
how my child(ren) regulate(s) his/her/their emotions.	46.38%	96	42.51%	88	9.18%	19	1.93%	4	207

4. Do you think you observed anything about how your children learn?

Answer	Number of Participants	Percent of Participants
Yes	145	70%
No	24	12%
Unsure	37	18%
Total:	206	100%

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

Coding Rubric

Code	Code description	Examples
1	Named a learning style	hands-on learner, visual learner, tactile learner
2	Described a process of learning	trial and error, observed and then tried, touches and asks questions, explores then learns by doing
3	Skills or abilities	good at problem solving, good at drawing
4	Interests or preferences	they love to build, she loves science,
5	Characteristic	shy, independent, careful, analytical, resilient, curious
6	Emotional reactions	frustrated, overwhelmed, angry
7	Adult's role/ impact on learning	If I scaffold his learning, he stays engaged longer; she responded to me clapping
8	How child interacts/ social skills	cooperating to work with others, enjoys peer interactions
9	Named topic only or described what child did	we learned about airflow and how to build something that can fly, connecting electric lines, building with bolts and nuts
10	Other	
77	Did not provide relevant answer	

Question 5

Results

What parents/caregivers observed about children's learning	Number of Participants	Percent of Participants
Process of learning/ how they learn	92	66%
Interests or preferences	23	17%
Trait or characteristic	16	12%
How child interacts/ social skills	14	10%
Skills or abilities	13	9%
Learning style	8	6%
Adult's role/ impact on learning	8	6%
Topic or something child did	8	6%
Emotional reaction	7	5%
Other	2	1%
Total responses:	191	137%
Total respondents:	139	

6. 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? Again, give us as much detail as you can, please.

Question 6, Part A: Where and what in the museum?

Coding Rubric

Code	Code description	Examples
1	Exhibit name or museum area	stage, water area, dinosaur exhibit, basement part, Kidopolis
2	Materials or objects	balls, ramps, tubes, pinwheels, tissue paper
3	Audiovisual elements	video, music playing
4	Guided experience with facilitator	someone teaching modern dance moves
5	Printed materials	instruction sheet, writing in the China exhibit
6	Special event	
7	Other	
77	Did not provide relevant answer	

Question 6, Part A

Results

Where/ what in museum?	Number of Participants	Percent of Participants
Exhibit name or museum area	90	69%
Materials or objects	80	62%
Guided experience with facilitator	6	5%
Audiovisual elements	4	3%
Printed materials	1	1%
Other	1	1%
Special event	0	0%
Did not provide relevant answer	9	7%
Total responses:	191	147%
Total respondents:	130	

Question 6, Part B: What were you and your child doing?

Coding Rubric

Code	Code description	Examples
1	Observing/ watching	watching the puppet move, watch things turn on, watching others
2	Manipulating or using objects or materials	push buttons, use wood making tools, using blocks and balls, playing with the giant corkscrew
3	Listening	my child lit up when it made sounds, the sound of the blocks hitting each other was amusing, listening to the teacher
4	Imitating/ modelling	he was watching others make food so he started making food, kept doing it after seeing someone else do it
5	Playing	she was playing in the infant area, he was playing in the play place, I was watching him play
6	Exercise/ physical activity	he loved running and walking through the maze, he jumped on the tire, tapping his foot, first dance moves
7	Social verbs	another child showed him, helping a younger child, learned from the boys he was building with
8	Problem solving or figuring out how	he figured out if you turn the wheel it would move the toys, trying to solve the problems in all the different sections
9	Asking Questions	asking question after question, seeking advice, asked the gentleman to show him
10	Reading	read and learn, he read the sheet
11	Creating or making something	trying to make something out of wood and nails, building things, make a rollercoaster, building lego cars
12	Performing	he put on a puppet show, performing with friends
13	Pretending or role playing	she loves pretending, used a piece of fabric as a "magic carpet"
14	Exploring	allowing them to discover on their own, wandering around the city, walking around at her own pace, roaming, exploring
15	Other	
77	Did not provide relevant answer	

Question 6, Part B

Results

What were you and your child doing?	Number of Participants	Percent of Participants
Manipulating or using objects or materials	64	49%
Observing/ watching/ looking	32	25%
Problem solving/ Figuring out how	26	20%
Imitating/ modelling	13	10%
Exercising/ physical activity	11	8%
Playing	10	8%
Interacting with others	10	8%
Creating	10	8%
Listening	6	5%
Exploring/ wandering	5	4%
Asking questions	4	3%
Pretending/ role playing	3	2%
Reading	2	2%
Performing	2	2%
Other	7	5%
Did not provide relevant answer	14	11%
Total responses:	219	168%
Total respondents:	130	

Question 6, Part C: Did respondent use "I," "we," or "me?"

Code	Code description	Examples
1	Said "I" or "we" or referred to their own actions	We were playing, I said "wow" when they made things happen, I showed her how
2	Talked only about children	my children worked, she played, he watched
3	Named activity without using a subject	water play area, playing with different tools
77	Did not provide relevant answer	

Question 6, Part C

Results

Said "I," "we," or "me"	Number of Participants	Percent of Participants
Yes	53	41%
No, talked only about children	55	42%
Answered question without a subject	19	15%
Did not provide relevant answer	3	2%
Total responses:	130	100%
Total respondents:	130	

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

Code	Code description	Examples
1	Already know how child(ren) learn(s)	I already know how he learns, I know child very well
2	Not looking for it	I wasn't looking for this
3	Playing and fun--not learning	they were just playing and not learning anything from the play
4	Museum environment challenges	too crowded, exhibits did not hold his attention
5	Extraneous pressures	not enough time
6	Other	
77	Did not provide relevant answer	

Question 7

Results

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%
Total responses:	28	117%
Total respondents:	24	

8. 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).

	1		2		3		4		5		6		7		N/A		Total
Opportunity to watch my child(ren) play	1%	1	1%	1	3%	4	3%	5	5%	8	23%	35	65%	100	1%	1	155
Materials/activities that I don't have access to at home	2%	3	1%	2	1%	2	5%	8	9%	14	17%	27	61%	95	3%	4	155
Opportunity to watch my child(ren) interact with other children	3%	5	2%	3	10%	16	6%	10	14%	21	19%	29	42%	65	4%	6	155
Activities that sparked conversations between me and my child(ren)	3%	4	2%	3	10%	15	12%	18	12%	19	12%	19	42%	65	8%	12	155
Activities that my child(ren) and I worked on together	3%	4	5%	7	5%	7	10%	15	19%	29	18%	28	39%	60	3%	5	155
Signs that explained what my child(ren) might be learning	10%	15	5%	7	7%	11	12%	18	13%	20	19%	29	19%	30	16%	25	155
Signs that suggested ways I can support my child(ren)'s learning	10%	15	6%	9	10%	16	12%	19	12%	18	20%	31	19%	29	12%	18	155
Floor staff who engaged my child(ren) in conversation or action	12%	19	10%	16	8%	12	9%	14	10%	16	12%	18	16%	25	23%	35	155
Floor staff who engaged me in conversation or action related to my child	14%	21	12%	18	11%	17	10%	15	10%	16	5%	7	15%	24	24%	37	155
Floor staff who shared specific information	12%	19	12%	19	9%	14	10%	16	8%	13	7%	11	14%	21	27%	42	155
Other (please specify)																	10

9. 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

10. Explain your rating in the previous question. If you said that the children's museum IS a unique place to observe your child(ren)'s learning, tell us what makes it unique. If you said it's NOT a unique place to observe your child(ren)'s learning, tell us how it's similar to other activities in which you learn about your child(ren). Be as specific as possible, please.

Question 10, Part A: How the museum is unique – aspects of the museum.

Coding Rubric

Code	Code description	Examples
1	Designed for children/ safe for children	everything is child friendly and safe, it's made for their specific level, it's made for children
2	Activities/ exhibits, materials available at the museum	the tools for children to learn are unique, I don't have access to the materials at home, the equipment, the exhibits
3	Change or newness	the exhibits are always changing, always something new
4	Staff or facilitators	the staff in the art room was kind and helpful, directed activities, the staff with their knowledge
5	Presence of other visitors	opportunities to interact with other children, they have to deal with kids they don't see everyday
6	Quantity and variety of activities/ topics	there's so much to do, the sheer number of activities, it doesn't focus on one thing
7	Hands-on and interactive opportunities	lots of hands on opportunities, great for hands-on learners
8	Caters to many ages	locations for different ages of children, engaging for children of various ages and stages
9	Other	
77	Did not provide relevant answer	

Question 10, Part A

Results

Unique aspects of the museum	Number of Participants	Percent of Participants
Activities, exhibits or materials available	78	45%
Quantity and variety of activities or topics	46	27%
Presence of other visitors	17	10%
Designed for children/ safe for children	15	9%
Hands-on opportunities	13	8%
Change or newness	10	6%
Caters to many ages	6	3%
Staff or facilitators	5	3%
Other	5	3%
Total responses:	202	113%
Total respondents:	173	

Question 10, Part B: How the museum is unique – children's behaviors seen or encouraged at the museum

Coding Rubric

Code	Code description	Examples
1	Play	Kids are just playing, can play freely
2	Interaction with others	engage with other kids, interact with others from a wide age group
3	Problem solving	required problem solving with unique toys, promote trouble shooting
4	Using materials and objects	interacting with materials, playing with different items
5	Exploring/ discovery	discover new things, ways for children to explore, do what she wants
6	Experimenting and trying	ways to experiment and try new things, experimentation
7	Creativity	let creative minds flow, I liked creating things, let children use creativity
8	Having fun/ enjoyment	having fun, enjoying the exhibits
9	Pretending or role playing	pretend experiences, role playing
10	Mental engagement	engages the brain, test them mentally
11	Physical engagement/ exercise	test them physically, stimulation for the body
12	Being engaged (general)	activities for engagement, keeps them engaged
13	Other	
77	Did not provide relevant answer	

Question 10, Part B

Results

Children's behaviors encouraged at the museum	Number of Participants	Percent of Participants
Exploring/ discovery	25	14%
Play	23	13%
Interaction with other children	22	13%
Using materials and objects	17	10%
Creativity	11	6%
Having fun/ enjoyment	11	6%
Problem solving	8	5%
Being engaged (general)	8	5%
Experimenting	5	3%
Mental engagement	5	3%
Physical engagement/ exercise	3	2%
Pretending or role playing	2	1%
Other	1	1%
Total responses:	141	82%
Total respondents:	173	

Question 10, Part C: How the museum is NOT unique – aspects of the museum

Coding Rubric

Code	Code description
1	Not helpful in revealing learning
2	Museum activities found elsewhere
3	Common materials
4	Interacation with other children elsewhere
5	Other
77	Did not provide relevant answer

Question 10, Part C

Results

Museum aspects that are not unique	Number of Participants	Percent of Participants
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%
Total responses:	21	12%
Total respondents:	173	

Question 10, Part D: How the museum is NOT unique – places the museum is similar to

Coding Rubric

Code	Code description
1	Other children's museums
2	Zoos, aquaria, or similar
3	School
4	Library
5	Community activities
6	Home
7	Park or playground
8	Anywhere or everywhere
9	Other
77	Did not provide relevant answer

Question 10, Part D

Results

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%
Total responses:	31	18%
Total respondents:	173	

11. Since your visit to the children's museum a few days ago, have you talked with your child(ren) about something he/she/they experienced at the museum?

Answer Choices	Responses	
Yes	66%	112
No	31%	53
Unsure	4%	6
	Answered	171

12. Describe the conversation you had with your child(ren). Again, give as much detail as you can, please.

Coding Rubric

Code	Code description	Examples
1	Named their favorite/ preferred activities in the museum	We discussed his favorite activities, I asked what they liked the most
2	Described where they went/ what they did	activities she engaged in, we talked about the construction area
3	Explained how something worked in the museum	We spoke about creating pottery and why it had to remain at the museum for a couple of weeks, we talked about the ball drop ramp and what worked and what didn't
4	Connected experience to topics outside museum context	Kidopolis... led to a wonderful discussion on city councils, government, laws, mayors, and more
5	Expressed enjoyment	my 3 year old said it was so much fun, my kids kept talking about how much fun they had
6	Described what they learned	We discussed what we learned from the most
7	Adult praised child	I told him he did a great job, I told her how hard she worked, we gave them praise
8	Other	
77	Did not provide relevant answer	

Question 12

Results

Describe conversation	Number of Participants	Percent of Participants
Described where they went/ what they did	51	48%
Named their favorite/ preferred activities in the museum	39	36%
Explained how something worked in the museum	11	10%
Connected experience to topics outside museum context	9	8%
Expressed enjoyment	9	8%
Described what they learned	6	6%
Adult praised child	4	4%
Other	3	3%
Did not provide relevant answer	2	2%
Total responses:	134	125%
Total respondents:	107	

13. Since your visit to the children's museum a few days ago, have you engaged your child(ren) in any activities that related to something he/she/they experienced at the museum?

Answer Choices	Responses	
Yes	23.67%	40
No	63.91%	108
Unsure	12.43%	21
	Answered	169

14. Describe the activity in which you engaged your child(ren), and how it related to their museum experience. Please be as detailed as possible.

Coding Rubric

Code	Code description	Examples
1	Replicated the museum activity	He did the magic trick for his dad before dinner, son built a dam with sandbags in the play area and did the same thing at the beach the next day
2	Completed an activity begun in the museum	we finished her 3-D bus
3	New activity inspired by museum experience	we planted a garden together, the chalkboards reminded me to get out the water and paintbrushes at home and "paint" outside
4	Teaching others what they learned in the museum	We practiced the dance we learned and taught her siblings
5	Read or look up more information	We read about dinosaurs, looked some things up on the internet, we looked up musical instruments and how they are played
6	Named an activity without describing how it connected to museum experience	Snap circuits, building toys
7	Other	
77	Did not provide relevant answer	

Question 14

Results

Describe activity	Number of Participants	Percent of Participants
Replicated the museum activity	23	59%
New activity inspired by museum experience	7	18%
Read or look up more information	4	10%
Named an activity without describing how it connected to museum experience	3	8%
Did not provide relevant answer	2	5%
Completed an activity begun in the museum	1	3%
Teaching others what they learned in the museum	1	3%
Other	0	0%
Total responses:	41	105%
Total respondents:	39	

15 and 17 – Demographics

Gender	Number of Participants	Percent of Participants
Female	150	90%
Male	16	10%
Any other entry	0	0%
Total:	166	100%

Age	Number of Participants	Percent of Participants
20-29	19	11%
30-39	94	57%
40-49	24	14%
50-59	11	7%
60-69	12	7%
70-79	6	4%
Total:	166	100%

Membership status	Number of Participants	Percent of Participants
Member	85	51%
Not a member	83	49%
Total:	168	100%

Follow-up Analyses – Variables

CATEGORIES FOR EACH VARIABLE

• **Age of Kids:** 1=0-2 years (baby/toddler)
2=3-5 years (preschool)
3=6-10 years (elementary school)
4=11+ years (middle school)

• **# Adults:** 1=1-2 adults
2=3+ adults

• **Museum Member:** 1=Yes
2=No

• **Group Size:** 1=1-3 people
2=4-10 people

• **# Kids:** 1=1-3 kids
2=4+ kids

• **#Visit Frequency:** 1=0-6 visits in the last 12 months
2=7-24 visits in the last 12 months

Follow-up Analyses – Findings

Question	Significant Variable(s)
Discover anything about your child (scale 1-7)	
What my child(ren) is/are good at or not good at	Age of kids: 6-10 yr old sig. higher mean
How my child(ren) think(s)	Age of kids: 0-2 yr old sig. higher mean
How my child(ren) interact(s) with others	Visit frequency: 0-6 visits sig. higher mean (compared to 7+ visits)
How my child(ren) regulate(s) his/her/their emotions	Age of kids: 0-2 yr old sig. higher mean
What in environment afforded learning? (scale 1-7)	
Opportunity to watch my child(ren) interact with other children	Motivation=to socialize sig. lower mean
Floor staff who engaged my child(ren) in conversation	Group size: Smaller groups sig. higher mean
Signs that suggested ways I can support my child(ren)'s learning	Age of kids: 11+ year old sig. higher mean
Activities that sparked conversations between me and my child(ren)	Group size: Smaller groups sig. higher mean # of kids: Smaller # of kids sig. higher mean
Museum as unique opportunity to learn about child (scale 1-7)	Group size: Bigger groups sig. higher mean