



Motivation | Use | Value Study:

Technical Research Brief #3 – What do Parents Perceive is Valuable about Interactive Spaces in Art Museums, and How do they Perceive their Family Benefits from Visiting Them?

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Prepared by:

Jessica Luke, PhD

Cláudia Figueiredo, PhD

Angelina Ong, MA

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Introduction

Much of what we know about family learning in museums comes from studies conducted in science centers and children's museums. Only a handful of such evaluation studies have been conducted in art museums. Although there is a growing interest in establishing family-oriented, interactive galleries in art museum, little is known about the value these experiences add to visiting families.



As part of a **National Leadership Grant** from IMLS, the Institute for Learning Innovation and Audience Focus, Inc., partnered with three museums—the Frist Center for the Visual Arts, the High Museum of Art, and the Speed Art Museum—to conduct a three-year study to address this knowledge gap.

In 2007, a literature review was conducted to explore the areas of learning outcomes/visitor benefits in art museums, interactive museum experiences and intergenerational learning. While the review revealed a breadth of research and evaluation studies conducted in these fields, there was an absence of data on what families take away from their experiences in these unique spaces—*the outcomes*—and understanding the value that parents and caregivers ascribe to these places. To better understand the nature of these outcomes and allow for broader generalizations across our three partner museums, a quantitative approach was adopted for this study. This initiative led by ILI is known as the **Motivation | Use | Value study, or MUV study** and is paired with the Longitudinal Case Study conducted by Audience Focus, Inc.

Research Purposes and Questions

The MUV study focused on bringing greater clarity to three key research questions:

1. **WHO** are the families who visit interactive spaces in art museums and **WHY** do they visit them?
2. **HOW** do families use interactive spaces within art museums?
3. **WHAT** do parents perceive is valuable about interactive spaces in art museums, and how do they perceive their family benefits from visiting them?

We defined a family as an intergenerational group of 2 or more individuals with at least one child between the ages of 2-12 years. Throughout this brief, we will use the term family to denote such an intergenerational group.



Methods

Two methods were used to answer the above-mentioned questions: 1) on-site interviews with visiting parents/caregivers, aimed at understanding demographics, psychographics, motivations, and engagement with the museum's interactive space; and 2) a follow-up questionnaire administered online to the same parents/caregivers, focused on understanding the value and benefits that adults ascribe to the museum's interactive space.

The onsite interview was a structured instrument containing three parts. The first section asked visitors to reflect on their entire museum visit and recreate it chronologically using color-coded picture cards. Each card represented a stop on their visit and visitors put the cards in chronological order. While the entire group, including children, could participate in this activity, the primary adult participant in the group was responsible for confirming the completed path.

The second part of the onsite instrument required visitors to answer a series of psychographic questions including frequency of museum visits, museum memberships, motivations for visiting, and interest/background in art. The third part of the interview was demographic in nature, and asked adults for their age, sex, ethnicity, education level, and zip code along with information on how each member of the visiting group was related to the primary adult participant. At the end of the onsite exit interview, adults were asked to provide their contact information, including email, so that they could participate in the follow-up questionnaire.

The offsite questionnaire was administered online, although a paper version was made available to those who requested it. The questionnaire asked participants to indicate what was most valuable about their visit to the museum's interactive gallery. Rating statements were organized into three groups: 1) what is valuable for your child, 2) what is valuable for you (as a parent/caregiver), and 3) what is valuable for your group together. Finally, participants were asked to answer some open-ended questions about their visit to the interactive space and how they described their visit to others. The questionnaire was administered via email one week after the participant's museum visit allowing them time for reflection and enabling them to complete the study at their convenience.

Incentives were used to recruit study participants. Specifically, all participants who completed the offsite questionnaire were eligible for a monthly drawing for a \$100 American Express gift card.

All data were collected by one of three trained Research Assistants – Kim Jameson at the Frist Center for the Visual Arts, Gwen Kelly at the Speed Art Museum, and Sofia Broman at the High Museum of Art. Data were collected from April 2009 through May 2010, during randomly assigned blocks of time during each month. In this way, we could be sure that the study sample represented the larger population of families visiting the interactive space in a given year.



Purpose of Brief

For the purposes of sharing study results on the FLING website and within the FLING toolkit, ILI decided to present top-line findings in the form of research briefs. We prepared three briefs, one for each of our primary research questions. Each brief takes a “just the facts” approach to presenting basic frequencies for all relevant variables; minimal interpretation and context is provided, since these briefs are intended to provide a panoramic view of the data (instruments and protocols can be found on the FLING website www.familiesinartmuseums.org). More specific snapshots of the findings will be offered in peer-reviewed journal articles. These articles will tell more detailed, contextualized stories about the research questions, moving beyond the straightforward frequencies within the research briefs to more field-wide discussion of what the findings mean for both research and practice in museums.

This third technical brief summarizes results from our third and final research question: **What do parents perceive is valuable about interactive spaces in art museums, and how do they perceive their family benefits by visiting them?** Information in this brief includes parents’ perceptions of what they valued most about their experiences in the interactive space, and what they think those experiences have meant to their family. Where available, information is provided for each partner museum as well as in aggregate.

Study Sample

Across all three partner museums, a total of 2,408 people participated in the onsite exit interviews and 1,513 people completed the online questionnaire—a 62% conversion rate. We were able to match 1,503 sets of visitor data. Table 1 shows the breakdown of onsite and offsite data collected across sites.

Table 1: Number of Onsite interviews and Number of Online Questionnaires

TOTALS TO DATE (from 04/27 - 5/31)	TOTAL	Frist	High	Speed*
Onsite interviews	2408	980	869	559
Offsite questionnaires	1513	640	541	332
Matched onsite/offsite	1503	633	540	330
Conversion from ONSITE to OFFSITE	62%	64%	62%	59%

* Due to the closure of the Speed Art Museum for weather damage repair and renovation, MUV data was not collected between mid-August and the end of October 2009. The figure reported here represents data collected between May and the first week of August. Data collection resumed November 3rd, 2009.



What do parents think is valuable about interactive spaces in art museums?

Measures

To measure parents' perceptions of value, ILI researchers developed a series of scaled items from exploratory interviews with parents and from the literature¹. These scales were grouped into three dimensions: a) the benefits of the interactive space to children; b) the benefits to parents; and c) the benefits for the parent-child relationship.

Table 2 below presents the scales within the “benefits to children” dimension.

Table 2: Composition and Reliability of Benefits to Children Scales

Benefits to Children	n	Mean	SD	Cronbach's alpha
Art Skills – Art Making	1512	5.67	1.247	4 items, alpha=.814, n=1460
... make art	1492	5.27	1.350	
... practice different art techniques	1494	5.98	.992	
... learn by doing	1501	5.80	1.091	
... experiment with various materials	1501	5.80	1.080	
Art Skills – Observation	1510	4.93	1.333	2 items, alpha=.810, n=1480
... look carefully at a work of art	1490	4.79	1.504	
... observe the details in a work of art	1500	5.07	1.394	
Attitudes - Art	1510	5.70	0.995	3 items, alpha=.823, n=1470
... feel excited about art	1493	5.69	1.157	
... become curious about art	1495	5.77	1.118	
... further their interest in art	1500	5.65	1.150	
Attitudes - Art Museums	1511	5.82	0.951	3 items, alpha=.812, n=1461
... feel excited about coming to the museum	1493	5.87	1.059	
... feel that art museums are fun	1500	5.92	1.057	
... feel welcome in the museum	1489	5.68	1.204	
Complement Home-School	1509	4.94	1.173	4 items, alpha=.747, n=1452
... have experiences that build on what they learn at home	1501	5.10	1.334	
... use materials they don't have at home	1497	5.15	1.523	
... use materials they don't have at school	1483	4.77	1.684	
... have experiences that build on what they learn at school	1489	4.74	1.643	
Knowledge – Art	1510	5.23	1.100	3 items, alpha=.766, n=1480
... become more aware of different types of art	1497	5.52	1.208	
... learn about the elements of art (e.g., line, shape color, texture)	1500	5.28	1.316	
... learn how art is made	1503	4.89	1.441	

¹ Note that we use the term parent broadly to refer to any significant adult accompanying a child aged 2-12 years to the art museum. For more information on who those significant adults were, see Research Brief #1.



Self – Expression	1511	5.13	1.123	4 items, alpha=.784, n=1476
... express themselves creatively	1501	5.83	1.044	
... learn something about themselves	1498	5.01	1.524	
... feel like they accomplished something	1497	5.11	1.490	
... express their feelings	1502	4.56	1.618	
Self – Independence	1511	5.16	1.130	3 items, alpha=.722, n=1482
... choose what they want to do	1506	5.43	1.269	
... figure things out for themselves	1492	5.21	1.309	
... work independently	1501	4.81	1.610	
Self – Perspective Taking	1511	5.06	1.191	3 items, alpha=.782, n=1456
... open their minds to new ideas	1505	5.49	1.252	
... think about a problem in a new way	1496	4.90	1.445	
... consider a different point of view	1475	4.76	1.563	
Self – Social Skills	1510	3.77	1.572	4 items, alpha=.923, n=1475
... meet new people	1499	3.74	1.693	
... engage in conversations with other children	1496	3.82	1.707	
... practice getting along with others	1500	4.09	1.780	
... play with other children	1504	3.41	1.794	

The scales within the “benefits to parents” dimension are presented in Table 3.

Table 3: Composition and Reliability of Benefits to Parents Scales

Benefits to Parents	n	Mean	SD	Cronbach’s alpha
Art Skills – Art Making	1507	4.54	1.691	2items, alpha=.958, n=1484
... practice different art techniques	1501	4.47	1.725	
... experiment with various materials	1490	4.60	1.729	
Art Skills – Observation	1509	4.63	1.524	2 items, alpha=.835, n=1485
... observe the details in a work of art	1492	4.59	1.657	
... look carefully at a work of art	1502	4.66	1.633	
Attitudes - Art Museums	1510	5.26	1.285	3 items, alpha=.837, n=1477
... feel excited about coming to the museum	1497	5.14	1.517	
... feel welcome in the museum	1508	5.38	1.465	
... feel that art museums are fun	1489	5.27	1.460	
Attitudes - Art	1510	4.91	1.411	3 items, alpha=.865, n=1473
... further my interest in art	1498	4.55	1.654	
... feel excited about art	1501	5.21	1.532	
... become curious about art	1490	4.98	1.582	
Knowledge – Art	1509	4.54	1.508	3 items, alpha=.893, n=1471
... learn about the elements of art (e.g., line, shape, color, texture)	1495	4.30	1.718	
... learn how art is made	1488	4.60	1.660	



Benefits to Parents	n	Mean	SD	Cronbach's alpha
... become more aware of different types of art	1500	4.72	1.607	
Facilitator Art Learning	1511	5.51	1.057	3 items, alpha=.690, n=1477
... feel that I can facilitate conversations about art with my child(ren)	1496	5.29	1.375	
... feel confident taking my child(ren) into the rest of the museum	1503	5.15	1.573	
... facilitate a learning experience for my child(ren)	1496	6.10	.974	
Successful Parenting	1509	4.57	1.526	3 items, alpha=.855, n=1476
... better understand what I am good at, as a parent/caregiver	1491	4.12	1.792	
... learn something about myself, as a parent/caregiver	1498	4.53	1.764	
... feel like a good parent/ caregiver	1503	5.06	1.634	
Learning about Child	1512	5.35	1.160	4 items, alpha=.874, n=1461
... see how my child(ren) solve problems	1487	5.14	1.424	
... better understand my child(ren)'s interests	1504	5.28	1.338	
... gain insight into my child(ren)'s personality	1496	5.27	1.450	
... observe what my child(ren) are capable of doing	1503	5.71	1.193	

Table 4 shows the scales within the final dimension, “benefits to the parent/child relationship.”

Table 4: Composition and Reliability of Benefits to Parent-Child Relationship Scales

Benefits to Relationship	n	Mean	SD	Cronbach's alpha
Bonding	1511	5.80	1.004	5 items, alpha=.879, n=1465
... have fun together	1506	6.12	.937	
... learn about each other	1496	5.23	1.539	
... spend quality time together	1506	6.15	.984	
... get closer to each other	1495	5.62	1.388	
... play together	1502	5.89	1.141	
Conversations	1510	5.14	1.353	2 items, alpha=.692, n=1490
... talk about things that are important to us	1503	4.86	1.684	
... talk about art	1497	5.41	1.385	
Group Identity	1511	4.85	1.472	3 items, alpha=.860, n=1494
... express our values	1506	4.80	1.683	
... strengthen our values	1502	4.79	1.706	
... make art a central part of who we are	1504	4.98	1.578	
Memory Making	1510	5.97	1.017	2 items, alpha=.881, n=1505
... build a shared memory	1509	5.90	1.131	
... build positive memories	1506	6.03	1.020	



In addition to using the individual scales within each dimension, we also aggregated the scales within each dimension to create an Overall Benefits to Child Scale, an Overall Benefits to Parent Scale, an Overall Benefits to Parent-Child Relationship Scale; these scales had 12 to 33 items and were highly reliable (Table 5).

Table 5: Reliability of Overall Benefit Scales

Benefits to Relationship	n	Mean	SD	Cronbach's alpha
Overall – Children Scale	1512	5.12	0.860	33 items, alpha=.948, n=1272
Overall – Parent Scale	1512	4.97	1.120	23 items, alpha=.959, n=1311
Overall – Relationship Scale	1512	5.48	1.053	12 items, alpha=.935, n=1432

Overall Benefits

At a broad level, it is interesting to note that adults perceived that interactive spaces were highly valuable not just for their children, but for themselves as well. In fact, looking at the ratings of these dimensions overall (Table 6), what adults valued most were benefits related to the parent/child relationship (mean=5.48); second highest were the benefits for children (mean=5.12); and third were the benefits for themselves, although these were still quite highly rated (mean=5.04).

Table 6: Overall Benefit Scales

Overall – Children Scale	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1512	640	540	332	YES
Mean	5.12	5.19	5.03	5.12	(ANOVA, F=4.983, df=2, p<.05; n=1512; Post Hoc LSD)
Median	5.12	5.18	5.03	5.12	
Mode	6.00	5.12	6.00	5.39	
Std. Deviation	0.860	0.778	0.954	0.839	
Minimum	1.55	2.76	1.55	2.00	
Maximum	7.00	7.00	7.00	7.00	
Overall – Parent Scale	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1512	640	540	332	YES
Mean	4.97	5.09	4.80	4.98	(ANOVA, F=9.935, df=2, p<.05; n=1512; Post Hoc LSD)
Median	5.04	5.22	4.95	4.96	
Mode	6.00	6.00	6.00	7.00	
Std. Deviation	1.120	0.989	1.270	1.065	
Minimum	1.00	2.30	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	



Overall – Relationship Scale	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1512	640	540	332	YES
Mean	5.48	5.55	5.36	5.54	(ANOVA, F=5.489, df=2, p<.05; n=1512; Post Hoc LSD)
Median	5.58	5.67	5.50	5.67	
Mode	6.00	6.00	7.00	6.00	
Std. Deviation	1.053	0.941	1.195	0.994	
Minimum	1.00	1.58	1.00	2.00	
Maximum	7.00	7.00	7.00	7.00	

There were differences in these ratings across the three art museum sites (Table 7):

- Though still highly valued, respondents at the High rated benefits to child, parent, and parent-child relationship lower than did those from the Frist. They also rated the benefits to parent and parent-child relationship lower than did those from the Speed.
- Respondents from the Speed and Frist had similar ratings in all three overall scales.

Table 7: Post Hoc (Mean Difference I-J): Overall Benefit Scales by Study Museum

	I	J	
Overall – Children Scale	Frist	High	Speed
Frist		.158*	.068
High	-.158*		-.090
Speed	-.068	.090	
Overall – Parent Scale	Frist	High	Speed
Frist		.290*	.116
High	-.290*		-.174*
Speed	-.116	.174*	
Overall – Relationship Scale	Frist	High	Speed
Frist		.192*	.017
High	-.192*		-.175*
Speed	-.017	.175*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

Benefits to Children

Parents rated highly almost all of the benefits for children (Table 8). However, what they thought was most beneficial for children about visiting interactive spaces in art museums was:



- Positive increases in attitudes towards art museums;
- Positive increases in attitudes towards art;
- And enhanced skills relative to art making.

Knowledge about art, and self-development towards self-expression, towards independence, and towards perspective-taking were the second most highly rated benefits (means ranged from 5.06 to 5.16). Some of the benefits were moderately rated, such as experience that complements learning at home and/or school and art skills in observation (means were 4.94 and 4.93, respectively). Finally, self-development towards social skills had the lowest rating (mean=3.77).

Table 8: Benefits to Children During a Visit to the Interactive Space

Art Skill – Art Making	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1512	640	540	332	YES
Mean	5.68	5.93	5.41	5.63	(ANOVA, F=45.640, df=2, p<.05; n=1512; Post Hoc LSD)
Median	5.75	6.00	5.50	5.75	
Mode	6.00	6.00	6.00	6.00	
Std. Deviation	0.957	0.773	1.120	0.863	
Minimum	1.00	2.50	1.00	2.00	
Maximum	7.00	7.00	7.00	7.00	
Art Skill – Observation	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1510	639	540	331	YES
Mean	4.93	5.14	4.82	4.70	(ANOVA, F=14.615, df=2, p<.05; n=1510; Post Hoc LSD)
Median	5.00	5.00	5.00	5.00	
Mode	6.00	6.00	6.00	6.00	
Std. Deviation	1.333	1.169	1.457	1.366	
Minimum	1.00	2.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	
Attitudes towards art museum	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1511	640	540	331	NO
Mean	5.82	5.79	5.90	5.76	(ANOVA)
Median	6.00	6.00	6.00	6.00	
Mode	6.00	6.00	6.00	6.00	
Std. Deviation	0.951	0.931	0.977	0.943	
Minimum	1.50	2.00	1.50	2.00	
Maximum	7.00	7.00	7.00	7.00	



Attitudes towards art	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1510	640	539	331	YES
Mean	5.70	5.86	5.55	5.63	(ANOVA, F=15.211, df=2, p<.05; n=1510; Post Hoc LSD)
Median	6.00	6.00	5.67	5.67	
Mode	6.00	6.00	6.00	6.00	
Std. Deviation	0.995	0.847	1.128	0.986	
Minimum	1.00	3.00	1.00	1.67	
Maximum	7.00	7.00	7.00	7.00	
Self - Independence	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1511	640	540	331	NO
Mean	5.16	5.12	5.13	5.27	(ANOVA)
Median	5.33	5.33	5.33	5.33	
Mode	6.00	6.00	6.00	5.00	
Std. Deviation	1.130	1.119	1.205	1.015	
Minimum	1.00	1.33	1.00	2.00	
Maximum	7.00	7.00	7.00	7.00	
Self – Perspective taking	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1511	640	539	332	NO
Mean	5.06	5.14	4.99	5.01	(ANOVA)
Median	5.33	5.33	5.00	5.00	
Mode	6.00	6.00	6.00	6.00	
Std. Deviation	1.191	1.140	1.253	1.177	
Minimum	1.00	1.33	1.00	1.67	
Maximum	7.00	7.00	7.00	7.00	
Self - Expression	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1511	640	539	332	YES
Mean	5.13	5.28	4.91	5.17	(ANOVA, F=16.528, df=2, p<.05; n=1511; Post Hoc LSD)
Median	5.25	5.50	5.00	5.25	
Mode	6.00	6.00	5.00	5.75	
Std. Deviation	1.123	1.010	1.244	1.068	
Minimum	1.00	1.25	1.00	1.75	
Maximum	7.00	7.00	7.00	7.00	
Self – Social skills	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1510	640	539	331	YES
Mean	3.77	3.37	4.09	4.02	(ANOVA, F=37.827, df=2, p<.05; n=1510; Post Hoc LSD)
Median	3.75	3.25	4.00	4.00	
Mode	3.75	1.00	3.25	4.00	
Std. Deviation	1.572	1.496	1.624	1.459	
Minimum	1.00	1.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	



Knowledge about art	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1510	640	539	331	YES
Mean	5.23	5.51	5.00	5.04	(ANOVA, F=38.453, df=2, p<.05; n=1510; Post Hoc LSD)
Median	5.33	5.67	5.00	5.00	
Mode	6.00	6.00	5.00	5.33	
Std. Deviation	1.100	0.918	1.204	1.126	
Minimum	1.00	2.00	1.00	1.33	
Maximum	7.00	7.00	7.00	7.00	
Experience complements school and home	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1509	639	539	331	YES
Mean	4.94	5.09	4.73	5.01	(ANOVA, F=14.840, df=2, p<.05; n=1509; Post Hoc LSD)
Median	5.00	5.25	5.00	5.00	
Mode	6.00	6.00	6.00	5.50	
Std. Deviation	1.173	1.081	1.292	1.090	
Minimum	1.00	1.50	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	

A comparison across art museum sites showed several statistically significant differences (Table 9). Below, we highlight some of the more salient differences.

- Respondents from the Frist rated art-related skills and attitudes higher than those from the High and Speed; their means in art-making skills and in observation, attitudes towards art, and knowledge about art were statistically significantly higher. This may be due in large part to the Frist's emphasis on elements of art and on art production within their interactive space.
- On the other hand, respondents from the Speed and High seemed to value social opportunities more so than those from the Frist; their means on self-development towards social skills were significantly higher.
- Respondents from the High tended to rate art-making skills, self-expression, and experiences that complement home and/or school significantly lower than did those from the Frist and Speed.
- No statistically significant differences were found among museums ratings on attitudes towards art museums, and self-development towards independence and towards perspective-taking.



Table 9: Post Hoc (Mean Difference I-J): Benefits to Children by Study Museum

I	J		
Art Skill – Art Making	Frist	High	Speed
Frist		.515*	.301*
High	-.515*		-.214*
Speed	-.301*	.214*	
Art Skill – Observation	Frist	High	Speed
Frist		.315*	.436*
High	-.315*		.121
Speed	-.436*	-.121	
Attitudes towards art	Frist	High	Speed
Frist		.308*	.224*
High	-.308*		-.084
Speed	-.224*	.084	
Self - Expression	Frist	High	Speed
Frist		.370*	.118
High	-.370*		-.252*
Speed	-.118	.252*	
Self – Social skills	Frist	High	Speed
Frist		-.720*	-.650*
High	.720*		.070
Speed	.650*	-0.070	
Knowledge about art	Frist	High	Speed
Frist		.505*	.464*
High	-.505*		-.041
Speed	-.464*	.041	
Experience complements school and home	Frist	High	Speed
Frist		.361*	.078
High	-.361*		-.283*
Speed	-.078	.283*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'



Benefits to Parents

In general, parents rated their own benefits from visiting the interactive space lower than those of the child and their parent-child relationship. That said, they still rated their own benefits fairly high, suggesting that they do perceive that interactive spaces have value for them as parents (Table 10).

For parents, the most valued benefits of the interactive spaces were:

- Developing their ability to facilitate art learning;
- Learning about their child's personal growth and development; and
- Feeling more positively about art museums.

Parents moderately valued the opportunity to develop their own positive attitudes towards art (mean=4.91).

Least valued by parents as benefits of interactive spaces in art museums were art-specific benefits (i.e., art making skills, knowledge about art) and parent-specific benefits (i.e., being a good caregiver, successful parenting).

Table 10: Benefits to Parents During a Visit to the Interactive Space

Art Skill – Art Making	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1507	639	537	331	YES
Mean	4.54	4.87	4.21	4.43	(ANOVA, F=23.705, df=2, p<.05; n=1507; Post Hoc LSD)
Median	5.00	5.00	4.50	4.50	
Mode	6.00	6.00	6.00	6.00	
Std. Deviation	1.691	1.568	1.788	1.645	
Minimum	1.00	1.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	
Art Skill – Observation	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1509	639	539	331	YES
Mean	4.63	4.85	4.43	4.53	(ANOVA, F=12.675, df=2, p<.05; n=1509; Post Hoc LSD)
Median	5.00	5.00	4.50	4.50	
Mode	6.00	6.00	6.00	5.00	
Std. Deviation	1.524	1.394	1.652	1.492	
Minimum	1.00	1.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	
Attitudes towards art museum	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1510	640	539	331	NO
Mean	5.26	5.29	5.19	5.31	(ANOVA)
Median	5.50	5.42	5.67	5.33	



Mode	6.00	6.00	6.00	6.00	
Std. Deviation	1.285	1.205	1.433	1.173	
Minimum	1.00	1.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	
Attitudes towards art	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1510	640	539	331	YES
Mean	4.91	5.06	4.73	4.93	(ANOVA, F=8.495, df=2, p<.05; n=1510; Post Hoc LSD)
Median	5.00	5.33	5.00	5.00	
Mode	6.00	6.00	6.00	5.00	
Std. Deviation	1.411	1.271	1.595	1.314	
Minimum	1.00	1.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	
Knowledge about art	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1509	640	539	330	YES
Mean	4.54	4.81	4.31	4.41	(ANOVA, F=18.22, df=2, p<.05; n=1509; Post Hoc LSD)
Median	4.67	5.00	4.67	4.33	
Mode	6.00	6.00	6.00	4.00	
Std. Deviation	1.508	1.353	1.682	1.410	
Minimum	1.00	1.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	
Facilitator of Art Learning	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1511	640	539	332	YES
Mean	5.51	5.59	5.48	5.41	(ANOVA, F=3.540, df=2, p<.05; n=1511; Post Hoc LSD)
Median	5.67	5.67	5.67	5.67	
Mode	6.00	6.00	6.00	6.00	
Std. Deviation	1.057	0.942	1.191	1.026	
Minimum	1.00	2.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	
Successful Parenting	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1509	639	538	332	YES
Mean	4.57	4.58	4.40	4.84	(ANOVA, F=8.325, df=2, p<.05; n=1509; Post Hoc LSD)
Median	4.67	4.67	4.67	5.00	
Mode	6.00	6.00	6.00	6.00	
Std. Deviation	1.526	1.484	1.622	1.406	
Minimum	1.00	1.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	



Learning about Child	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1512	640	540	332	YES
Mean	5.35	5.43	5.21	5.44	(ANOVA, $F=6.153$, $df=2$, $p<.05$; $n=1512$; Post Hoc LSD)
Median	5.50	5.50	5.50	5.50	
Mode	6.00	6.00	6.00	6.00	
Std. Deviation	1.160	1.082	1.293	1.051	
Minimum	1.00	1.25	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	

A comparison across study museums showed several statistically significant differences (Table 11), some of which are discussed below:

- Respondents from the Frist rated more highly benefits associated with their art-related skills and attitudes than did respondents from the High and Speed; specifically, their means in art skills in art making and in observation, knowledge about art were statistically significantly higher. Their mean was also higher than respondents from the High, on attitudes towards art. This trend was also evident in parents' perceptions of benefits for children, again suggesting that the design of the Frist's interactive space, and its emphasis on elements of art and art-making, may influence perceptions of value, not just in terms of children but also in terms of adults.
- Respondents from the Speed and Frist tended to rate scales related to parenting higher than did respondents from the High. For example, parents at the High were much less likely than parents at the Frist or the Speed to say that they learned about their child in the interactive space. Speed's ratings on successful parenting were higher than the High and Frist. On the other hand, Frist's rating of benefits towards facilitating art learning was higher than Speed's, and similar to High's.
- No statistically significant differences were found among museums ratings on attitudes towards art museums.



Table 11: Post Hoc (Mean Difference I-J): Benefits to Parents by Study Museum

I	J		
Art Skill – Art Making	Frist	High	Speed
Frist		.658*	.446*
High	-.658*		-.212
Speed	-.446*	.212	
Art Skill – Observation	Frist	High	Speed
Frist		.428*	.326*
High	-.428*		-.101
Speed	-.326*	.101	
Attitudes towards art	Frist	High	Speed
Frist		.338*	.132
High	-.338*		-.206*
Speed	-.132	.206*	
Knowledge about art	Frist	High	Speed
Frist		.502*	.398*
High	-.502*		-.104
Speed	-.398*	.104	
Facilitator of Art Learning	Frist	High	Speed
Frist		.112	.179*
High	-.112		.066
Speed	-.179*	-.066	
Successful Parenting	Frist	High	Speed
Frist		.177*	-.256*
High	-.177*		-.432*
Speed	.256*	.432*	
Learning about Child	Frist	High	Speed
Frist		.213*	-.012
High	-.213*		-.226*
Speed	.012	.226*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'



Benefits to the Relationship Between Parents and Children

In general, parents rated the benefits to the parent-child relationship as high (Table 12). The benefit most valued was the opportunity to create memories (mean=5.97), followed by bonding with their child (mean=5.80), having conversations (mean=5.14), and strengthening their group identity (moderately rated as mean=4.85).

Table 12: Benefits to the Parent-Child Relationship During a Visit to the Interactive Space

Bonding	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1511	640	539	332	YES
Mean	5.80	5.85	5.66	5.91	(ANOVA, F=7.972, df=2,
Median	6.00	6.00	6.00	6.00	p<.05; n=1511; Post Hoc
Mode	6.00	6.00	7.00	6.00	LSD)
Std. Deviation	1.004	0.901	1.165	0.885	
Minimum	1.00	1.40	1.00	2.80	
Maximum	7.00	7.00	7.00	7.00	
Conversations	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1510	640	539	331	YES
Mean	5.14	5.25	5.05	5.06	(ANOVA, F=3.642, df=2,
Median	5.50	5.50	5.00	5.00	p<.05; n=1510; Post Hoc
Mode	6.00	6.00	6.00	6.00	LSD)
Std. Deviation	1.353	1.239	1.451	1.386	
Minimum	1.00	1.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	
Group Identity	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1511	640	540	331	YES
Mean	4.85	4.93	4.73	4.92	(ANOVA, F=3.253, df=2,
Median	5.00	5.00	5.00	5.00	p<.05; n=1511; Post Hoc
Mode	6.00	6.00	6.00	6.00	LSD)
Std. Deviation	1.472	1.368	1.600	1.436	
Minimum	1.00	1.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	
Memory Making	Total	Frist	High	Speed	Statistically Sig. Diff.?
N	1510	640	539	331	YES
Mean	5.97	6.05	5.86	5.99	(ANOVA, F=5.335, df=2,
Median	6.00	6.00	6.00	6.00	p<.05; n=1510; Post Hoc
Mode	6.00	6.00	6.00	6.00	LSD)
Std. Deviation	1.017	0.911	1.145	0.977	
Minimum	1.00	2.00	1.00	1.00	
Maximum	7.00	7.00	7.00	7.00	



A comparison across study museums showed several statistically significant differences (Table 13), some of which are presented below:

- Respondents from the Frist rated all four parent-child relationship scales higher than did those from the High.
- Respondents from the Frist rated the benefit of offering opportunities for parent-child conversations higher than did those from the Speed. Those from the Speed rated the benefit of bonding more highly than did those from the High.

Table 13: Post Hoc (Mean Difference I-J): Benefits to the Parent-Child Relationship by Study Museum

I	J		
Bonding	Frist	High	Speed
Frist		.190*	-.057
High	-.190*		-.247*
Speed	.057	.247*	
Conversations	Frist	High	Speed
Frist		.191*	.187*
High	-.191*		-.004
Speed	-.187*	.004	
Group Identity	Frist	High	Speed
Frist		.204*	.009
High	-.204*		-.195
Speed	-.009	.195	
Memory Making	Frist	High	Speed
Frist		.192*	.061
High	-.192*		-.131
Speed	-.061	.131	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

Conversations after the museum visit

As part of the online questionnaire, respondents answered the following open-ended question *"Since your visit to the museum that day, please describe a conversation you have had with other people specifically about your visit to [interactive space]. What did you talk about, and with whom?"*

In general, the majority of respondents (72%) engaged in a direct conversation (defined as conversations in which the respondent participated). The comparison across museums suggests



that respondents from the High engaged in such conversations more frequently than did those from the Frist and Speed.

Table 14: Frequencies of Respondents' Direct Conversations

	Total		Frist		High		Speed		Statistically Sig. Diff.?
	N	%	n	%	n	%	n	%	
No	144	10.9	50	8.7	76	16.7	18	6.1	Yes (Pearson chi-square=38.68 5, df=2, N=1105; only 'Yes' and "No" were compared)
Yes	961	72.4	453	78.8	265	58.2	243	81.8	
Yes, but not about interactive space	108	8.1	35	6.1	62	13.6	11	3.7	
Non- relevant comment or conversatio n; did not answer question	114	8.6	37	6.4	52	11.4	25	8.4	
TOTAL	1327	100.0	575	100.0	455	100.0	297	100.0	

Less than expected; More than expected

In general, the minority of respondents (4%) reported an indirect conversation (defined as third party conversations recounted by the respondent). A comparison across museums suggests that Frist respondents may have had more indirect conversations than did those from the High.

Table 15: Frequencies of Respondents' Indirect Conversations

	Total		Frist		High		Speed		Statistically Sig. Diff.?
	N	%	n	%	n	%	n	%	
No	1274	96.0	540	93.9	445	97.8	289	97.3	Yes (Pearson chi-square=11.70 7, df=2, N=1327)
Yes	53	4.0	35	6.1	10	2.2	8	2.7	
TOTAL	1327	100.0	575	100.0	455	100.0	297	100.0	

Less than expected; More than expected

Respondents were asked to recount who was a part of those conversations and what they talked about. The majority of respondents talked with another adult (80%) and only a few talked with children or both adults and children. No statistically significant differences were found when comparing museums.



Table 16: Frequencies of Conversations Between Respondents and Adults and Children

	Total		Frist		High		Speed		Statistically Sig. Diff.?
	N	%	n	%	n	%	n	%	
Adult	772	80.3	352	77.7	221	83.4	199	81.9	NO (Chi square)
Child	24	2.5	15	3.3	6	2.3	3	1.2	
Both	23	2.4	16	3.5	4	1.5	3	1.2	
Unspecified	142	14.8	70	15.5	34	12.8	38	15.6	
TOTAL	961	100.0	453	100.0	265	100.0	243	100.0	

Conversations happened between respondents and people in different relationships, described below. As presented in Table 17, the majority of these conversations happened with someone in the respondents' family (56%) and/or social network, such as a friend (45%).

- **Family**
 - **Immediate/nuclear family:** Includes husband, wife, spouse, other children in the family (who didn't visit)
 - **Extended family:** Includes grandparents, sister, uncle, niece, in-laws, etc.
 - **Family (unspecified):** Visitor is not specific as to whether nuclear or extended family
 - **Parent of child/children:** If respondent is the caregiver for the visit (e.g. nanny, friend, relative)
- **Friends/Social Network:** Includes neighbors, mom's groups, other parents, other children, Facebook, blog, etc.
- **Amongst the group who visited:** Only use if visitor mentions group they visited with
- **Classroom:** Includes teachers, students, museum staff
- **Unspecified:** Visitor did not include a "Who"



Table 17: Frequencies of Conversations Between Respondents and Specific Relationship Types

	Total (n=961)		Frist (n=453)		High (n=265)		Speed (n=243)	
	n	%	n	%	n	%	n	%
Family member	534	55.6	264	58.3	143	53.9	127	52.3
Immediate/nuclear family	211	22.0	106	23.4	63	23.8	42	17.3
Extended family	180	18.7	80	17.7	43	16.2	57	23.5
Family (unspecified)	76	7.9	42	9.3	21	7.9	13	5.3
Parent of child/children	67	7.0	36	7.9	16	6.0	15	6.2
Friends/Social Network	432	45.0	198	43.7	115	43.4	119	49.0
Amongst the group who visited	40	4.2	23	5.1	9	3.4	8	3.3
Classroom	13	1.4	9	2.0	3	1.1	1	.4
Unspecified	151	15.7	77	17.0	37	14.0	37	15.2
TOTAL*	1170	121.9	571	126.1	307	115.8	292	120.2

*Multiple responses allowed. Percentages total more than 100%.

As presented in Table 18, several topics were found in the content of the conversations. These topics are described below.

- **Interactive Space (general):** Visitor describes the interactive space to others in general terms, such as “We talked about the things you could do, the atmosphere and activities.”
- **Experience (general description):** Visitor simply mentions the group’s experience in general terms, such as, “Told them what we did there.”
- **Interactive Space as a Child Destination (in Museum):** Visitor describes interactive space as a place for kids in a museum, explaining how the space enables visits to the museum, the use of the interactive space to manage child’s behavior, and/or how the space is a benefit for the child.
- **Interactive Space as Enjoyment & Entertainment:** Visitor describes interactive space as a place for fun and enjoyment, using terms like great, wonderful, exciting, or enjoyable.
- **Child development:** Visitor describes how activities in interactive space connect or contribute to child development, such as “we discussed the influence of art in our children’s lives and outside the box thinking.”
- **All-Ages Appropriate:** Visitor describes interactive space as a place for everyone in the group.
- **Design & Space:** Visitor describes design-specific aspects of the interactive space (e.g., layout, materials, staff, resources, activities, etc.), explaining what the space is, what it offers, and/or what’s in it.



- **Art and art-making experience:** Visitor describes the art or art-making experience in the space.
- **Art projects made during visit:** Visitor describes specific art projects created in interactive space.
- **Recommendation/Request to visit (or visit again):** Visitor recommends visiting interactive space to others, encouraging others to visit and/or stating that group will (or wants to) visit again.
- **Frustration/Suggestion:** Visitor describes a frustrating or negative experience at the interactive space.
- **Follow-Up:** Visitor describes how they are doing things that follow up on visit to interactive space.
- **Non-specific:** Visitor was not specific about the conversation topic
- **Practical:** Visitor describes reasons to visit in practical terms – cost, convenience, etc.
- **Other:** Use only if response does not fit into any other category

Table 18: Topics of Respondents' Direct Conversations

	Total (n=961)		Frist (n=453)		High (n=265)		Speed (n=243)	
	n	%	n	%	n	%	n	%
Interactive Space as Enjoyment & Entertainment	288	30.0	135	14.0	62	6.5	91	9.5
Design & Space	211	22.0	90	9.4	54	5.6	67	7.0
Recommendation/Request to visit (or visit again)	168	17.5	77	8.0	42	4.4	49	5.1
Art and art-making experience	151	15.7	75	7.8	51	5.3	25	2.6
Interactive Space (general)	134	13.9	64	6.7	39	4.1	31	3.2
Child development	114	11.9	46	4.8	43	4.5	25	2.6
Art projects made during visit	109	11.3	90	9.4	4	.4	15	1.6
Experience (general description)	91	9.5	41	4.3	24	2.5	26	2.7
Interactive Space as a Child Destination (in Museum)	55	5.7	15	1.6	30	3.1	10	1.0
Frustration/Suggestion	32	3.3	5	.5	20	2.1	7	.7
Follow-Up	20	2.1	12	1.2	4	.4	4	.4
All-Ages Appropriate	19	2.0	12	1.2	1	.1	6	.6
Practical	15	1.6	3	.3	1	.1	11	1.1
Non-specific	31	3.2	22	2.3	6	.6	3	.3
Other	2	.2	2	.2	0	.0	0	.0
TOTAL*	1440	149.9	689	71.7	381	39.7	370	38.4

*Multiple responses allowed. Percentages total more than 100%.



In general, about a third of respondents talked about the interactive space as enjoyment and entertainment. Almost a quarter of respondents talked about aspects of the design of the space. Other topics frequently reported in conversations after the visit were recommendation or request to visit the space, the art and art-making experience or the art projects made during the visit, and/or aspects of child development. Though not statistically significant, some differences may be noticed across museum responses; for example, respondents from the Frist tended to report the interactive space as enjoyment and entertainment, the art and art-making nature of the experience, and the art projects made during visit more frequently than did those from the High and Speed.

How do the perceived benefits of interactive spaces in art museums interact with demographic and psychographic participant variables?

The perceived benefits of the interactive space were compared to participant characteristics such as museum membership, previous museum visitation, art interest, and group composition.

Study Museum Membership x Benefits

In general, study museum members and non-members moderately or highly² valued the interactive space for their overall benefits to children, parents, and parent-child relationships; their mean scores ranged from 4.84 to 5.56. A couple of differences were found between members and non-members, with non-members rating parent and parent-child benefits higher than members (Table 19).

Table 19: Overall Benefits by Membership in the Study Museum

Variable	Relevant Statistics			Statistically Sig. Diff.?
Study Museum Membership	Overall – Children Scale			NO (ANOVA)
	N	Mean	SD	
No	880	5.15	0.872	
Yes	622	5.07	0.842	
TOTAL	1502	5.12	0.860	
Study Museum Membership	Overall – Parent Scale			YES (ANOVA, F=13.397, df=1, p<.05, n=1502)
	N	Mean	SD	
No	880	5.05	1.072	
Yes	622	4.84	1.177	
TOTAL	1502	4.97	1.121	

² In order to describe findings, mean ratings from 5.00-7.00 were considered *high*, from 3.00-4.99 were considered *moderate*, and below 3.00 were considered *low*.



Study Museum Membership	Overall – Relationship Scale			YES (ANOVA, F=10.755, df=1, p<.05, n=1502)
	N	Mean	SD	
No	880	5.56	0.999	
Yes	622	5.38	1.118	
TOTAL	1502	5.49	1.053	

Smaller; Larger

When looking at specific benefits to children, differences between members and non-members were found in four scales. Non-members rated more highly the benefits of the interactive space in enhancing children's art skills in art making, self-expression, knowledge of art, and in complementing home-school learning than did members. No other statistically significant differences were found.

Table 20: Benefits to Children by Membership in the Study Museum

Variable	Relevant Statistics			Statistically Sig. Diff.?
Study Museum Membership	Art Skills – Art Making			YES (ANOVA, F=8.884, df=1, p<.05, n=1502)
	N	Mean	SD	
No	880	5.74	0.943	
Yes	622	5.59	0.973	
TOTAL	1502	5.68	0.958	
Study Museum Membership	Art Skills – Observation			NO (ANOVA)
	N	Mean	SD	
No	879	4.95	1.306	
Yes	621	4.90	1.369	
TOTAL	1500	4.93	1.332	
Study Museum Membership	Attitudes - Art Museums			NO (ANOVA)
	n	Mean	SD	
No	879	5.79	0.957	
Yes	622	5.87	0.943	
TOTAL	1501	5.83	0.952	
Study Museum Membership	Attitudes - Art			NO (ANOVA)
	n	Mean	SD	
No	878	5.71	0.979	
Yes	622	5.68	1.016	
TOTAL	1500	5.70	0.994	
Study Museum Membership	Self - Independence			NO (ANOVA)
	n	Mean	SD	
No	879	5.16	1.136	
Yes	622	5.16	1.123	
TOTAL	1501	5.16	1.130	



Study Museum Membership	Self – Perspective Taking			NO (ANOVA)
	n	Mean	SD	
No	879	5.10	1.179	
Yes	622	5.01	1.211	
TOTAL	1501	5.06	1.193	
Study Museum Membership	Self - Expression			YES (ANOVA, F=13.602, df=1, p<.05, n=1501)
	n	Mean	SD	
No	879	5.21	1.089	
Yes	622	5.00	1.159	
TOTAL	1501	5.12	1.123	
Study Museum Membership	Self – Social Skills			NO (ANOVA)
	n	Mean	SD	
No	878	3.74	1.561	
Yes	622	3.81	1.594	
TOTAL	1500	3.77	1.574	
Study Museum Membership	Knowledge - Art			YES (ANOVA, F=6.331, df=1, p<.05, n=1500)
	n	Mean	SD	
No	878	5.29	1.078	
Yes	622	5.15	1.122	
TOTAL	1500	5.23	1.098	
Study Museum Membership	Complement Home-School			YES (ANOVA, F=8.537, df=1, p<.05, n=1499)
	n	Mean	SD	
No	878	5.01	1.155	
Yes	621	4.83	1.193	
TOTAL	1499	4.94	1.174	

Smaller; Larger

In terms of benefits to parents, non-members rated all but one of these benefits statistically significantly higher than members (the one not rated higher was facilitating art experiences for others). (See Table 21.)

Table 21: Benefits to Parents by Membership in the Study Museum

Variable	Relevant Statistics			Statistically Sig. Diff.?
Study Museum Membership	Art Skills – Art Making			YES (ANOVA, F=10.924, df=1, p<.05, n=1497)
	n	Mean	SD	
No	876	4.66	1.626	
Yes	621	4.36	1.773	
TOTAL	1497	4.54	1.694	
Study Museum Membership	Art Skills – Observation			YES (ANOVA, F=11.767, df=1, p<.05, n=1499)
	n	Mean	SD	
No	878	4.74	1.441	
Yes	621	4.47	1.617	



Variable	Relevant Statistics			Statistically Sig. Diff.?
TOTAL	1499	4.63	1.522	
Study Museum Membership	Attitudes - Art Museums			YES (ANOVA, F=6.207, df=1, p<.05, n=1500)
	n	Mean	SD	
No	878	5.33	1.192	
Yes	622	5.17	1.397	
TOTAL	1500	5.26	1.283	
Study Museum Membership	Attitudes - Art			YES (ANOVA, F=8.206, df=1, p<.05, n=1500)
	n	Mean	SD	
No	878	5.00	1.320	
Yes	622	4.79	1.525	
TOTAL	1500	4.91	1.412	
Study Museum Membership	Knowledge - Art			YES (ANOVA, F=22.682, df=1, p<.05, n=1499)
	n	Mean	SD	
No	878	4.70	1.409	
Yes	621	4.32	1.617	
TOTAL	1499	4.54	1.510	
Study Museum Membership	Facilitator Art Learning			NO (ANOVA)
	n	Mean	SD	
No	879	5.52	1.039	
Yes	622	5.50	1.083	
TOTAL	1501	5.52	1.057	
Study Museum Membership	Successful Parenting			YES (ANOVA, F=14.764, df=1, p<.05, n=1499)
	n	Mean	SD	
No	879	4.70	1.468	
Yes	620	4.39	1.595	
TOTAL	1499	4.57	1.529	
Study Museum Membership	Learning about Child			YES (ANOVA, F=4.765, df=1, p<.05, n=1502)
	n	Mean	SD	
No	880	5.41	1.123	
Yes	622	5.28	1.211	
TOTAL	1502	5.35	1.162	

Smaller; Larger

In terms of benefits for parent/child relationships, non-members rated more highly those benefits related to bonding, group identity, and memory making (Table 22).

**Table 22: Benefits to the Parent-Child Relationship by Membership in the Study Museum**

Variable	Relevant Statistics			Statistically Sig. Diff.?
Study Museum Membership	Bonding			YES (ANOVA, F=16.728, df=1, p<.05, n=1501)
	n	Mean	SD	
No	879	5.89	0.935	
Yes	622	5.68	1.084	
TOTAL	1501	5.80	1.004	
Study Museum Membership	Conversations			NO (ANOVA)
	n	Mean	SD	
No	878	5.18	1.302	
Yes	622	5.08	1.418	
TOTAL	1500	5.14	1.352	
Study Museum Membership	Group Identity			YES (ANOVA, F=4.840, df=1, p<.05, n=1501)
	n	Mean	SD	
No	879	4.93	1.402	
Yes	622	4.76	1.563	
TOTAL	1501	4.86	1.473	
Study Museum Membership	Memory Making			YES (ANOVA, F=10.857, df=1, p<.05, n=1500)
	n	Mean	SD	
No	878	6.04	0.965	
Yes	622	5.87	1.079	
TOTAL	1500	5.97	1.017	

Smaller; Larger

Other Museum Membership x Benefits

Members and non-members of other museums did not differ in their ratings of the interactive spaces' overall benefits for children, parents, or parent-child relationship (Table 23).

Table 23: Overall Benefits by Membership in Other Museums

Variable	Relevant Statistics			Statistically Sig. Diff.?
Other Museum Membership	Overall – Children Scale			NO (ANOVA)
	n	Mean	SD	
No	743	5.16	0.925	
Yes	756	5.08	0.792	
TOTAL	1499	5.12	0.861	
Other Museum Membership	Overall – Parent Scale			NO (ANOVA)
	n	Mean	SD	
No	743	5.02	1.157	
Yes	756	4.91	1.086	
TOTAL	1499	4.97	1.122	



Other Museum Membership	Overall – Relationship Scale			NO (ANOVA)
	n	Mean	SD	
No	743	5.52	1.077	
Yes	756	5.44	1.030	
TOTAL	1499	5.48	1.054	

Smaller; Larger

In terms of benefits to children, non-members rated more highly than did members art skills in observation and social skill development (Table 24).

Table 24: Benefits to Children by Membership in Other Museums

Variable	Relevant Statistics			Statistically Sig. Diff.?
Other Museum Membership	Art Skills – Art Making			NO (ANOVA)
	n	Mean	SD	
No	743	5.65	1.037	
Yes	756	5.71	0.871	
TOTAL	1499	5.68	0.957	
Other Museum Membership	Art Skills – Observation			YES (ANOVA, F=3.872, df=1, p<.05, n=1497)
	n	Mean	SD	
No	743	5.00	1.391	
Yes	754	4.86	1.267	
TOTAL	1497	4.93	1.331	
Other Museum Membership	Attitudes - Art Museums			NO (ANOVA)
	n	Mean	SD	
No	743	5.86	0.976	
Yes	755	5.79	0.928	
TOTAL	1498	5.83	0.952	
Other Museum Membership	Attitudes - Art			NO (ANOVA)
	n	Mean	SD	
No	742	5.68	1.058	
Yes	755	5.73	0.929	
TOTAL	1497	5.70	0.995	
Other Museum Membership	Self - Independence			NO (ANOVA)
	n	Mean	SD	
No	743	5.19	1.185	
Yes	755	5.13	1.075	
TOTAL	1498	5.16	1.131	
Other Museum Membership	Self – Perspective Taking			NO (ANOVA)
	n	Mean	SD	
No	742	5.12	1.211	
Yes	756	5.00	1.173	
TOTAL	1498	5.06	1.193	



Variable	Relevant Statistics			Statistically Sig. Diff.?
Other Museum Membership	Self - Expression			NO (ANOVA)
	n	Mean	SD	
No	742	5.15	1.137	
Yes	756	5.10	1.107	
TOTAL	1498	5.13	1.122	
Other Museum Membership	Self – Social Skills			YES (ANOVA, F=22.385, df=1, p<.05, n=1497)
	n	Mean	SD	
No	742	3.96	1.626	
Yes	755	3.58	1.500	
TOTAL	1497	3.77	1.575	
Other Museum Membership	Knowledge - Art			NO (ANOVA)
	n	Mean	SD	
No	742	5.24	1.157	
Yes	755	5.23	1.039	
TOTAL	1497	5.23	1.099	
Other Museum Membership	Complement Home-School			NO (ANOVA)
	n	Mean	SD	
No	741	4.97	1.211	
Yes	755	4.91	1.139	
TOTAL	1496	4.94	1.175	

Smaller; Larger

In terms of benefits for parents, a couple of statistically significant differences were found in the comparison between members and non-members (Table 25). Specifically, non-members rated more highly the benefits related to art skills in observation and attitudes towards art museums.

Table 25: Benefits to Parents by Membership in Other Museums

Variable	Relevant Statistics			Statistically Sig. Diff.?
Other Museum Membership	Art Skills – Art Making			NO (ANOVA)
	n	Mean	SD	
No	739	4.62	1.712	
Yes	755	4.46	1.674	
TOTAL	1494	4.54	1.694	
Other Museum Membership	Art Skills – Observation			YES (ANOVA, F=4.375, df=1, p<.05, n=1496)
	n	Mean	SD	
No	742	4.71	1.542	
Yes	754	4.55	1.500	
TOTAL	1496	4.63	1.522	
Other Museum Membership	Attitudes - Art Museums			YES (ANOVA, F=4.216, df=1, p<.05, n=1497)
	n	Mean	SD	
No	742	5.33	1.258	



Variable	Relevant Statistics			Statistically Sig. Diff.?
Yes	755	5.19	1.306	
TOTAL	1497	5.26	1.284	
Other Museum Membership	Attitudes - Art			NO (ANOVA)
	n	Mean	SD	
No	742	4.97	1.435	
Yes	755	4.85	1.390	
TOTAL	1497	4.91	1.413	
Other Museum Membership	Knowledge - Art			NO (ANOVA)
	n	Mean	SD	
No	742	4.59	1.564	
Yes	754	4.49	1.455	
TOTAL	1496	4.54	1.511	
Other Museum Membership	Facilitator Art Learning			NO (ANOVA)
	n	Mean	SD	
No	742	5.56	1.091	
Yes	756	5.47	1.023	
TOTAL	1498	5.52	1.058	
Other Museum Membership	Successful Parenting			NO (ANOVA)
	n	Mean	SD	
No	742	4.62	1.514	
Yes	754	4.52	1.545	
TOTAL	1496	4.57	1.530	
Other Museum Membership	Learning about Child			NO (ANOVA)
	n	Mean	SD	
No	743	5.38	1.199	
Yes	756	5.33	1.126	
TOTAL	1499	5.35	1.163	

Smaller; Larger

In terms of benefits to parent/child relationships, there were no differences in ratings between members and non-members of other museums (Table 26).

Table 26: Benefits to the Parent-Child Relationship by Membership in Other Museums

Variable	Relevant Statistics			Statistically Sig. Diff.?
Other Museum Membership	Bonding			NO (ANOVA)
	n	Mean	SD	
No	742	5.84	1.026	
Yes	756	5.77	0.983	
TOTAL	1498	5.80	1.005	



Other Museum Membership	Conversations			NO (ANOVA)
	n	Mean	SD	
No	742	5.17	1.372	
Yes	755	5.10	1.335	
TOTAL	1497	5.14	1.353	
Other Museum Membership	Group Identity			NO (ANOVA)
	n	Mean	SD	
No	743	4.92	1.479	
Yes	755	4.79	1.467	
TOTAL	1498	4.86	1.474	
Other Museum Membership	Memory Making			NO (ANOVA)
	n	Mean	SD	
No	742	6.00	1.041	
Yes	755	5.94	0.995	
TOTAL	1497	5.97	1.018	

Smaller; Larger

Previous Museum Visitation x Benefits

The frequency with which respondents' reportedly visited museums (including a number of different museum types) was compared with their perceived benefits of the interactive space for themselves, for their parent/child relationship, and for their children. Looking at overall benefits, there were no significant correlations (Table 27).

Table 27: Overall Benefits by Museum Visitation

Overall Benefits	Visitation - Statistically Sig. Corr.? (p<.05)					
	Study Museum	Art Museum	History Museum	Children Museum	Science Museum	Zoo/ Aquaria
Overall – Children	NO	NO	NO	NO	NO	NO
Scale	(Pearson's)	(Pearson's)	(Pearson's)	(Pearson's)	(Pearson's)	(Pearson's)
Overall – Parent	NO	NO	NO	NO	NO	NO
Scale	(Pearson's)	(Pearson's)	(Pearson's)	(Pearson's)	(Pearson's)	(Pearson's)
Overall –	NO	NO	NO	NO	NO	NO
Relationship Scale	(Pearson's)	(Pearson's)	(Pearson's)	(Pearson's)	(Pearson's)	(Pearson's)

Large = 0.5 and above

Moderate = 0.3 to 0.5

Small = 0.1 to 0.3

Trivial = smaller 0.1

In terms of benefits to children, some significant positive correlations emerged, albeit trivial in size (Table 28). As frequency to study museums increased, so did the perceived benefit of the interactive spaces for children's self-development in independence and social skills. Visitation to art museums tended to correspond with higher ratings of the interactive spaces' benefits towards self-development in perspective taking. Finally, visitation to children's museums tended to correspond with higher ratings in the benefits of self-development in social skills.



Table 28: Benefits to Children by Museum Visitation

Benefits to Children	Visitation - Statistically Sig. Corr.? (p<.05)					
	Study Museum	Art Museum	History Museum	Children Museum	Science Museum	Zoo/ Aquaria
Art Skills – Art Making	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Art Skills – Observation	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Attitudes - Art Museums	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Attitudes - Art	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Self – Independence	YES, Pos. (Pearson's r= .063, p<.05, n=1499)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Self – Perspective Taking	NO (Pearson's)	YES, Pos. (Pearson's r= .054, p<.05, n=1501)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Self – Expression	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Self – Social Skills	YES, Pos. (Pearson's r= .083, p<.05, n=1498)	NO (Pearson's)	NO (Pearson's)	YES, Pos. (Pearson's r= .065, p<.05, n=1500)	NO (Pearson's)	NO (Pearson's)
Knowledge – Art	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Complement Home-School	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)

Large = 0.5 and above **Moderate** = 0.3 to 0.5 **Small** = 0.1 to 0.3 **Trivial** = smaller 0.1

In terms of benefits for parents, a few trivial statistically significant correlations were found (Table 29). Specifically, as frequency of visitation to study museums increased, so did the perceived benefit of the interactive spaces in the development of parents' as a facilitator of art learning. Negative correlations were found related to visitation to history museums, in which higher visitation tended to correspond with lower ratings of the interactive spaces' benefits towards successful parenting and learning about child.



Table 29: Benefits to Parents by Museum Visitation

Benefits to Parents	Visitation - Statistically Sig. Corr.? (p<.05)					
	Study Museum	Art Museum	History Museum	Children Museum	Science Museum	Zoo/ Aquaria
Art Skills – Art Making	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Art Skills – Observation	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Attitudes - Art Museums	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Attitudes - Art	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Knowledge - Art	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Facilitator Art Learning	YES, Pos. (Pearson's r= .064, p<.05, n=1499)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Successful Parenting	NO (Pearson's)	NO (Pearson's)	YES, Neg. (Pearson's r= -.064, p<.05, n=1498)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Learning about Child	NO (Pearson's)	NO (Pearson's)	YES, Neg. (Pearson's r= -.051, p<.05, n=1501)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)

Large = 0.5 and above **Moderate** = 0.3 to 0.5 **Small** = 0.1 to 0.3 **Trivial** = smaller 0.1

In terms of benefits for parent/child relationships, a few trivial positive statistically significant correlations were found (Table 30). As frequency to study museums increased, so did the perceived benefit of the interactive spaces in the development of group identity. Higher visitation in art museums tended to correspond with higher ratings of the interactive spaces' benefits in promoting parent and child's conversations and group identity.



Table 30: Benefits to the Parent-Child Relationship by Museum Visitation

Benefits to Relationship	Visitation - Statistically Sig. Corr.? (p<.05)					
	Study Museum	Art Museum	History Museum	Children Museum	Science Museum	Zoo/Aquaria
Bonding	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Conversations	NO (Pearson's)	YES, Pos. (Pearson's r= .061, p<.05, n=1499)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Group Identity	YES, Pos. (Pearson's r= .051, p<.05, n=1499)	YES, Pos. (Pearson's r= .057, p<.05, n=1501)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Memory Making	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)

Large = 0.5 and above **Moderate** = 0.3 to 0.5 **Small** = 0.1 to 0.3 **Trivial** = smaller 0.1

Interest in Art x Benefits

Several small positive statistically significant correlations were found when comparing the perceived benefits of the interactive space with respondents' interest in art. Specifically, respondents who were reportedly more interested in art rated the overall and specific benefits of the interactive spaces higher (Tables 31-34). The only benefits that did not show a statistically significant correlation with interest in art were the benefits of the interactive space in promoting children's self-development in social skills and complementing their home-school learning, and the benefits related to parents' attitude towards art museums, knowledge of art, and successful parenting.

Table 31: Overall Benefits by Interest in Art

Variable	Benefits	Statistically Sig. Corr.? (p<.05)
Interest in Art (summated)	Overall – Children Scale	YES, Pos. (Pearson's r= .093, p<.05, n=1502)
	Overall – Parent Scale	YES, Pos. (Pearson's r= .070, p<.05, n=1502)
	Overall – Relationship Scale	YES, Pos. (Pearson's r= .121, p<.05, n=1502)

Large = 0.5 and above **Moderate** = 0.3 to 0.5 **Small** = 0.1 to 0.3 **Trivial** = smaller 0.1

Table 32: Benefits to Children by Interest in Art

Variable	Benefits to Children	Statistically Sig. Corr.? (p<.05)
Interest in Art (summated)	Art Skills – Art Making	YES, Pos. (Pearson's r= .060, p<.05, n=1502)
	Art Skills - Observation	YES, Pos. (Pearson's r= .086, p<.05, n=1500)
	Attitudes - Art Museums	YES, Pos. (Pearson's r= .055, p<.05, n=1501)
	Attitudes - Art	YES, Pos. (Pearson's r= .117, p<.05, n=1500)



Variable	Benefits to Children	Statistically Sig. Corr.? (p<.05)
	Self - Independence	YES, Pos. (Pearson's r= .062, p<.05, n=1501)
	Self – Perspective Taking	YES, Pos. (Pearson's r= .121, p<.05, n=1501)
	Self - Expression	YES, Pos. (Pearson's r= .087, p<.05, n=1501)
	Self – Social Skills	NO (Pearson's)
	Knowledge - Art	YES, Pos. (Pearson's r= .075, p<.05, n=1500)
	Complement Home-School	NO (Pearson's)

Large = 0.5 and above
 Moderate = 0.3 to 0.5
 Small = 0.1 to 0.3
 Trivial = smaller 0.1

Table 33: Benefits to Parents by Interest in Art

Variable	Benefits to Children	Statistically Sig. Corr.? (p<.05)
Interest in Art (summated)	Art Skills – Art Making	YES, Pos. (Pearson's r= .069, p<.05, n=1497)
	Art Skills - Observation	YES, Pos. (Pearson's r= .067, p<.05, n=1499)
	Attitudes - Art Museums	NO (Pearson's)
	Attitudes - Art	YES, Pos. (Pearson's r= .090, p<.05, n=1500)
	Knowledge - Art	NO (Pearson's)
	Facilitator Art Learning	YES, Pos. (Pearson's r= .102, p<.05, n=1501)
	Successful Parenting	NO (Pearson's)
	Learning about Child	YES, Pos. (Pearson's r= .077, p<.05, n=1502)

Large = 0.5 and above
 Moderate = 0.3 to 0.5
 Small = 0.1 to 0.3
 Trivial = smaller 0.1

Table 34: Benefits to the Parent-Child Relationship by Interest in Art

Variable	Benefits to Children	Statistically Sig. Corr.? (p<.05)
Interest in Art (summated)	Bonding	YES, Pos. (Pearson's r= .067, p<.05, n=1501)
	Conversations	YES, Pos. (Pearson's r= .119, p<.05, n=1500)
	Group Identity	YES, Pos. (Pearson's r= .159, p<.05, n=1501)
	Memory Making	YES, Pos. (Pearson's r= .079, p<.05, n=1500)

Large = 0.5 and above
 Moderate = 0.3 to 0.5
 Small = 0.1 to 0.3
 Trivial = smaller 0.1

Group Composition x Benefits

The perceived benefits of the interactive spaces were also compared with group composition. In general, respondents from non-family and from non-parental familiar groups tended to rate the benefits the highest, while respondents from nuclear family and mixed family/ non-family groups tended to rate them the lowest (Table 35).



Table 35: Overall Benefits by Group Composition

Variable	Relevant Statistics			Statistically Sig. Diff.?
Group Composition	Overall – Children Scale			YES
	n	Mean	SD	(ANOVA, F=3.111, df=4, p<.05, n=1451)
Non-family	52	5.44	0.825	
Non-parental familial	158	5.24	0.837	
Extended family	202	5.12	0.801	
Nuclear family	878	5.08	0.870	
Mixed family/ non-family	161	5.06	0.909	
TOTAL	1451	5.11	0.863	
Group Composition	Overall – Parent Scale			YES
	n	Mean	SD	(ANOVA, F=3.418, df=4, p<.05, n=1451)
Non-family	52	5.35	1.057	
Non-parental familial	158	5.16	1.090	
Extended family	202	5.01	1.108	
Mixed family/ non-family	161	4.92	1.162	
Nuclear family	878	4.91	1.123	
TOTAL	1451	4.97	1.123	
Group Composition	Overall – Relationship Scale			NO
	n	Mean	SD	(ANOVA)
Non-parental familial	158	5.68	1.069	
Non-family	52	5.65	1.016	
Extended family	202	5.50	1.016	
Nuclear family	878	5.46	1.046	
Mixed family/ non-family	161	5.43	1.082	
TOTAL	1451	5.49	1.049	

A few statistically significant differences were found in the perceived benefits to children and parents; some of them are described below:

- Respondents from nuclear family groups tended to rate the overall benefits to children and to parents lower than did those from non-parental familial and non-family groups.
- Respondents from non-family groups tended to rate the overall benefits to children and to parents higher than those from nuclear family and mixed family/ non-family groups.
- No statistically significant differences were found in the overall rating of benefits to parent-child relationship.



Table 36: Post Hoc (Mean Difference I-J): Overall Benefits by Group Composition

I	J				
Overall – Children Scale	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.041	-.155*	-.354*	.023
Extended family	.041		-.114	-.314*	.064
Non-parental familial	.155*	.114		-.199	.178
Non-family	.354*	.314*	.199		.378*
Mixed family/ non-family	-.023	-.064	-.178	-.378*	
Overall – Parent Scale	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.102	-.252*	-.434*	-.003
Extended family	.102		-.150	-.332	.098
Non-parental familial	.252*	.150		-.182	.249*
Non-family	.434*	.332	.182		.431*
Mixed family/ non-family	.003	-.098	-.249*	-.431*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

When looking at the specific benefits to children, with the exception of attitudes towards art and art museums and development of social skills, respondents from non-family and from non-parental familial groups tended to rate the benefits the highest and nuclear family and mixed family/ non-family groups tended to rate them the lowest (Table 37). The only statistically significant differences found related with child's self development; some of these differences are described below:

- Respondents from nuclear family groups and those from mixed family/non-family groups tended to rate the benefits to children's self development in independence, perspective-taking, and self-expression lower than did those from non-parental familial and non-family groups.
- Respondents from extended family groups tended to rate the benefits to children's development of independence and self-expression lower than non-parental familial; they also rated social skills and self-expression lower than did those from non-family groups.
- No statistically significant differences were found in the overall rating of benefits to parent-child relationship.



Table 37: Benefits to Children by Group Composition

Variable	Relevant Statistics			Statistically Sig. Diff.?
Group Composition	Art Skills – Art Making			NO (ANOVA)
	n	Mean	SD	
Non-family	52	5.84	0.799	
Non-parental familial	158	5.76	0.980	
Extended family	202	5.73	0.906	
Nuclear family	878	5.65	0.966	
Mixed family/ non-family	161	5.56	1.010	
TOTAL	1451	5.67	0.960	
Group Composition	Art Skills – Observation			NO (ANOVA)
	n	Mean	SD	
Non-family	52	5.06	1.327	
Non-parental familial	157	5.01	1.424	
Extended family	202	4.95	1.232	
Nuclear family	878	4.90	1.333	
Mixed family/ non-family	160	4.89	1.380	
TOTAL	1449	4.92	1.334	
Group Composition	Attitudes - Art Museums			NO (ANOVA)
	n	Mean	SD	
Non-parental familial	158	5.96	0.929	
Non-family	52	5.93	0.848	
Nuclear family	878	5.82	0.948	
Mixed family/ non-family	160	5.79	0.976	
Extended family	202	5.76	0.992	
TOTAL	1450	5.83	0.952	
Group Composition	Attitudes - Art			NO (ANOVA)
	n	Mean	SD	
Non-family	52	5.92	0.737	
Extended family	202	5.78	0.965	
Non-parental familial	158	5.70	1.120	
Nuclear family	877	5.68	0.985	
Mixed family/ non-family	160	5.60	1.052	
TOTAL	1449	5.70	0.999	
Group Composition	Self - Independence			YES (ANOVA, F=1.608, df=4, p<.05, n=1450)
	n	Mean	SD	
Non-family	52	5.47	1.053	
Non-parental familial	158	5.41	1.035	
Extended family	202	5.15	1.067	
Mixed family/ non-family	160	5.11	1.113	
Nuclear family	878	5.10	1.161	
TOTAL	1450	5.16	1.131	



Group Composition	Self – Perspective Taking			YES (ANOVA, F=3.020, df=4, p<.05, n=1450)
	n	Mean	SD	
Non-family	52	5.42	1.221	
Non-parental familial	158	5.25	1.101	
Extended family	202	5.13	1.107	
Nuclear family	877	5.01	1.197	
Mixed family/ non-family	161	4.97	1.331	
TOTAL	1450	5.06	1.195	
Group Composition	Self - Expression			YES (ANOVA, F=4.737, df=4, p<.05, n=1450)
	n	Mean	SD	
Non-family	52	5.53	1.000	
Non-parental familial	158	5.38	1.122	
Extended family	202	5.13	1.077	
Nuclear family	877	5.06	1.129	
Mixed family/ non-family	161	5.06	1.167	
TOTAL	1450	5.12	1.127	
Group Composition	Self – Social Skills			YES (ANOVA, F=3.609, df=4, p<.05, n=1449)
	n	Mean	SD	
Non-family	52	4.56	1.490	
Mixed family/ non-family	160	3.83	1.533	
Non-parental familial	158	3.77	1.465	
Nuclear family	877	3.74	1.621	
Extended family	202	3.68	1.430	
TOTAL	1449	3.77	1.571	
Group Composition	Knowledge - Art			NO (ANOVA)
	n	Mean	SD	
Non-family	52	5.40	0.950	
Non-parental familial	158	5.36	1.122	
Extended family	202	5.27	1.047	
Nuclear family	877	5.19	1.105	
Mixed family/ non-family	160	5.12	1.150	
TOTAL	1449	5.22	1.100	
Group Composition	Complement Home-School			NO (ANOVA)
	n	Mean	SD	
Non-family	52	5.28	1.061	
Non-parental familial	157	5.01	1.268	
Extended family	202	4.94	1.029	
Nuclear family	877	4.91	1.188	
Mixed family/ non-family	160	4.84	1.176	
TOTAL	1448	4.93	1.172	



Table 38: Post Hoc (Mean Difference I-J): Benefits to Children by Group Composition

I	J				
Self - Independence	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.051	-.308*	-.365*	-.005
Extended family	.051		-.257*	-.314	.046
Non-parental familial	.308*	.257*		-.057	.303*
Non-family	.365*	.314	.057		.360*
Mixed family/ non-family	.005	-.046	-.303*	-.360*	
Self – Perspective Taking	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.116	-.245*	-.410*	.042
Extended family	.116		-.129	-.294	.158
Non-parental familial	.245*	.129		-.166	.286*
Non-family	.410*	.294	.166		.452*
Mixed family/ non-family	-.042	-.158	-.286*	-.452*	
Self - Expression	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.071	-.326*	-.472*	-.001
Extended family	.071		-.256*	-.402*	.070
Non-parental familial	.326*	.256*		-.146	.326*
Non-family	.472*	.402*	.146		.472*
Mixed family/ non-family	.001	-.070	-.326*	-.472*	
Self – Social Skills	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		.061	-.034	-.818*	-.094
Extended family	-.061		-.095	-.879*	-.155
Non-parental familial	.034	.095		-.784*	-.060
Non-family	.818*	.879*	.784*		.724*
Mixed family/ non-family	.094	.155	.060	-.724*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

Ratings of specific benefits to parents had the similar trend of respondents from non-family and from non-parental familial groups rating the benefits the highest and nuclear family and mixed family/ non-family groups rating them the lowest (Table 39). Several statistically significant differences were found, some of which are described below (Table 40):

- Respondents from nuclear family groups tended to rate the benefits of the interactive spaces in developing parents' art skills in art making and observation, attitudes towards



art, knowledge of art, and skills as facilitator of art learning lower than did those of non-parental familial groups.

- Respondents from nuclear family groups tended to rate the benefits of the interactive spaces in developing parents' art skills in observation, attitudes towards art, knowledge of art, and skills as successful parenting lower than did those of non-family groups.
- Respondents from non-family groups rated the benefits related to successful parenting higher than any other group. They also rated art skills in observation, attitudes towards art, and knowledge of art higher than those from nuclear family and mixed family/ non-family groups.

Table 39: Benefits to Parents by Group Composition

Variable	Relevant Statistics			Statistically Sig. Diff.?
Group Composition	Art Skills – Art Making			YES (ANOVA, F=2.530, df=4, p<.05, n=1446)
	n	Mean	SD	
Non-parental familial	158	4.87	1.632	
Non-family	52	4.81	1.690	
Extended family	201	4.61	1.713	
Mixed family/ non-family	160	4.49	1.704	
Nuclear family	875	4.45	1.704	
TOTAL	1446	4.53	1.701	
Group Composition	Art Skills – Observation			YES (ANOVA, F=5.524, df=4, p<.05, n=1148)
	n	Mean	SD	
Non-family	52	5.13	1.511	
Non-parental familial	158	5.05	1.469	
Extended family	202	4.64	1.463	
Mixed family/ non-family	160	4.62	1.551	
Nuclear family	876	4.53	1.527	
TOTAL	1448	4.63	1.524	
Group Composition	Attitudes - Art Museums			NO (ANOVA)
	n	Mean	SD	
Non-family	52	5.55	1.138	
Non-parental familial	158	5.45	1.294	
Extended family	202	5.31	1.266	
Mixed family/ non-family	160	5.28	1.288	
Nuclear family	877	5.21	1.288	
TOTAL	1449	5.27	1.282	
Group Composition	Attitudes - Art			YES (ANOVA, F=3.197, df=4, p<.05, n=1449)
	n	Mean	SD	
Non-family	52	5.39	1.353	
Non-parental familial	158	5.12	1.345	
Extended family	202	5.00	1.397	
Mixed family/ non-family	160	4.90	1.424	



Variable	Relevant Statistics			Statistically Sig. Diff.?
Nuclear family	877	4.84	1.428	
TOTAL	1449	4.92	1.416	
Group Composition	Knowledge - Art			YES (ANOVA, F=2.895, df=4, p<.05, n=1448)
	n	Mean	SD	
Non-family	52	4.97	1.387	
Non-parental familial	157	4.77	1.470	
Extended family	202	4.65	1.493	
Mixed family/ non-family	160	4.48	1.545	
Nuclear family	877	4.46	1.524	
TOTAL	1448	4.54	1.515	
Group Composition	Facilitator Art Learning			YES (ANOVA, F=2.375, df=4, p<.05, n=1450)
	n	Mean	SD	
Non-family	52	5.71	0.895	
Non-parental familial	158	5.69	0.989	
Extended family	202	5.59	1.041	
Nuclear family	877	5.48	1.062	
Mixed family/ non-family	161	5.41	1.130	
TOTAL	1450	5.52	1.056	
Group Composition	Successful Parenting			YES (ANOVA, F=3.124, df=4, p<.05, n=1448)
	n	Mean	SD	
Non-family	52	5.25	1.320	
Non-parental familial	158	4.71	1.537	
Nuclear family	875	4.56	1.512	
Extended family	202	4.49	1.589	
Mixed family/ non-family	161	4.52	1.502	
TOTAL	1448	4.58	1.522	
Group Composition	Learning about Child			NO (ANOVA)
	n	Mean	SD	
Non-family	52	5.63	0.924	
Extended family	202	5.44	1.070	
Non-parental familial	158	5.41	1.141	
Nuclear family	878	5.34	1.175	
Mixed family/ non-family	161	5.23	1.246	
TOTAL	1451	5.36	1.158	



Table 40: Post Hoc (Mean Difference I-J): Benefits to Parents by Group Composition

I	J				
Art Skills – Art Making	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.158	-.418*	-.359	-.038
Extended family	.158		-.260	-.201	.119
Non-parental familial	.418*	.260		.059	.380*
Non-family	.359	.201	-.059		.320
Mixed family/ non-family	.038	-.119	-.380*	-.320	
Art Skills – Observation	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.110	-.528*	-.599*	-.096
Extended family	.110		-.418*	-.489*	.014
Non-parental familial	.528*	.418*		-.071	.432*
Non-family	.599*	.489*	.071		.503*
Mixed family/ non-family	.096	-.014	-.432*	-.503*	
Attitudes - Art	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.166	-.282*	-.559*	-.066
Extended family	.166		-.115	-.393	.101
Non-parental familial	.282*	.115		-.277	.216
Non-family	.559*	.393	.277		.493*
Mixed family/ non-family	.066	-.101	-.216	-.493*	
Knowledge - Art	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.187	-.310*	-.509*	-.016
Extended family	.187		-.123	-.323	.170
Non-parental familial	.310*	.123		-.199	.294
Non-family	.509*	.323	.199		.493*
Mixed family/ non-family	.016	-.170	-.294	-.493*	
Facilitator Art Learning	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.104	-.206*	-.230	.074
Extended family	.104		-.102	-.126	.178
Non-parental familial	.206*	.102		-.024	.280*
Non-family	.230	.126	.024		.304
Mixed family/ non-family	-.074	-.178	-.280*	-.304	



Successful Parenting	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		.069	-.152	-.695*	.037
Extended family	-.069		-.221	-.764*	-.033
Non-parental familial	.152	.221		-.543*	.188
Non-family	.695*	.764*	.543*		.731*
Mixed family/ non-family	-.037	.033	-.188	-.731*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

In general, mixed family/ non-family groups had the lowest ratings in all of the specific benefits to parent-child relationship parents (Table 41). With the exception of benefits to group identity, the other scales had non-family or non-parental familial groups with the highest ratings. Only benefits to group identity showed statistically significant differences (Table 42):

- Respondents from non-parental familial groups rated the benefits of the interactive spaces in developing group identity higher than those from nuclear family and mixed family/ non-family groups.
- Respondents from mixed family/non-family groups rated this benefit lower than those from non-parental familial and non-family groups.

Table 41: Benefits to the Parent-Child Relationship by Group Composition

Variable	Relevant Statistics			Statistically Sig. Diff.?
Group Composition	Bonding			NO (ANOVA)
	N	Mean	SD	
Non-parental familial	158	5.92	1.021	
Non-family	52	5.88	0.867	
Nuclear family	877	5.80	0.994	
Extended family	202	5.80	1.004	
Mixed family/ non-family	161	5.78	1.051	
TOTAL	1450	5.81	1.000	
Group Composition	Conversations			NO (ANOVA)
	N	Mean	SD	
Non-family	52	5.38	1.498	
Non-parental familial	158	5.37	1.344	
Extended family	202	5.16	1.279	
Nuclear family	877	5.10	1.362	
Mixed family/ non-family	160	5.07	1.346	
TOTAL	1449	5.15	1.353	



Group Composition	Group Identity			YES (ANOVA, F=3.214, df=4, p<.05, n=1450)
	N	Mean	SD	
Extended family	202	4.89	1.389	
Nuclear family	878	4.82	1.453	
Non-family	52	5.19	1.593	
Non-parental familial	158	5.18	1.482	
Mixed family/ non-family	160	4.70	1.551	
TOTAL	1450	4.87	1.468	

Group Composition	Memory Making			NO (ANOVA)
	n	Mean	SD	
Non-parental familial	158	6.15	0.970	
Non-family	52	6.03	0.866	
Extended family	202	5.99	1.018	
Nuclear family	877	5.95	1.010	
Mixed family/ non-family	160	5.93	1.089	
TOTAL	1449	5.98	1.012	

Table 42: Post Hoc (Mean Difference I-J): Benefits to the Parent-Child Relationship by Group Composition

Group Identity	J				
	Nuclear family	Extended family	Non-parental familial	Non-family	Mixed family/ non-family
Nuclear family		-.077	-.364*	-.371	.113
Extended family	.077		-.287	-.293	.191
Non-parental familial	.364*	.287		-.007	.477*
Non-family	.371	.293	.007		.484*
Mixed family/ non-family	-.113	-.191	-.477*	-.484*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

How do the perceived benefits of interactive spaces in art museums interact with families' reasons for visiting the museum?

The benefits of visiting the interactive space were compared with motivations for coming to the museum (Table 43). In general, respondents who came to the museum with the primary motivation of entertainment rated the overall benefits for child, parent, and parent-child the highest. Those who came motivated by an exhibition rated the overall benefits for child, parent, and parent-child relationship the lowest.

**Table 43: Overall Benefits by Motivation to Come to the Museum**

Variable	Relevant Statistics			Statistically Sig. Diff.?
Motivation to Come to the Museum	Overall – Children Scale			YES (ANOVA, F=2.433, df=7, p<.05, n=1482)
Entertainment	n	Mean	SD	
Place: Program-based	34	5.41	0.820	
Social Event	114	5.19	0.865	
Interactive Space	179	5.17	0.871	
Practical Issues	309	5.17	0.778	
Content	245	5.13	0.839	
Place	218	5.11	0.935	
Place: Exhibition-based	129	5.00	0.915	
TOTAL	254	4.96	0.857	
	1482	5.11	0.860	
Motivation to Come to the Museum	Overall – Parent Scale			YES (ANOVA, F=3.140, df=7, p<.05, n=1482)
Entertainment	n	Mean	SD	
Interactive Space	34	5.30	1.049	
Place: Program-based	309	5.10	1.024	
Social Event	114	5.10	1.143	
Content	179	4.97	1.150	
Practical Issues	218	4.96	1.198	
Place	245	4.94	1.061	
Place: Exhibition-based	129	4.92	1.093	
TOTAL	254	4.71	1.192	
	1482	4.96	1.123	
Motivation to Come to the Museum	Overall – Relationship Scale			YES (ANOVA, F=3.023, df=7, p<.05, n=1482)
Entertainment	n	Mean	SD	
Interactive Space	34	5.90	0.909	
Place: Program-based	309	5.60	0.929	
Content	114	5.58	1.130	
Place	218	5.48	1.096	
Practical Issues	129	5.47	1.002	
Social Event	245	5.47	1.021	
Place: Exhibition-based	179	5.46	1.082	
TOTAL	254	5.27	1.128	
	1482	5.48	1.051	

Several statistically significant differences were found (Table 44); some of them are discussed below:

- Respondents motivated to come to the museum to attend an exhibition rated the overall benefits for children, parents, and parent-child relationship lower than did those



motivated by entertainment, practical issues, the interactive space itself, or a particular program.

- Respondents motivated by entertainment tended to rate the benefits for parent-child relationship higher than almost any other groups; the exceptions were those motivated by the interactive space and a museum program, who had similar rating.

Table 44: Post Hoc (Mean Difference I-J): Overall Benefits by Motivation to Come to the Museum

I		J						
Overall – Children Scale	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		-.108	-.167	-.406*	-.132	-.164	.039	-.191
Content	.108		-.060	-.299	-.024	-.056	.146	-.083
Social Event	.167	.060		-.239	.036	.004	.206*	-.023
Entertainment	.406*	.299	.239		.275	.243	.445*	.215
Practical Issues	.132	.024	-.036	-.275		-.032	.170*	-.059
Interactive Space	.164	.056	-.004	-.243	.032		.202*	-.027
Place-Exhibition	-.039	-.146	-.206*	-.445*	-.170*	-.202*		-.230*
Place-Program	.191	.083	.023	-.215	.059	.027	.230*	
Overall – Parent Scale	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		-.039	-.047	-.376	-.022	-.175	.208	-.174
Content	.039		-.008	-.336	.017	-.135	.248*	-.135
Social Event	.047	.008		-.329	.025	-.128	.255*	-.127
Entertainment	.376	.336	.329		.354	.201	.584*	.201
Practical Issues	.022	-.017	-.025	-.354		-.152	.231*	-.152
Interactive Space	.175	.135	.128	-.201	.152		.383*	.000
Place-Exhibition	-.208	-.248*	-.255*	-.584*	-.231*	-.383*		-.383*
Place-Program	.174	.135	.127	-.201	.152	.000	.383*	
Overall – Relationship Scale	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		-.006	.016	-.425*	.005	-.129	.205	-.102
Content	.006		.022	-.419*	.011	-.123	.211*	-.096
Social Event	-.016	-.022		-.441*	-.011	-.145	.189	-.118
Entertainment	.425*	.419*	.441*		.430*	.296	.630*	.323
Practical Issues	-.005	-.011	.011	-.430*		-.134	.200*	-.107
Interactive Space	.129	.123	.145	-.296	.134		.334*	.027
Place-Exhibition	-.205	-.211*	-.189	-.630*	-.200*	-.334*		-.307*
Place-Program	.102	.096	.118	-.323	.107	-.027	.307*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'



When looking at the specific benefits to children for visiting the interactive space, several statistically significant differences were found (Tables 45-46); some of them are presented below:

- Respondents motivated to come to the museum because of the interactive space or for entertainment rated the benefits to children's art-making skills higher than did those motivated by the museum as a destination (place) or a specific exhibition in the museum.
- Respondents motivated by the museum as a destination (place) rated the benefits for children's self-development in independence and social skills lower than did those motivated by the museum content or a specific program, and also those motivated by entertainment and practical issues.
- Respondents motivated by a specific exhibition rated the benefits to children's art skills in art making, self-development in self expression and social skills, and in complementing home-school learning lower than did those motivated by practical issues and the interactive space.



Table 45: Benefits to Children by Motivation to Come to the Museum

Variable	Relevant Statistics			Statistically Sig. Diff.?
Motivation to Come to the Museum	Art Skills – Art Making			YES (ANOVA, F=2.669, df=7, p<.05, n=1482)
Entertainment	n	Mean	SD	
Interactive Space	34	5.94	0.739	
Social Event	309	5.79	0.841	
Practical Issues	179	5.75	0.924	
Place: Program-based	245	5.70	0.938	
Content	114	5.66	0.997	
Place	218	5.65	1.036	
Place: Exhibition-based	129	5.57	1.072	
TOTAL	254	5.50	1.001	
	1482	5.67	0.960	
Motivation to Come to the Museum	Art Skills – Observation			NO (ANOVA)
Entertainment	n	Mean	SD	
Place: Program-based	34	5.15	1.234	
Place	114	5.05	1.264	
Social Event	129	5.04	1.184	
Content	178	5.03	1.378	
Place: Exhibition-based	218	4.94	1.515	
Practical Issues	254	4.94	1.284	
Interactive Space	245	4.83	1.357	
TOTAL	308	4.81	1.277	
	1480	4.93	1.332	
Motivation to Come to the Museum	Attitudes - Art Museums			NO (ANOVA)
e: Program-based	n	Mean	SD	
Entertainment	114	6.03	0.832	
Social Event	34	5.86	1.073	
Interactive Space	179	5.83	0.993	
Practical Issues	308	5.83	0.881	
Content	245	5.82	0.902	
Place: Exhibition-based	218	5.81	1.008	
Place	254	5.77	1.000	
TOTAL	129	5.68	1.027	
	1481	5.82	0.953	
Motivation to Come to the Museum	Attitudes - Art			NO (ANOVA)
Entertainment	n	Mean	SD	
Social Event	34	6.05	0.682	
Interactive Space	179	5.76	0.971	
Content	307	5.75	0.904	
Place: Program-based	218	5.71	1.152	
Practical Issues	114	5.71	1.003	
	245	5.64	0.985	



Variable	Relevant Statistics			Statistically Sig. Diff.?
Place	129	5.63	1.024	
Place: Exhibition-based	254	5.62	0.998	
TOTAL	1480	5.70	0.996	
Motivation to Come to the Museum	Self - Independence			YES (ANOVA, F=2.773, df=7, p<.05, n=1481)
	n	Mean	SD	
Entertainment	34	5.47	1.048	
Interactive Space	308	5.27	0.981	
Practical Issues	245	5.25	1.040	
Place: Program-based	114	5.21	1.234	
Content	218	5.16	1.241	
Social Event	179	5.09	1.171	
Place: Exhibition-based	254	5.06	1.138	
Place	129	4.85	1.206	
TOTAL	1481	5.16	1.128	
Motivation to Come to the Museum	Self – Perspective Taking			NO (ANOVA)
	n	Mean	SD	
Social Event	179	5.22	1.192	
Entertainment	34	5.17	1.117	
Place: Program-based	114	5.12	1.280	
Content	218	5.10	1.309	
Interactive Space	308	5.04	1.130	
Place	129	5.01	1.171	
Practical Issues	245	4.99	1.193	
Place: Exhibition-based	254	4.98	1.121	
TOTAL	1481	5.06	1.189	
Motivation to Come to the Museum	Self - Expression			YES (ANOVA, F=3.794, df=7, p<.05, n=1481)
	n	Mean	SD	
Entertainment	34	5.57	1.022	
Social Event	179	5.22	1.109	
Interactive Space	308	5.22	0.989	
Practical Issues	245	5.21	1.038	
Place: Program-based	114	5.15	1.295	
Content	218	5.07	1.233	
Place	129	5.01	1.165	
Place: Exhibition-based	254	4.86	1.129	
TOTAL	1481	5.12	1.123	



Motivation to Come to the Museum	Self – Social Skills			YES (ANOVA, F=3.712, df=7, p<.05, n=1480)
	n	Mean	SD	
Entertainment	34	4.36	1.572	
Place: Program-based	114	4.22	1.665	
Practical Issues	245	3.83	1.563	
Content	218	3.82	1.604	
Interactive Space	307	3.79	1.502	
Social Event	179	3.76	1.555	
Place: Exhibition-based	254	3.52	1.559	
Place	129	3.47	1.611	
TOTAL	1480	3.77	1.577	
Motivation to Come to the Museum	Knowledge - Art			NO (ANOVA)
	n	Mean	SD	
Entertainment	34	5.64	0.958	
Social Event	179	5.32	1.078	
Interactive Space	307	5.26	1.045	
Place	129	5.25	1.058	
Place: Program-based	114	5.22	1.186	
Content	218	5.20	1.137	
Practical Issues	245	5.19	1.142	
Place: Exhibition-based	254	5.11	1.096	
TOTAL	1480	5.23	1.099	
Motivation to Come to the Museum	Complement Home-School			YES (ANOVA, F=2.056, df=7, p<.05, n=1479)
	n	Mean	SD	
Entertainment	34	5.06	1.108	
Practical Issues	245	5.03	1.148	
Social Event	179	5.02	1.126	
Interactive Space	307	5.02	1.059	
Content	218	4.92	1.285	
Place	129	4.91	1.245	
Place: Program-based	113	4.86	1.266	
Place: Exhibition-based	254	4.71	1.193	
TOTAL	1479	4.93	1.177	



Table 46: Post Hoc (Mean Difference I-J): Benefits to Children by Motivation to Come to the Museum

I	J							
Art Skills – Art Making	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		-.080	-.179	-.373*	-.132	-.218*	.072	-.089
Content	.080		-.099	-.292	-.052	-.138	.152	-.009
Social Event	.179	.099		-.194	.047	-.039	.251*	.089
Entertainment	.373*	.292	.194		.241	.154	.445*	.283
Practical Issues	.132	.052	-.047	-.241		-.086	.204*	.042
Interactive Space	.218*	.138	.039	-.154	.086		.290*	.129
Place-Exhibition	-.072	-.152	-.251*	-.445*	-.204*	-.290*		-.162
Place-Program	.089	.009	-.089	-.283	-.042	-.129	.162	
Self - Independence	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		-.314*	-.237	-.620*	-.396*	-.416*	-.213	-.358*
Content	.314*		.077	-.306	-.081	-.102	.101	-.043
Social Event	.237	-.077		-.383	-.158	-.179	.025	-.120
Entertainment	.620*	.306	.383		.225	.204	.408*	.263
Practical Issues	.396*	.081	.158	-.225		-.021	.183	.038
Interactive Space	.416*	.102	.179	-.204	.021		.203*	.059
Place-Exhibition	.213	-.101	-.025	-.408*	-.183	-.203*		-.145
Place-Program	.358*	.043	.120	-.263	-.038	-.059	.145	
Self - Expression	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		-.061	-.209	-.565*	-.200	-.210	.149	-.137
Content	.061		-.148	-.504*	-.139	-.149	.210*	-.076
Social Event	.209	.148		-.356	.010	.000	.358*	.072
Entertainment	.565*	.504*	.356		.365	.355	.714*	.428*
Practical Issues	.200	.139	-.010	-.365		-.010	.349*	.063
Interactive Space	.210	.149	.000	-.355	.010		.359*	.073
Place-Exhibition	-.149	-.210*	-.358*	-.714*	-.349*	-.359*		-.286*
Place-Program	.137	.076	-.072	-.428*	-.063	-.073	.286*	
Self – Social Skills	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		-.348*	-.295	-.891*	-.364*	-.318	-.049	-.747*
Content	.348*		.053	-.544	-.016	.029	.298*	-.399*
Social Event	.295	-.053		-.596*	-.069	-.023	.246	-.452*
Entertainment	.891*	.544	.596*		.527	.573*	.842*	.145
Practical Issues	.364*	.016	.069	-.527		.046	.315*	-.383*
Interactive Space	.318	-.029	.023	-.573*	-.046		.269*	-.428*
Place-Exhibition	.049	-.298*	-.246	-.842*	-.315*	-.269*		-.698*
Place-Program	.747*	.399*	.452*	-.145	.383*	.428*	.698*	



Complement	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Home-School								
Place		-.017	-.112	-.152	-.124	-.116	.196	.046
Content	.017		-.095	-.135	-.107	-.099	.212	.062
Social Event	.112	.095		-.040	-.012	-.004	.307*	.157
Entertainment	.152	.135	.040		.028	.036	.348	.197
Practical Issues	.124	.107	.012	-.028		.008	.319*	.169
Interactive Space	.116	.099	.004	-.036	-.008		.312*	.161
Place-Exhibition	-.196	-.212	-.307*	-.348	-.319*	-.312*		-.150
Place-Program	-.046	-.062	-.157	-.197	-.169	-.161	.150	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

Several statistically significant differences were also found when comparing the specific benefits to parents for visiting the interactive space with their motivations to come to the museum (Tables 47-48); some of them are presented below:

- Respondents motivated to come to the museum because of a specific exhibition rated the benefits of the interactive space in promoting parents' attitudes towards art and developing parenting skills, such as skills as facilitator or art learning, feeling successful parenting, and learning about child, lower than several other motivation groups.
- Those motivated by a specific program rated the benefits of the interactive space in supporting parent's attitudes towards art museum higher than almost every other group; the exception were those motivated by entertainment or the interactive space.

Table 47: Benefits to Parents by Motivation to Come to the Museum

Variable	Relevant Statistics			Statistically Sig. Diff.?
Motivation to Come to the Museum	Art Skills – Art Making			NO (ANOVA)
	n	Mean	SD	
Entertainment	34	4.88	1.656	
Interactive Space	307	4.67	1.650	
Place: Program-based	114	4.63	1.808	
Content	216	4.58	1.797	
Social Event	179	4.58	1.637	
Place	128	4.55	1.544	
Practical Issues	245	4.49	1.62	
Place: Exhibition-based	254	4.20	1.786	
TOTAL	1477	4.53	1.698	
Motivation to Come to the Museum	Art Skills – Observation			NO (ANOVA)
	n	Mean	SD	
Entertainment	34	4.85	1.485	
Content	218	4.78	1.528	



Variable	Relevant Statistics			Statistically Sig. Diff.?
Place	129	4.70	1.409	
Social Event	179	4.68	1.556	
Interactive Space	307	4.66	1.492	
Place: Program-based	114	4.56	1.599	
Practical Issues	245	4.51	1.523	
Place: Exhibition-based	253	4.45	1.558	
TOTAL	1479	4.62	1.524	
Motivation to Come to the Museum	Attitudes - Art Museums			YES (ANOVA, F=1.271, df=7, p<.05, n=1480)
	n	Mean	SD	
Place: Program-based	114	5.54	1.233	
Entertainment	34	5.48	1.067	
Interactive Space	307	5.42	1.140	
Practical Issues	245	5.25	1.208	
Content	218	5.22	1.322	
Social Event	179	5.20	1.366	
Place	129	5.13	1.327	
Place: Exhibition-based	254	5.04	1.414	
TOTAL	1480	5.26	1.284	
Motivation to Come to the Museum	Attitudes - Art			YES (ANOVA, F=2.645, df=7, p<.05, n=1480)
	n	Mean	SD	
Entertainment	34	5.41	1.237	
Place: Program-based	114	5.10	1.380	
Interactive Space	307	5.05	1.282	
Social Event	179	4.90	1.508	
Place	129	4.89	1.372	
Content	218	4.89	1.499	
Practical Issues	245	4.86	1.370	
Place: Exhibition-based	254	4.65	1.499	
TOTAL	1480	4.91	1.416	
Motivation to Come to the Museum	Knowledge - Art			NO (ANOVA)
	n	Mean	SD	
Entertainment	34	4.76	1.396	
Interactive Space	306	4.64	1.419	
Content	218	4.61	1.588	
Social Event	179	4.61	1.492	
Place	129	4.60	1.412	
Place: Program-based	114	4.60	1.639	
Practical Issues	245	4.46	1.435	
Place: Exhibition-based	254	4.27	1.636	
TOTAL	1479	4.53	1.514	



Motivation to Come to the Museum	Facilitator Art Learning			YES (ANOVA, F=2.131, df=7, p<.05, n=1481)
	n	Mean	SD	
Entertainment	34	5.75	1.049	
Place: Program-based	114	5.72	0.969	
Interactive Space	308	5.58	0.942	
Social Event	179	5.53	1.161	
Practical Issues	245	5.52	1.019	
Content	218	5.49	1.131	
Place	129	5.42	1.111	
Place: Exhibition-based	254	5.35	1.095	
TOTAL	1481	5.51	1.060	
Motivation to Come to the Museum	Successful Parenting			YES (ANOVA, F=3.865, df=7, p<.05, n=1479)
	n	Mean	SD	
Interactive Space	308	4.79	1.45	
Place: Program-based	114	4.74	1.563	
Practical Issues	245	4.63	1.434	
Place	129	4.53	1.472	
Entertainment	34	5.07	1.609	
Content	218	4.52	1.593	
Social Event	179	4.49	1.534	
Place: Exhibition-based	252	4.21	1.605	
TOTAL	1479	4.57	1.531	
Motivation to Come to the Museum	Learning about Child			YES (ANOVA, F=2.776, df=7, p<.05, n=1482)
	n	Mean	SD	
Entertainment	34	5.74	0.861	
Interactive Space	309	5.48	1.028	
Place: Program-based	114	5.43	1.19	
Social Event	179	5.39	1.166	
Practical Issues	245	5.39	1.071	
Content	218	5.31	1.292	
Place	129	5.24	1.157	
Place: Exhibition-based	254	5.13	1.277	
TOTAL	1482	5.35	1.163	



Table 48: Post Hoc (Mean Difference I-J): Benefits to Parents by Motivation to Come to the Museum

I	J							
Attitudes - Art Museums	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		-.096	-.076	-.352	-.122	-.296*	.089	-.409*
Content	.096		.020	-.256	-.026	-.199	.185	-.312*
Social Event	.076	-.020		-.276	-.046	-.220	.165	-.333*
Entertainment	.352	.256	.276		.231	.057	.441	-.056
Practical Issues	.122	.026	.046	-.231		-.174	.210	-.287*
Interactive Space	.296*	.199	.220	-.057	.174		.384*	-.113
Place-Exhibition	-.089	-.185	-.165	-.441	-.210	-.384*		-.497*
Place-Program	.409*	.312*	.333*	.056	.287*	.113	.497*	
Attitudes - Art	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		.003	-.008	-.520	.033	-.163	.241	-.204
Content	-.003		-.011	-.523*	.030	-.166	.238	-.207
Social Event	.008	.011		-.512	.041	-.155	.249	-.196
Entertainment	.520	.523*	.512		.553*	.357	.762*	.317
Practical Issues	-.033	-.030	-.041	-.553*		-.196	.208	-.237
Interactive Space	.163	.166	.155	-.357	.196		.405*	-.040
Place-Exhibition	-.241	-.238	-.249	-.762*	-.208	-.405*		-.445*
Place-Program	.204	.207	.196	-.317	.237	.040	.445*	
Facilitator Art Learning	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		-.074	-.109	-.338	-.106	-.158	.072	-.305*
Content	.074		-.034	-.263	-.032	-.084	.146	-.231
Social Event	.109	.034		-.229	.003	-.050	.181	-.196
Entertainment	.338	.263	.229		.232	.179	.410*	.033
Practical Issues	.106	.032	-.003	-.232		-.053	.178	-.199
Interactive Space	.158	.084	.050	-.179	.053		.231*	-.146
Place-Exhibition	-.072	-.146	-.181	-.410*	-.178	-.231*		-.377*
Place-Program	.305*	.231	.196	-.033	.199	.146	.377*	
Successful Parenting	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		.011	.046	-.540	-.092	-.254	.328*	-.206
Content	-.011		.035	-.551*	-.103	-.265*	.317*	-.217
Social Event	-.046	-.035		-.586*	-.138	-.300*	.282	-.252
Entertainment	.540	.551*	.586*		.448	.286	.868*	.334
Practical Issues	.092	.103	.138	-.448		-.162	.420*	-.114
Interactive Space	.254	.265*	.300*	-.286	.162		.582*	.048
Place-Exhibition	-.328*	-.317*	-.282	-.868*	-.420*	-.582*		-.534*



Place-Program	.206	.217	.252	-.334	.114	-.048	.534*	
Learning about Child	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Place		-.063	-.153	-.498*	-.153	-.236	.112	-.191
Content	.063		-.090	-.435*	-.090	-.173	.175	-.128
Social Event	.153	.090		-.345	.000	-.083	.264*	-.039
Entertainment	.498*	.435*	.345		.345	.262	.610*	.307
Practical Issues	.153	.090	.000	-.345		-.083	.265*	-.039
Interactive Space	.236	.173	.083	-.262	.083		.348*	.044
Place-Exhibition	-.112	-.175	-.264*	-.610*	-.265*	-.348*		-.303*
Place-Program	.191	.128	.039	-.307	.039	-.044	.303*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

Statistically significant differences were found in the parent-child benefits associated with bonding and memory making (Table 49):

- Respondents motivated to come to the museum for entertainment rated bonding and memory-making as benefits of the interactive space, higher than almost every other group.
- Respondents motivated by an exhibition in the museum rated bonding and memory-making lower than several other group of respondents, particularly those motivated by entertainment, interactive space, and a specific museum program.

Table 49: Benefits to the Parent-Child Relationship by Motivation to Come to the Museum

Variable	Relevant Statistics			Statistically Sig. Diff.?
Motivation to Come to the Museum	Bonding			YES
	n	Mean	SD	(ANOVA, F=4.148, df=7, p<.05, n=1481)
Entertainment	34	6.29	0.736	
Interactive Space	308	5.95	0.823	
Place: Program-based	114	5.86	1.073	
Practical Issues	245	5.84	0.914	
Social Event	179	5.77	1.066	
Place	129	5.74	0.975	
Content	218	5.74	1.091	
Place: Exhibition-based	254	5.58	1.119	
TOTAL	1481	5.80	1.003	
Motivation to Come to the Museum	Conversations			NO
	n	Mean	SD	(ANOVA)
Entertainment	34	5.54	1.281	
Place: Program-based	114	5.28	1.444	
Place	129	5.26	1.183	



Variable	Relevant Statistics			Statistically Sig. Diff.?
Content	218	5.19	1.377	
Social Event	179	5.16	1.316	
Interactive Space	307	5.14	1.309	
Practical Issues	245	5.06	1.383	
Place: Exhibition-based	254	4.95	1.407	
TOTAL	1480	5.13	1.351	
Motivation to Come to the Museum	Group Identity			NO (ANOVA)
	n	Mean	SD	
Entertainment	34	5.19	1.538	
Interactive Space	308	4.98	1.411	
Content	218	4.95	1.463	
Place: Program-based	114	4.93	1.632	
Place	129	4.88	1.353	
Social Event	179	4.81	1.480	
Practical Issues	245	4.79	1.451	
Place: Exhibition-based	254	4.61	1.527	
TOTAL	1481	4.85	1.473	
Motivation to Come to the Museum	Memory Making			YES (ANOVA, F=3.074, df=7, p<.05, n=1480)
	n	Mean	SD	
Entertainment	34	6.37	0.772	
Interactive Space	307	6.10	0.891	
Place: Program-based	114	6.10	0.989	
Practical Issues	245	5.96	0.960	
Social Event	179	5.94	1.096	
Content	218	5.92	1.027	
Place	129	5.88	1.028	
Place: Exhibition-based	254	5.80	1.138	
TOTAL	1480	5.97	1.016	



Table 50: Post Hoc (Mean Difference I-J): Benefits to the Parent-Child Relationship by Motivation to Come to the Museum

	I				J			
	Place	Content	Social Event	Entertainment	Practical Issues	Interactive Space	Place-Exhibition	Place-Program
Bonding								
Place		.008	-.028	-.542*	-.093	-.200	.162	-.119
Content	-.008		-.036	-.549*	-.101	-.208*	.155	-.126
Social Event	.028	.036		-.514*	-.065	-.172	.190	-.091
Entertainment	.542*	.549*	.514*		.448*	.342	.704*	.423*
Practical Issues	.093	.101	.065	-.448*		-.107	.256*	-.025
Interactive Space	.200	.208*	.172	-.342	.107		.363*	.082
Place-Exhibition	-.162	-.155	-.190	-.704*	-.256*	-.363*		-.281*
Place-Program	.119	.126	.091	-.423*	.025	-.082	.281*	
Memory Making								
Place		-.038	-.064	-.488*	-.079	-.220*	.085	-.221
Content	.038		-.027	-.450*	-.042	-.182*	.122	-.183
Social Event	.064	.027		-.424*	-.015	-.155	.149	-.157
Entertainment	.488*	.450*	.424*		.408*	.268	.572*	.267
Practical Issues	.079	.042	.015	-.408*		-.140	.164	-.142
Interactive Space	.220*	.182*	.155	-.268	.140		.304*	-.002
Place-Exhibition	-.085	-.122	-.149	-.572*	-.164	-.304*		-.306*
Place-Program	.221	.183	.157	-.267	.142	.002	.306*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

How do the perceived benefits of interactive spaces in art museums interact with participants' motivations for using those spaces?

The benefits of visiting the interactive space were compared with motivations for using the interactive space. Though not statistically significantly different, the ratings on the overall benefit scales differed based on motivations to visit the spaces. For example, while those motivated by a desire to spend time together as a group (social event) had the highest ratings in the overall parent scale, they had one of the lowest in the relationship and children scales (Tables 51-52). A few statistically significant differences were found regarding the overall children scale:

- Respondents motivated to come to the interactive space as a destination (place) rated the overall benefits to children lower than did those motivated by the spaces' content and design.



- Those motivated by the interactive spaces as a behavioral tool rated the overall benefits to children lower than did those motivated by the spaces' content and design, by practical issues, and by entertainment.

Table 51: Overall Benefits by Motivation to Come to the Interactive Space

Variable	Relevant Statistics			Statistically Sig. Diff.?
Motivation to Come to the Interactive Space	Overall – Children Scale			YES (ANOVA, F=2.884, df=7, p<.05, n=1440)
Content	n	Mean	SD	
Design	249	5.23	0.782	
Practical Issues	423	5.17	0.811	
Entertainment	128	5.15	0.925	
Social Event	207	5.10	0.803	
Place	71	5.08	0.702	
Requested by Child	264	5.01	0.940	
Place-Behavioral	36	4.94	1.097	
TOTAL	62	4.81	0.975	
	1440	5.11	0.855	
Motivation to Come to the Interactive Space	Overall – Parent Scale			NO (ANOVA)
Social Event	n	Mean	SD	
Content	71	5.05	0.923	
Design	249	5.05	1.082	
Practical Issues	423	5.01	1.046	
Place	128	4.99	1.151	
Entertainment	264	4.93	1.219	
Requested by Child	207	4.92	1.135	
Place-Behavioral	36	4.71	1.287	
TOTAL	62	4.60	1.196	
	1440	4.96	1.117	
Motivation to Come to the Interactive Space	Overall – Relationship Scale			NO (ANOVA)
Practical Issues	n	Mean	SD	
Place	128	5.55	0.999	
Content	264	5.52	1.119	
Design	249	5.52	1.046	
Entertainment	423	5.52	1.041	
Social Event	207	5.46	0.931	
Requested by Child	71	5.43	0.991	
Place-Behavioral	36	5.34	1.286	
TOTAL	62	5.15	1.174	
	1440	5.49	1.049	



Table 52: Post Hoc (Mean Difference I-J): Overall Benefits by Motivation to Come to the Interactive Space

I	J							
Overall – Children Scale	Place	Content	Social Event	Entertainment	Practical Issues	Design	Place-Behavioral	Requested by Child
Place		-.219*	-.070	-.089	-.143	-.162*	.199	.067
Content	.219*		.149	.130	.076	.057	.418*	.286
Social Event	.070	-.149		-.019	-.073	-.092	.269	.137
Entertainment	.089	-.130	.019		-.054	-.073	.288*	.156
Practical Issues	.143	-.076	.073	.054		-.019	.342*	.210
Design	.162*	-.057	.092	.073	.019		.361*	.229
Place-Behavioral	-.199	-.418*	-.269	-.288*	-.342*	-.361*		-.132
Requested by Child	-.067	-.286	-.137	-.156	-.210	-.229	.132	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

In general terms, when looking at the specific benefits to children for visiting the interactive space, those motivated by the content of the spaces tended to rate art-related skills, knowledge, and attitudes the highest (content-motivated respondents had the highest means in art skills in art making and in observation, attitudes towards art, development in perspective-taking, development in self-expression, knowledge of art, in complementing home-school learning). (See Tables 53-54.)

Those motivated by a request by a child or the space as a behavioral tool rated almost all of the benefits as one of the lowest. The two exceptions were the benefit associated with children's attitudes towards art museums, which was rated the highest by those motivated by the space as a behavioral tool; and the child's development in independence in which those motivated by a request from the child tended to rate it somewhat highly. Several statistically significant differences were found; some of them are presented below:

- Those respondents who were content-motivated had higher ratings in the benefits of the interactive space in children's art skills in art making, attitudes towards art, knowledge of art, complement home-school, self-development in perspective taking and self-expression, than most others, but particularly those motivated by the interactive space as a destination (place) or a behavioral tool.
- Those motivated by the interactive space as a behavioral tool had lower ratings in the benefits of the interactive space in children's art skills in art making, attitudes towards art, self-development in perspective taking, self expression, knowledge of art, and in complementing home-school learning than most others, but particularly those motivated by content and design.



- No statistically significant differences were found in the rating of art skills in observation, attitudes towards art museum, self-development in independence and social skills.

Table 53: Benefits to Children by Motivation to Come to the Interactive Space

Variable	Relevant Statistics			Statistically Sig. Diff.?
Motivation to Come to the Interactive Space	Art Skills – Art Making			YES (ANOVA, F=5.237, df=7, p<.05, n=1440)
Content	n	Mean	SD	
Design	249	5.81	0.823	
Social Event	423	5.80	0.852	
Practical Issues	71	5.69	0.824	
Entertainment	128	5.65	0.942	
Place	207	5.62	0.910	
Requested by Child	264	5.50	1.119	
Place-Behavioral	36	5.44	1.308	
TOTAL	62	5.26	1.193	
	1440	5.67	0.956	
Motivation to Come to the Interactive Space	Art Skills – Observation			NO (ANOVA)
Content	n	Mean	SD	
Entertainment	248	5.09	1.218	
Social Event	207	4.97	1.298	
Design	71	4.94	1.227	
Practical Issues	423	4.92	1.320	
Place	127	4.91	1.319	
Requested by Child	264	4.83	1.462	
Place-Behavioral	36	4.83	1.464	
TOTAL	62	4.60	1.434	
	1438	4.92	1.333	
Motivation to Come to the Interactive Space	Attitudes - Art Museums			NO (ANOVA)
Place-Behavioral	n	Mean	SD	
Design	62	5.91	1.066	
Entertainment	423	5.87	0.887	
Place	207	5.84	0.973	
Content	264	5.83	1.033	
Practical Issues	249	5.78	0.916	
Social Event	127	5.78	0.976	
Requested by Child	71	5.77	0.794	
TOTAL	36	5.77	0.985	
	1439	5.83	0.945	
Motivation to Come to the Interactive Space	Attitudes - Art			YES (ANOVA, F=2.626, df=7, p<.05, n=1438)
Content	n	Mean	SD	
Social Event	248	5.84	0.85	
Design	71	5.75	0.835	
	423	5.75	0.945	



Variable	Relevant Statistics			Statistically Sig. Diff.?
Entertainment	207	5.72	0.910	
Practical Issues	127	5.65	0.875	
Place	264	5.58	1.157	
Requested by Child	36	5.45	1.211	
Place-Behavioral	62	5.40	1.365	
TOTAL	1438	5.70	0.989	
Motivation to Come to the Interactive Space	Self - Independence			NO (ANOVA)
	n	Mean	SD	
Practical Issues	127	5.27	1.116	
Content	249	5.24	1.032	
Design	423	5.23	1.091	
Entertainment	207	5.11	1.164	
Requested by Child	36	5.07	1.307	
Social Event	71	5.06	1.024	
Place	264	5.02	1.201	
Place-Behavioral	62	4.98	1.292	
TOTAL	1439	5.16	1.128	
Motivation to Come to the Interactive Space	Self – Perspective Taking			YES (ANOVA, F=2.500, df=7, p<.05, n=1439)
	n	Mean	SD	
Content	248	5.24	1.085	
Design	423	5.12	1.10	
Entertainment	207	5.08	1.109	
Practical Issues	128	5.03	1.264	
Place	264	4.95	1.333	
Social Event	71	4.92	1.113	
Requested by Child	36	4.86	1.386	
Place-Behavioral	62	4.67	1.369	
TOTAL	1439	5.06	1.184	
Motivation to Come to the Interactive Space	Self - Expression			YES (ANOVA, F=4.148, df=7, p<.05, n=1439)
	n	Mean	SD	
Content	248	5.31	1.011	
Design	423	5.20	1.060	
Practical Issues	128	5.17	1.147	
Entertainment	207	5.07	1.086	
Place	264	5.05	1.221	
Requested by Child	36	5.03	1.392	
Social Event	71	4.97	0.982	
Place-Behavioral	62	4.54	1.318	
TOTAL	1439	5.13	1.121	



Motivation to Come to the Interactive Space	Self – Social Skills			NO (ANOVA)
	n	Mean	SD	
Practical Issues	127	4.00	1.615	
Entertainment	207	3.88	1.558	
Social Event	71	3.84	1.410	
Design	423	3.74	1.611	
Content	248	3.71	1.555	
Place	264	3.69	1.584	
Requested by Child	36	3.69	1.780	
Place-Behavioral	62	3.59	1.604	
TOTAL	1438	3.77	1.583	
Motivation to Come to the Interactive Space	Knowledge - Art			YES (ANOVA, F=3.855, df=7, p<.05, n=1438)
	n	Mean	SD	
Content	248	5.43	0.927	
Design	423	5.30	1.024	
Practical Issues	127	5.20	1.042	
Entertainment	207	5.19	1.060	
Social Event	71	5.13	1.068	
Place	264	5.11	1.247	
Place-Behavioral	62	4.84	1.336	
Requested by Child	36	4.83	1.335	
TOTAL	1438	5.22	1.092	
Motivation to Come to the Interactive Space	Complement Home-School			YES (ANOVA, F=2.557, df=7, p<.05, n=1437)
	n	Mean	SD	
Content	248	5.11	1.081	
Design	422	5.02	1.125	
Social Event	71	4.96	1.166	
Practical Issues	127	4.95	1.240	
Entertainment	207	4.82	1.118	
Place	264	4.79	1.289	
Requested by Child	36	4.76	1.287	
Place-Behavioral	62	4.65	1.233	
TOTAL	1437	4.93	1.174	



Table 54: Post Hoc (Mean Difference I-J): Benefits to Children by Motivation to Come to the Interactive Space

I	J							
Art Skills – Art Making	Place	Content	Social Event	Entertainment	Practical Issues	Design	Place-Behavioral	Requested by Child
Place		-.309*	-.186	-.121	-.150	-.298*	.248	.066
Content	.309*		.123	0.188*	.159	.011	.557*	.375*
Social Event	.186	-.123		.065	.035	-.113	.434*	.251
Entertainment	.121	-.188*	-.065		-.029	-.177*	.369*	.187
Practical Issues	.150	-.159	-.035	.029		-.148	.398*	.216
Design	.298*	-.011	.113	.177*	.148		.546*	.364*
Place-Behavioral	-.248	-.557*	-.434*	-.369*	-.398*	-.546*		-.182
Requested by Child	-.066	-.375*	-.251	-.187	-.216	-.364*	.182	
Attitudes - Art	Place	Content	Social Event	Entertainment	Practical Issues	Design	Place-Behavioral	Requested by Child
Place		-.259*	-.171	-.136	-.065	-.169*	.177	.126
Content	.259*		.088	.123	.193	.089	.435*	.385*
Social Event	.171	-.088		.035	.106	.002	.348*	.297
Entertainment	.136	-.123	-.035		.070	-.034	.313*	.262
Practical Issues	.065	-.193	-.106	-.070		-.104	.242	.192
Design	.169*	-.089	-.002	.034	.104		.346*	.296
Place-Behavioral	-.177	-.435*	-.348*	-.313*	-.242	-.346*		-.050
Requested by Child	-.126	-.385*	-.297	-.262	-.192	-.296	.050	
Self – Perspective Taking	Place	Content	Social Event	Entertainment	Practical Issues	Design	Place-Behavioral	Requested by Child
Place		-.286*	.028	-.133	-.078	-.164	.276	.090
Content	.286*		.314*	.153	.208	.122	.562*	.375
Social Event	-.028	-.314*		-.161	-.106	-.193	.248	.061
Entertainment	.133	-.153	.161		.055	-.031	.409*	.223
Practical Issues	.078	-.208	.106	-.055		-.086	.354	.168
Design	.164	-.122	.193	.031	.086		.440*	.254
Place-Behavioral	-.276	-.562*	-.248	-.409*	-.354	-.440*		-.186
Requested by Child	-.090	-.375	-.061	-.223	-.168	-.254	.186	
Self - Expression	Place	Content	Social Event	Entertainment	Practical Issues	Design	Place-Behavioral	Requested by Child
Place		-.251*	.085	-.011	-.119	-.146	.512*	.027
Content	.251*		.336*	.240*	.132	.105	.763*	.278
Social Event	-.085	-.336*		-.097	-.204	-.231	.426*	-.058
Entertainment	.011	-.240*	.097		-.108	-.135	.523*	.038
Practical Issues	.119	-.132	.204	.108		-.027	.631*	.146
Design	.146	-.105	.231	.135	.027		.658*	.173
Place-Behavioral	-.512*	-.763*	-.426*	-.523*	-.631*	-.658*		-.485*
Requested by Child	-.027	-.278	.058	-.038	-.146	-.173	.485*	



Knowledge - Art	Place	Content	Social Event	Entertainment	Practical Issues	Design	Place-Behavioral	Requested by Child
Place		-.318*	-.016	-.075	-.087	-.188*	.270	.278
Content	.318*		.302*	.243*	.231	.130	.587*	.595*
Social Event	.016	-.302*		-.059	-.071	-.172	.285	.293
Entertainment	.075	-.243*	.059		-.012	-.113	.345*	.353
Practical Issues	.087	-.231	.071	.012			-.101	.357*
Design	.188*	-.130	.172	.113	.101		.458*	.466*
Place-Behavioral	-.270	-.587*	-.285	-.345*	-.357*	-.458*		.008
Requested by Child	-.278	-.595*	-.293	-.353	-.365	-.466*	-.008	
Complement Home-School	Place	Content	Social Event	Entertainment	Practical Issues	Design	Place-Behavioral	Requested by Child
Place		-.319*	-.173	-.036	-.158	-.227*	.137	.032
Content	.319*		.147	.283*	.161	.092	.456*	.351
Social Event	.173	-.147		.137	.014	-.054	.309	.204
Entertainment	.036	-.283*	-.137		-.122	-.191	.173	.068
Practical Issues	.158	-.161	-.014	.122		-.069	.295	.190
Design	.227*	-.092	.054	.191	.069		.364*	.259
Place-Behavioral	-.137	-.456*	-.309	-.173	-.295	-.364*		-.105
Requested by Child	-.032	-.351	-.204	-.068	-.190	-.259	.105	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

In general terms, those motivated by the interactive space as a social event (desire to spend time together) tended to rate most of the specific benefits to parents for visiting the interactive space the highest. The two exceptions were the benefits of the space in developing parents' as a facilitator of art learning and as an opportunity to learn about child, which had much lower ratings by those motivated by a social event. As with specific benefits to children, those motivated by a request by a child or the space as a behavioral tool rated almost all of the benefits as one of the lowest. A few statistically significant differences were found related to the benefit of learning about the child:

- Those respondents who were motivated by the interactive space as a behavioral tool or by a request from the child perceived rated the benefits of the space in promoting learning about the child lower than did those motivated by the content or design of the space, and those motivated by practical issues or by an opportunity for entertainment.



Table 55: Benefits to Parents by Motivation to Come to the Interactive Space

Variable	Relevant Statistics			Statistically Sig. Diff.?
Motivation to Come to the Interactive Space	Art Skills – Art Making			NO (ANOVA)
	n	Mean	SD	
Social Event	71	4.75	1.449	
Design	423	4.69	1.573	
Content	248	4.57	1.734	
Practical Issues	126	4.52	1.681	
Entertainment	205	4.41	1.745	
Place	264	4.37	1.806	
Requested by Child	36	4.36	1.726	
Place-Behavioral	62	4.20	1.889	
TOTAL	1435	4.53	1.695	
Motivation to Come to the Interactive Space	Art Skills – Observation			NO (ANOVA)
	n	Mean	SD	
Social Event	70	4.77	1.267	
Content	248	4.74	1.483	
Design	423	4.67	1.449	
Place	264	4.63	1.661	
Entertainment	207	4.56	1.573	
Practical Issues	127	4.55	1.533	
Requested by Child	36	4.36	1.501	
Place-Behavioral	62	4.22	1.661	
TOTAL	1437	4.63	1.525	
Motivation to Come to the Interactive Space	Attitudes - Art Museums			NO (ANOVA)
	n	Mean	SD	
Social Event	71	5.38	0.970	
Place	264	5.34	1.313	
Design	423	5.29	1.190	
Entertainment	207	5.26	1.333	
Practical Issues	127	5.25	1.347	
Content	248	5.21	1.303	
Requested by Child	36	5.05	1.426	
Place-Behavioral	62	4.98	1.446	
TOTAL	1438	5.26	1.276	
Motivation to Come to the Interactive Space	Attitudes - Art			NO (ANOVA)
	n	Mean	SD	
Social Event	71	5.04	1.196	
Content	248	5.01	1.337	
Design	423	4.96	1.321	
Place	264	4.90	1.546	
Practical Issues	127	4.86	1.459	
Requested by Child	36	4.82	1.261	



Variable	Relevant Statistics			Statistically Sig. Diff.?
Entertainment	207	4.81	1.484	
Place-Behavioral	62	4.47	1.627	
TOTAL	1438	4.91	1.412	
Motivation to Come to the Interactive Space	Knowledge - Art			NO (ANOVA)
	n	Mean	SD	
Social Event	71	4.70	1.310	
Content	248	4.64	1.501	
Design	422	4.59	1.406	
Practical Issues	127	4.53	1.459	
Place	264	4.51	1.631	
Entertainment	207	4.48	1.557	
Requested by Child	36	4.13	1.613	
Place-Behavioral	62	4.05	1.700	
TOTAL	1437	4.53	1.509	
Motivation to Come to the Interactive Space	Facilitator Art Learning			NO (ANOVA)
	n	Mean	SD	
Content	248	5.57	1.00	
Design	423	5.55	0.99	
Entertainment	207	5.52	1.009	
Practical Issues	128	5.50	1.005	
Place	264	5.48	1.223	
Social Event	71	5.43	0.960	
Place-Behavioral	62	5.43	1.133	
Requested by Child	36	5.34	1.175	
TOTAL	1439	5.52	1.051	
Motivation to Come to the Interactive Space	Successful Parenting			NO (ANOVA)
	n	Mean	SD	
Practical Issues	128	4.73	1.463	
Social Event	70	4.68	1.455	
Content	247	4.63	1.496	
Design	423	4.61	1.465	
Entertainment	207	4.54	1.499	
Place	264	4.53	1.653	
Requested by Child	36	4.36	1.733	
Place-Behavioral	62	4.06	1.489	
TOTAL	1437	4.57	1.520	
Motivation to Come to the Interactive Space	Learning about Child			YES (ANOVA, F=2.678, df=7, p<.05, n=1440)
	n	Mean	SD	
Content	249	5.53	1.028	
Practical Issues	128	5.46	1.056	
Design	423	5.36	1.138	
Entertainment	207	5.34	1.135	



Variable	Relevant Statistics			Statistically Sig. Diff.?
Social Event	71	5.31	1.014	
Place	264	5.29	1.306	
Place-Behavioral	62	5.00	1.187	
Requested by Child	36	4.92	1.555	
TOTAL	1440	5.35	1.159	

Table 56: Post Hoc (Mean Difference I-J): Benefits to Parents by Motivation to Come to the Interactive Space

I	J							
Learning about Child	Place	Content	Social Event	Entertainment	Practical Issues	Design	Place-Behavioral	Requested by Child
Place		-.241*	-.024	-.048	-.167	-.069	.287	.373
Content	.241*		.218	.193	.075	.172	.528*	.614*
Social Event	.024	-.218		-.024	-.143	-.045	.311	.397
Entertainment	.048	-.193	.024		-.119	-.021	.335*	.421*
Practical Issues	.167	-.075	.143	.119		.098	.454*	.540*
Design	.069	-.172	.045	.021	-.098		.356*	.442*
Place-Behavioral	-.287	-.528*	-.311	-.335*	-.454*	-.356*		.086
Requested by Child	-.373	-.614*	-.397	-.421*	-.540*	-.442*	-.086	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

In general terms, and following the same trend with specific benefits to children and to parent, those motivated by a request by a child or the space as a behavioral tool rated the specific benefits to the parent-child relationship as one of the lowest. Those motivated by the space as a destination tended to rate the relationship scales as one of the highest, with the exception of the benefits related with group identity. No statistically significant differences were found.

Table 57: Benefits to the Parent-Child Relationship by Motivation to Come to the Interactive Space

Variable	Relevant Statistics			Statistically Sig. Diff.?
Motivation to Come to the Interactive Space	Bonding			NO (ANOVA)
	n	Mean	SD	
Practical Issues	128	5.93	0.859	
Place	264	5.85	1.083	
Content	248	5.82	0.937	
Entertainment	207	5.81	0.918	
Design	423	5.81	0.997	
Social Event	71	5.73	0.941	
Requested by Child	36	5.64	1.328	
Place-Behavioral	62	5.49	1.266	



Variable	Relevant Statistics			Statistically Sig. Diff.?
TOTAL	1439	5.81	1.002	
Motivation to Come to the Interactive Space	Conversations			NO (ANOVA)
	n	Mean	SD	
Place	264	5.19	1.417	
Design	423	5.19	1.335	
Content	248	5.16	1.321	
Entertainment	207	5.09	1.281	
Practical Issues	127	5.08	1.462	
Requested by Child	36	5.08	1.365	
Social Event	71	5.06	1.269	
Place-Behavioral	62	4.85	1.384	
TOTAL	1438	5.14	1.351	
Motivation to Come to the Interactive Space	Group Identity			NO (ANOVA)
	n	Mean	SD	
Content	249	4.96	1.497	
Design	423	4.95	1.418	
Practical Issues	127	4.91	1.468	
Place	264	4.84	1.578	
Social Event	71	4.82	1.31	
Entertainment	207	4.79	1.391	
Requested by Child	36	4.68	1.701	
Place-Behavioral	62	4.29	1.445	
TOTAL	1439	4.86	1.470	
Motivation to Come to the Interactive Space	Memory Making			NO (ANOVA)
	n	Mean	SD	
Place	264	6.03	1.071	
Practical Issues	127	6.01	0.885	
Entertainment	207	6.00	0.858	
Design	423	5.97	1.011	
Social Event	71	5.96	0.927	
Content	248	5.93	1.09	
Place-Behavioral	62	5.87	1.191	
Requested by Child	36	5.86	1.106	
TOTAL	1438	5.98	1.011	

How do perceived benefits of interactive spaces in art museums relate to the nature of families' museum visit?

The nature of families' museum visit, as measured by total number of stops, stops in galleries, and stops in family programs, was also compared with the perceived benefits of visiting the interactive spaces.



Total Number of Stops x Benefits

The number of times respondents stopped during their visit in general and in galleries did not present a statistically significant correlation with the overall benefits of the space for children, to parents, and to the parent-child relationship. On the other hand, positive trivial statistically significant correlations were found between stops at family programs and overall benefits to children and to the parent-child relationship. More specifically, as the number of family programs attended increased, so did the perceived benefit of the interactive spaces for children and for the relationship (Table 58).

Table 58: Overall Benefits by Number of Stops During that Visit

Overall Benefits	Number of Stops - Statistically Sig. Corr.? (p<.05)		
	Total	Galley Stops	Family Program Stops
Overall – Children Scale	NO (Pearson's)	NO (Pearson's)	YES, Pos. (Pearson's r=.061, p<.05, n=1502)
Overall – Parent Scale	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Overall – Relationship Scale	NO (Pearson's)	NO (Pearson's)	YES, Pos. (Pearson's r=.068, p<.05, n=1502)
Large = 0.5 and above Moderate = 0.3 to 0.5 Small = 0.1 to 0.3 Trivial = smaller 0.1			

A few small and trivial positive statistically significant correlations were found when comparing the specific benefits to children and the respondents' stops during the visit (Table 59).

- In regards to the total number of stops during the visit, as the number of stops increased, so did the benefit ratings related to children's art skills in observation, attitudes towards art museums, and self-development in perspective taking.
- The number of gallery stops also correlated with the benefits towards art skills in observation; as the number of stops increased, so did the rating of this benefit.
- The number of stops in family programs correlated with attitudes towards art museums and with self-development in social skills; as the number of stops increased, so did the ratings of these benefits.



Table 59: Benefits to Children by Number of Stops During that Visit

Benefits to Children	Number of Stops - Statistically Sig. Corr.? (p<.05)		
	Total	Galley Stops	Family Program Stops
Art Skills – Art Making	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Art Skills – Observation	YES, Pos. (Pearson's r=.085, p<.05, n=1500)	YES, Pos. (Pearson's r=.073, p<.05, n=1500)	NO (Pearson's)
Attitudes - Art Museums	YES, Pos. (Pearson's r=.071, p<.05, n=1501)	NO (Pearson's)	YES, Pos. (Pearson's r=.082, p<.05, n=1501)
Attitudes - Art	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Self - Independence	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Self – Perspective Taking	YES, Pos. (Pearson's r=.044, p<.05, n=1501)	NO (Pearson's)	NO (Pearson's)
Self - Expression	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Self – Social Skills	NO (Pearson's)	NO (Pearson's)	YES, Pos. (Pearson's r=.149, p<.05, n=1500)
Knowledge - Art	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Complement Home-School	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)

Large = 0.5 and above
 Moderate = 0.3 to 0.5
 Small = 0.1 to 0.3
 Trivial = smaller 0.1

Only a couple of trivial positive statistically significant correlations were found when comparing the specific benefits to parents and the respondents' stops during the visit (Table 60).

- The benefit of the interactive space in promoting parents skills as a facilitator of art learning correlated with the total number of stops and the number of stops in family programs; in other words, as the number of stops increased, so did the ratings of these benefits.
- No statistically significant correlations were found between the number of gallery stops and specific benefits to parents.

Table 60: Benefits to Parents by Number of Stops During that Visit

Benefits to Parents	Number of Stops - Statistically Sig. Corr.? (p<.05)		
	Total	Galley Stops	Family Program Stops
Art Skills – Art Making	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Art Skills – Observation	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Attitudes - Art Museums	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Attitudes - Art	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Knowledge - Art	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Facilitator Art Learning	YES, Pos. (Pearson's r=.064, p<.05, n=1501)	NO (Pearson's)	YES, Pos. (Pearson's r=.058, p<.05, n=1501)
Successful Parenting	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)
Learning about Child	NO (Pearson's)	NO (Pearson's)	NO (Pearson's)

Large = 0.5 and above
 Moderate = 0.3 to 0.5
 Small = 0.1 to 0.3
 Trivial = smaller 0.1



Several trivial positive statistically significant correlations were found when comparing the specific benefits to the parent-child relationship and the respondents' stops during the visit (Table 61).

- As the total number of stops and the number of gallery stops increased, so did the rating of conversations as a benefit of the interactive space for the parent-child relationship.
- The ratings of group identity as a benefit also increased, as number of gallery stops increased.
- The number of family programs correlated with all four parent-child relationship benefits; in other words, as the number of stops increased, so did the ratings of these benefits.

Table 61: Benefits to the Parent-Child Relationship by Number of Stops During that Visit

Benefits to Relationship	Number of Stops - Statistically Sig. Corr.? (p<.05)		
	Total	Galley Stops	Family Program Stops
Bonding	NO (Pearson's)	NO (Pearson's)	YES, Pos. (Pearson's r = .056, p<.05, n=1501)
Conversations	YES, Pos. (Pearson's r = .099, p<.05, n=1500)	YES, Pos. (Pearson's r = .071, p<.05, n=1500)	YES, Pos. (Pearson's r = .063, p<.05, n=1500)
Group Identity	YES, Pos. (Pearson's r = .053, p<.05, n=1501)	NO (Pearson's)	YES, Pos. (Pearson's r = .059, p<.05, n=1501)
Memory Making	NO (Pearson's)	NO (Pearson's)	YES, Pos. (Pearson's r = .072, p<.05, n=1501)

Large = 0.5 and above
 Moderate = 0.3 to 0.5
 Small = 0.1 to 0.3
 Trivial = smaller 0.1

Position of Interactive Space X Benefits

The position of the interactive space within the visit was compared with perceived benefits. In general, those who made multiple stops to the interactive space rated overall benefits to children, parents, and parent-child relationship the highest, while those who made the interactive space their first or last stop rated these benefits the lowest. Several statistically significant differences were found (see Tables 62-63):

- Respondents who made multiple stops in the interactive space rated the overall benefits to children, to parent, and to the relationship higher than those who made it their first or last stop. They also rated the benefits to the relationship higher than those who had the interactive space as their only stop.
- Respondents who made the interactive space their last stop in the visit rated the overall benefits to children, to parent, and to the relationship lower than those who made it their middle stop or made multiple stops.



Table 62: Overall Benefits by Position of the Interactive Space During That Visit

Variable	Relevant Statistics			Statistically Sig. Diff.?
Position of the Interactive Space	Overall – Children Scale			YES (ANOVA, F=3.960, df=4, p<.05, n=1500)
	n	Mean	SD	
Multiple IS stops	106	5.36	0.821	
Only stop	210	5.18	0.827	
Middle stop	292	5.17	0.852	
First stop	238	5.09	0.897	
Last stop	654	5.04	0.859	
TOTAL	1500	5.12	0.860	
Position of the Interactive Space	Overall – Parent Scale			YES (ANOVA, F=3.107, df=4, p<.05, n=1500)
	n	Mean	SD	
Multiple IS stops	106	5.24	1.171	
Middle stop	292	5.04	1.098	
Only stop	210	5.03	1.083	
First stop	238	4.93	1.107	
Last stop	654	4.88	1.132	
TOTAL	1500	4.97	1.121	
Position of the Interactive Space	Overall – Relationship Scale			YES (ANOVA, F=3.165, df=4, p<.05, n=1500)
	n	Mean	SD	
Multiple IS stops	106	5.77	0.990	
Middle stop	292	5.57	0.971	
Only stop	210	5.49	1.019	
First stop	238	5.46	1.115	
Last stop	654	5.42	1.078	
TOTAL	1500	5.49	1.053	



Table 63: Post Hoc (Mean Difference I-J): Overall Benefits by Position of the Interactive Space During That Visit

I	J				
Overall – Children Scale	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.081	.003	.133	-.184
First stop	-.081		-.078	.052	-.265*
Middle stop	-.003	.078		.130*	-.188
Last stop	-.133	-.052	-.130*		-.318*
Multiple IS stops	.184	.265*	.188	.318*	
Overall – Parent Scale	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.101	-.014	.149	-.208
First stop	-.101		-.115	.047	-.310*
Middle stop	.014	.115		.163*	-.194
Last stop	-.149	-.047	-.163*		-.357*
Multiple IS stops	.208	.310*	.194	.357*	
Overall – Relationship Scale	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.030	-.082	.070	-.285*
First stop	-.030		-.112	.039	-.316*
Middle stop	.082	.112		.151*	-.204
Last stop	-.070	-.039	-.151*		-.355*
Multiple IS stops	.285*	.316*	.204	.355*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

In general, similarly to the overall benefits' comparisons, those who made multiple stops to the interactive space rated specific benefits to children the highest, while those who made the interactive space their first or last stop rated these benefits as one of the lowest. Several statistically significant differences were found, some of which are presented below:

- Respondents who made the interactive space their only stop rated art skills in observation lower than those who made the interactive space their middle or last stop, or made multiple stops.
- Respondents who made multiple stops in the interactive space rated the benefit to self-development in perspective taking higher than all other groups.
- Those who had the interactive space visit as their last stop rated the benefits to self-development in independence, in expression, and in social skill, and the benefits in complementing home-school learning, lower than those who had the interactive space as their only stop or made multiple stops.



- No statistically significant differences were found in the art-related benefits, such as art skills in art making, attitudes towards art museums and art, and knowledge of art.

Table 64: Benefits to Children by Position of the Interactive Space During That Visit

Variable	Relevant Statistics			Statistically Sig. Diff.?
Position of the Interactive Space	Art Skills – Art Making			NO (ANOVA)
	n	Mean	SD	
Multiple IS stops	106	5.84	0.995	
Only stop	210	5.73	0.873	
Middle stop	292	5.71	0.907	
Last stop	654	5.65	0.997	
First stop	238	5.61	0.958	
TOTAL	1500	5.68	0.957	
Position of the Interactive Space	Art Skills – Observation			YES (ANOVA, F=2.524, df=4, p<.05, n=1498)
	n	Mean	SD	
Multiple IS stops	106	5.18	1.333	
Middle stop	292	5.01	1.303	
Last stop	653	4.93	1.309	
First stop	238	4.91	1.352	
Only stop	209	4.72	1.393	
TOTAL	1498	4.93	1.331	
Position of the Interactive Space	Attitudes - Art Museums			NO (ANOVA)
	n	Mean	SD	
Multiple IS stops	106	6.00	0.884	
Middle stop	292	5.92	0.875	
Last stop	654	5.79	0.993	
Only stop	209	5.78	0.916	
First stop	238	5.77	0.979	
TOTAL	1499	5.83	0.952	
Position of the Interactive Space	Attitudes - Art			NO (ANOVA)
	n	Mean	SD	
Multiple IS stops	106	5.82	0.916	
Middle stop	292	5.76	0.943	
First stop	238	5.68	1.063	
Last stop	654	5.68	1.032	
Only stop	208	5.63	0.900	
TOTAL	1498	5.70	0.995	
Position of the Interactive Space	Self - Independence			YES (ANOVA, F=3.812, df=4, p<.05, n=1499)
	n	Mean	SD	
Multiple IS stops	106	5.41	1.041	
Only stop	209	5.34	0.975	
First stop	238	5.18	1.158	
Middle stop	292	5.15	1.147	



Variable	Relevant Statistics			Statistically Sig. Diff.?
Last stop	654	5.06	1.162	
TOTAL	1499	5.16	1.130	
Position of the Interactive Space	Self – Perspective Taking			YES (ANOVA, F=2.687, df=4, p<.05, n=1499)
	n	Mean	SD	
Multiple IS stops	106	5.39	1.124	
Middle stop	292	5.11	1.154	
Only stop	209	5.05	1.169	
First stop	238	5.05	1.304	
Last stop	654	4.99	1.179	
TOTAL	1499	5.06	1.193	
Position of the Interactive Space	Self - Expression			YES (ANOVA, F=3.365, df=4, p<.05, n=1499)
	n	Mean	SD	
Multiple IS stops	106	5.36	1.051	
Only stop	209	5.21	1.036	
Middle stop	292	5.20	1.106	
First stop	238	5.15	1.209	
Last stop	654	5.02	1.130	
TOTAL	1499	5.13	1.124	
Position of the Interactive Space	Self – Social Skills			YES (ANOVA, F=6.398, df=4, p<.05, n=1498)
	n	Mean	SD	
Multiple IS stops	106	4.21	1.701	
Only stop	208	4.09	1.520	
First stop	238	3.81	1.487	
Middle stop	292	3.73	1.578	
Last stop	654	3.60	1.574	
TOTAL	1498	3.77	1.575	
Position of the Interactive Space	Knowledge - Art			NO (ANOVA)
	n	Mean	SD	
Multiple IS stops	106	5.43	1.067	
Middle stop	292	5.33	1.022	
First stop	238	5.22	1.196	
Last stop	654	5.20	1.081	
Only stop	208	5.12	1.136	
TOTAL	1498	5.23	1.098	
Position of the Interactive Space	Complement Home-School			YES (ANOVA, F=4.843, df=4, p<.05, n=1497)
	n	Mean	SD	
Multiple IS stops	106	5.17	1.197	
Only stop	208	5.08	1.128	
Middle stop	292	5.08	1.099	
First stop	238	4.85	1.203	
Last stop	653	4.83	1.192	
TOTAL	1497	4.94	1.174	



Table 65: Post Hoc (Mean Difference I-J): Benefits to Children by Position of the Interactive Space During That Visit

I	J				
Art Skills – Observation	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		-.188	-.287*	-.216*	-.462*
First stop	.188		-.100	-.029	-.274
Middle stop	.287*	.100		.071	-.174
Last stop	.216*	.029	-.071		-.245
Multiple IS stops	.462*	.274	.174	.245	
Self - Independence	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.158	.187	.274*	-.071
First stop	-.158		.029	.116	-.229
Middle stop	-.187	-.029		.087	-.258*
Last stop	-.274*	-.116	-.087		-.345*
Multiple IS stops	.071	.229	.258*	.345*	
Self – Perspective Taking	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.006	-.062	.057	-.338*
First stop	-.006		-.068	.051	-.344*
Middle stop	.062	.068		.119	-.276*
Last stop	-.057	-.051	-.119		-.395*
Multiple IS stops	.338*	.344*	.276*	.395*	
Self - Expression	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.063	.010	.194*	-.151
First stop	-.063		-.052	.131	-.214
Middle stop	-.010	.052		.183*	-.162
Last stop	-.194*	-.131	-.183*		-.345*
Multiple IS stops	.151	.214	.162	.345*	
Self – Social Skills	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.283	.364*	.494*	-.121
First stop	-.283		.081	.211	-.404*
Middle stop	-.364*	-.081		.130	-.485*
Last stop	-.494*	-.211	-.130		-.615*
Multiple IS stops	.121	.404*	.485*	.615*	
Complement Home-School	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.231*	-.002	.256*	-.091
First stop	-.231*		-.233*	.025	-.322*
Middle stop	.002	.233*		.258*	-.089



Last stop	-.256*	-.025	-.258*		-.347*
Multiple IS stops	.091	.322*	.089	.347*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

In general, similarly to the overall benefits' comparisons, those who made multiple stops to the interactive space rated specific benefits to parents the highest, while those who made the interactive space their first or last stop rated these benefits as one of the lowest (Tables 66-67). Several statistically significant differences were found, some of which are presented below:

- Respondents who made multiple stops in the interactive space rated the benefits related to art skills in observation, to attitudes towards art museum, and to facilitating art learning higher than most groups.
- Those who had the interactive space visit as their last stop rated the benefits related to successful parenting and learning about child lower than those who had the interactive space as their first stop or made multiple stops.
- Respondents who had the interactive space as their middle stop rated the benefit in facilitating art learning higher than most of the others.
- No statistically significant differences were found in the art-related benefits, such as art skills in art making, attitudes towards art, and knowledge of art.

Table 66: Benefits to Parents by Position of the Interactive Space During That Visit

Variable	Relevant Statistics			Statistically Sig. Diff.?
Position of the Interactive Space	Art Skills – Art Making			NO (ANOVA)
	n	Mean	SD	
Middle stop	290	4.70	1.619	
Only stop	208	4.60	1.581	
Multiple IS stops	106	4.59	1.882	
First stop	238	4.47	1.677	
Last stop	653	4.46	1.734	
TOTAL	1495	4.54	1.694	
Position of the Interactive Space	Art Skills – Observation			YES (ANOVA, F=2.460, df=4, p<.05, n=1497)
	n	Mean	SD	
Multiple IS stops	106	4.98	1.657	
Middle stop	292	4.75	1.483	
Last stop	653	4.58	1.505	
Only stop	208	4.55	1.531	
First stop	238	4.52	1.521	
TOTAL	1497	4.63	1.521	



Position of the Interactive Space	Attitudes - Art Museums			YES (ANOVA, F=3.135, df=4, p<.05, n=1498)
	n	Mean	SD	
Multiple IS stops	106	5.62	1.174	
Only stop	208	5.36	1.128	
Middle stop	292	5.29	1.341	
First stop	238	5.24	1.281	
Last stop	654	5.18	1.306	
TOTAL	1498	5.27	1.280	
Position of the Interactive Space	Attitudes - Art			NO (ANOVA)
	n	Mean	SD	
Multiple IS stops	106	5.11	1.538	
Middle stop	292	4.99	1.418	
Only stop	208	4.90	1.337	
First stop	238	4.90	1.341	
Last stop	654	4.86	1.435	
TOTAL	1498	4.91	1.411	
Position of the Interactive Space	Knowledge - Art			NO (ANOVA)
	n	Mean	SD	
Multiple IS stops	106	4.79	1.651	
Middle stop	292	4.63	1.409	
First stop	238	4.54	1.508	
Only stop	208	4.50	1.446	
Last stop	653	4.48	1.546	
TOTAL	1497	4.54	1.509	
Position of the Interactive Space	Facilitator Art Learning			YES (ANOVA, F=4.619, df=4, p<.05, n=1499)
	n	Mean	SD	
Multiple IS stops	106	5.82	0.905	
Middle stop	292	5.65	1.014	
Last stop	654	5.47	1.068	
First stop	238	5.44	1.109	
Only stop	209	5.43	1.035	
TOTAL	1499	5.52	1.054	
Position of the Interactive Space	Successful Parenting			YES (ANOVA, F=5.465, df=4, p<.05, n=1497)
	n	Mean	SD	
Multiple IS stops	106	4.92	1.540	
Only stop	209	4.84	1.474	
Middle stop	292	4.64	1.431	
First stop	238	4.61	1.507	
Last stop	652	4.39	1.572	
TOTAL	1497	4.58	1.528	



Position of the Interactive Space	Learning about Child			YES (ANOVA, F=3.881, df=4, p<.05, n=1500)
	n	Mean	SD	
Multiple IS stops	106	5.64	1.063	
Only stop	210	5.52	1.058	
Middle stop	292	5.39	1.116	
First stop	238	5.30	1.194	
Last stop	654	5.26	1.204	
TOTAL	1500	5.36	1.161	

Table 67: Post Hoc (Mean Difference I-J): Benefits to Parents by Position of the Interactive Space During That Visit

I	J				
Art Skills – Observation	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.034	-.198	-.031	-.426*
First stop	-.034		-.231	-.065	-.460*
Middle stop	.198	.231		.166	-.228
Last stop	.031	.065	-.166		-.394*
Multiple IS stops	.426*	.460*	.228	.394*	
Attitudes - Art Museums	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.114	.069	.178	-.265
First stop	-.114		-.045	.065	-.379*
Middle stop	-.069	.045		.109	-.334*
Last stop	-.178	-.065	-.109		-.444*
Multiple IS stops	.265	.379*	.334*	.444*	
Facilitator Art Learning	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		-.014	-.228*	-.039	-.397*
First stop	.014		-.214*	-.025	-.383*
Middle stop	.228*	.214*		.189*	-.169
Last stop	.039	.025	-.189*		-.358*
Multiple IS stops	.397*	.383*	.169	.358*	
Successful Parenting	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.236	.208	.448*	-.082
First stop	-.236		-.028	.212	-.317
Middle stop	-.208	.028		.241*	-.289
Last stop	-.448*	-.212	-.241*		-.530*
Multiple IS stops	.082	.317	.289	.530*	



Learning about Child	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.212	.126	.253*	-.127
First stop	-.212		-.086	.041	-.339*
Middle stop	-.126	.086		.127	-.253
Last stop	-.253*	-.041	-.127		-.380*
Multiple IS stops	.127	.339*	.253	.380*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'

In general, similarly to the overall benefits' comparisons, those who made multiple stops to the interactive space rated specific benefits to the parent-child relationship the highest, while those who made the interactive space their first or last stop rated these benefits as one of the lowest (Tables 68-69). Several statistically significant differences were found, some of which are presented below:

- Respondents who made multiple stops to the interactive space rated the benefits related to bonding higher than those who made the interactive space their first or last stop. Those respondents also rated the benefit of promoting conversations higher than any other group.
- Respondents who made the interactive space their middle stop rated the benefit of conversations higher than those who had the interactive space as their only or their last stop.
- No statistically significant differences were found in the benefits related to memory-making and building group identity.

Table 68: Benefits to the Parent-Child Relationship by Position of the Interactive Space During That Visit

Variable	Relevant Statistics			Statistically Sig. Diff.?
Position of the Interactive Space	Bonding			YES
	n	Mean	SD	(ANOVA, F=2.920, df=4, p<.05, n=1499)
Multiple IS stops	106	6.04	0.934	
Only stop	209	5.87	0.913	
Middle stop	292	5.86	0.921	
First stop	238	5.79	1.031	
Last stop	654	5.73	1.062	
TOTAL	1499	5.80	1.005	
Position of the Interactive Space	Conversations			YES
	n	Mean	SD	(ANOVA, F=4.529, df=4, p<.05, n=1498)
Multiple IS stops	106	5.57	1.196	
Middle stop	292	5.27	1.273	



Variable	Relevant Statistics			Statistically Sig. Diff.?
First stop	238	5.10	1.427	
Last stop	654	5.08	1.344	
Only stop	208	4.98	1.421	
TOTAL	1498	5.14	1.352	
Position of the Interactive Space	Group Identity			NO (ANOVA)
	n	Mean	SD	
Multiple IS stops	106	5.23	1.398	
Middle stop	292	4.93	1.404	
First stop	238	4.84	1.533	
Only stop	209	4.83	1.433	
Last stop	654	4.78	1.497	
TOTAL	1499	4.86	1.472	
Position of the Interactive Space	Memory Making			NO (ANOVA)
	n	Mean	SD	
Multiple IS stops	106	6.11	0.927	
Middle stop	292	6.08	0.907	
Only stop	208	5.95	0.996	
Last stop	654	5.93	1.040	
First stop	238	5.91	1.121	
TOTAL	1498	5.97	1.016	

Table 69: Post Hoc (Mean Difference I-J): Benefits to the Parent-Child Relationship by Position of the Interactive Space During That Visit

I	J				
Bonding	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		.079	.008	.140	-.177
First stop	-.079		-.071	.061	-.256*
Middle stop	-.008	.071		.132	-.185
Last stop	-.140	-.061	-.132		-.317*
Multiple IS stops	.177	.256*	.185	.317*	
Conversations	Only stop	First stop	Middle stop	Last stop	Multiple IS stops
Only stop		-.120	-.287*	-.093	-.588*
First stop	.120		-.168	.027	-.468*
Middle stop	.287*	.168		.195*	-.300*
Last stop	.093	-.027	-.195*		-.495*
Multiple IS stops	.588*	.468*	.300*	.495*	

*. The mean difference is significant at the 0.05 level.

'I' smaller than 'J'; 'I' larger than 'J'



Appendices

Appendix 1 Sample Online Questionnaire

Family Learning in Art Museums - Frist Center for the Visual Arts

Welcome!

Thank you for speaking with us at the Frist Center for the Visual Arts the other day. We really enjoyed learning about your experiences at ArtQuest. We look forward to including your opinions in this part of the study as well.

This online questionnaire should take about 15 minutes. Once you have completed it, you will be entered in a monthly raffle for a \$100 American Express Gift Card.

If you have any questions about this study or problems completing the questionnaire, please contact Jessica Luke at artmuseumresearch@ilinet.org.

Thank you again for participating in this research!

To get started, click "**Next Page**"

1) Before you begin, please enter your Participant ID# in the space below.

Your ID# can be found in the email invitation that contained the link to this survey. The ID# is located just below the web link.

Participant ID#: _____



THINGS TO CONSIDER:

We want to know more about what visitors value about the interactive galleries in art museums, such as ArtQuest. As you complete this questionnaire, please keep in mind four very important points:

Focus only on your visit to ArtQuest...

NOT the entire Frist Center or other programs that happen in the museum when you were there. We are trying to understand what is valuable only about ArtQuest.

Focus on the group that came with you to ArtQuest that day...

when you answered the first part of the study. We understand that your experiences in ArtQuest may change depending on who is visiting the gallery with you.

Focus on what YOU think is valuable...

rather than what your child or other adults in your group may think is valuable. We cannot study everyone's opinions at the same time and we are really interested in what you, as an adult and caregiver, think.

Try to discern what is more or less valuable for you.

When reading the questions, it may be tempting to tell us that everything is valuable. But if you think about the different activities your group does together, you likely value different experiences in different ways. What is valuable about going to a state park is likely different from what is valuable about going to ArtQuest.

In the following questions, you will be asked to tell us what you think is most valuable about a visit to ArtQuest.

First, we will ask you what you think is valuable to your child(ren).

Then, we will ask what is **valuable to you.**

Finally, we will ask what is **valuable for your group together.**

LET'S BEGIN...



What do you think is most valuable about a visit to ArtQuest for your child(ren)?

What I value about ArtQuest is that, there, MY CHILD(REN) ...

	Not at all what I value about the space	2	3	4	5	6	All that I value about the space
... learn how art is made	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... further their interest in art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... consider a different point of view	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... use materials they don't have at school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel welcome in the museum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... have experiences that build on what they learn at school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... experiment with various materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... play with other children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... express their feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... think about a problem in a new way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... observe the details in a work of art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... use materials they don't have at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... learn by doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... open their minds to new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... have experiences that build on what they learn at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... become curious about art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... learn about the elements of art (e.g., line, shape, color, texture)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel that art museums are fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... work independently	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... practice getting along with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel like they accomplished something	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... become more aware of different types of art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel excited about coming to the museum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... practice different art techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... look carefully at a work of art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel excited about art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... learn something about themselves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... choose what they want to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... meet new people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... figure things out for themselves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... engage in conversations with other children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... express themselves creatively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... make art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



What do you think is most valuable about a visit to ArtQuest for YOU?

What I value about ArtQuest is that, there, I ...

	Not at all what I value about the space	2	3	4	5	6	All that I value about the space
... feel welcome in the museum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... look carefully at a work of art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel that art museums are fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... become curious about art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... learn something about myself, as a parent/caregiver	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel like a good parent/ caregiver	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... observe what my child(ren) are capable of doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... facilitate a learning experience for my child(ren)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... better understand my child(ren)'s interests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... become more aware of different types of art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... practice different art techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... experiment with various materials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... gain insight into my child(ren)'s personality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel confident taking my child(ren) into the rest of the museum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel excited about art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... further my interest in art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel that I can facilitate conversations about art with my child(ren)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... see how my child(ren) solve problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... better understand what I am good at, as a parent/caregiver	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... learn about the elements of art (e.g., line, shape, color, texture)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... feel excited about coming to the museum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... observe the details in a work of art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... learn how art is made	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**You have told us what's most valuable about ArtQuest for your children, and you personally.
Now please tell us what you find valuable about the space for both of you together.**

What I value about ArtQuest is that, there, WE ...

	Not at all what I value about the space	2	3	4	5	6	All that I value about the space
... build a shared memory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... have fun together	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... learn about each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... express our values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... strengthen our values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... talk about things that are important to us	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... spend quality time together	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... get closer to each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... make art a central part of who we are	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... build positive memories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... play together	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
... talk about art	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thinking back to your visit to the Frist Center that day...

How did your experience in ArtQuest influence you in the rest of the museum, in terms of what you did or how you felt in the other galleries?

Since your visit to the Frist Center that day...

Please describe a conversation you have had with other people specifically about your visit to ArtQuest. What did you talk about, and with whom?

Is there anything else you would like to share with us about your group's experience at ArtQuest?



As a thank-you for participating in this study, would you like to enter our monthly drawing for a \$100 American Express Gift Card?

- ☐ No
- ☐ Yes

**To review your responses, click the "Previous Page" button.
Otherwise, click "Submit Survey" to send in your responses.**

Thank you for completing the Family Learning in Art Museums questionnaire. We appreciate your time and effort in sharing your experiences with us. Your opinions will be incorporated into this study and enable museums to develop meaningful spaces for visitors like you.



Appendix 2 Sample Onsite Interview Instrument



Families in Art Museums: ONSITE INTERVIEW

The first thing I'd like you to do is to use these picture cards to recreate your visit today. Each card represents a gallery you may have spent time in, or an activity you may have done. Put them in order for me representing your visit—in order of what you did.

	1 (Orig)	2 (Spur)
1 st		
2 nd		
3 rd		
4 th		
5 th		
6 th		
7 th		
8 th		
9 th		
10 th		
11 th		
12 th		
13 th		

Visitor ID: _____

Date: _____

Time Interviewed: _____

Group Composition: _____

YOUR MUSEUM VISIT EXPERIENCE

1. Including this visit, how many times have you visited the *Frist Center for the Visual Arts* in the last 12 months?

While alone _____ times ☐ None

With other adult(s) only _____ times ☐ None

With child(ren) _____ times ☐ None

2. How many times have you visited other museums in the last 12 months?

Art museums _____ times ☐ None
(not the Frist)

Children's museum _____ times ☐ None

History museum _____ times ☐ None

Science museum _____ times ☐ None

Zoos & aquaria _____ times ☐ None

3. Do you currently have a membership...

	Yes	No
...at the Frist Center?	<input type="checkbox"/>	<input type="checkbox"/>
...at another museum?	<input type="checkbox"/>	<input type="checkbox"/>

1 of 4



4. Why did you come to the *Frist Center* today?

5. While you were at the *Frist Center* today, did you pick up and/or use any of the following items?

	No	Pick Up	Use
Gallery Guides – printed or audio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Family Activity Pack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Over the last 12 months, how often have you participated or used the following family programs:

Kid's Club	_____	times
Summer Camp	_____	times
Free Family Days	_____	times
Story Time	_____	times
Lectures/Presentations	_____	times
Other: _____	_____	times

YOUR INTEREST IN ART

7. I'm going to read you six statements. For each one, please tell me whether or not it describes you by answering Yes or No.

	Yes	No
I create art for my own enjoyment.	<input type="checkbox"/>	<input type="checkbox"/>
I have participated in art enrichment classes in my free time. (e.g., art-making, lectures, gallery talks, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
I have taken 2 or more art courses in school.	<input type="checkbox"/>	<input type="checkbox"/>
I have an art-related degree.	<input type="checkbox"/>	<input type="checkbox"/>
I create art professionally.	<input type="checkbox"/>	<input type="checkbox"/>
I work or have worked in an art-related field.	<input type="checkbox"/>	<input type="checkbox"/>



8. How often did you visit museums as a child?

- ☐ Never
- ☐ Maybe once
- ☐ Occasionally
- ☐ Often

YOUR ARTQUEST EXPERIENCE

9. Had you heard about *ArtQuest* before today?

- ☐ Yes
- ☐ No

10. Including this visit, how many times have you been to *ArtQuest* in the last 12 months?

_____ times

11. Why did you go to *ArtQuest* during your visit to the museum today?



Tell us about yourself

12. Who are you visiting the museum with today?
List everyone in your group, including yourself.

	Sex	Age
1. MYSELF _____	<input type="checkbox"/> F <input type="checkbox"/> M	_____
OTHERS: [Please indicate relationship to you – i.e. husband, friend, daughter, mother, etc.]		
2. _____	<input type="checkbox"/> F <input type="checkbox"/> M	_____
3. _____	<input type="checkbox"/> F <input type="checkbox"/> M	_____
4. _____	<input type="checkbox"/> F <input type="checkbox"/> M	_____
5. _____	<input type="checkbox"/> F <input type="checkbox"/> M	_____
6. _____	<input type="checkbox"/> F <input type="checkbox"/> M	_____
7. _____	<input type="checkbox"/> F <input type="checkbox"/> M	_____
8. _____	<input type="checkbox"/> F <input type="checkbox"/> M	_____
9. _____	<input type="checkbox"/> F <input type="checkbox"/> M	_____
10. _____	<input type="checkbox"/> F <input type="checkbox"/> M	_____

13. What is your ethnic origin?
[Check all that apply]

- ☐ African American
☐ Asian/Pacific Islander
☐ Caucasian
☐ Hispanic/Latino
☐ Native American
☐ Other (please describe) _____

14. Please indicate your educational background:

- ☐ Some high school
☐ High school graduate
☐ Some college
☐ College degree
☐ Some graduate work
☐ Graduate degree
☐ Other (please describe) _____

15. What is your zip code?
[If outside of U.S., please indicate country]

_____ Zip Code

Please provide us with YOUR CONTACT INFORMATION

In order for us to contact you to complete the second part of this research study, we need some additional information from you.

Name: _____

Email: _____

Phone: _____

This number is for my: ☐ Home ☐ Work ☐ Cell