

The Mind Collection

Summative Evaluation



Prepared For The Exploratorium By

Visitor Studies Services

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Visitor Studies Services is under the sole proprietorship of Wendy Meluch, MA.
Contact: wendy@visitorstudies.com; 415.897.4051; Novato, California



1.0 Overview

1.0 OVERVIEW

1.1 Introduction

The Exploratorium contracted with Visitor Studies Services in 2007 to design and conduct a summative evaluation of the new Mind Collection. This evaluation consists of four studies, each with a different sample: Pre/Post-visit Interviews, a self-completed Exit Survey, a Tracking and Timing study, and a Follow-up Phone Interview study. In every case, study participants were selected using a random sampling protocol. Data collection for the first three studies took place during November and December, 2007. Follow-up Phone Interview participants were recruited in January of 2008 and contacted in early April 2008.

Throughout this evaluation, visitor responses are rich and varied. Sample responses are included in study findings, Sections 2 and 3 of this report; all relevant responses are included in appendices. The reader is encouraged to peruse visitor comments for the fullest understanding of how they talk about and react to Mind exhibits.

1.2 Mind Collection – Background & Description

The Exploratorium defines itself as a "museum of science, art, and human perception." As such, it has long focused not only on natural phenomena but also on how people perceive and interpret those phenomena. Mind, the museum's newest permanent exhibit collection, brings that focus on perception and understanding to the forefront. Inspired by influential research in the cognitive sciences, and building on previous exhibit development work—in particular, work on the recent Seeing project (NSF 9725887).

With support from the National Science Foundation (NSF 0307927) the four-year Mind project saw the development of 46 interactive exhibits which are to become part of the museum's permanent collection. Development of this collection was guided by a focus on three areas of mental activity: attention, emotion, and judgment. In the end, these particular aspects of mind are not necessarily expected to rise to the surface as take home messages for the casual visitor.

The Mind Collection area is at the rear of the Exploratorium. It has a distinct entry marked with a large canopy, and clear boundaries across the front, back and one side. The west side has three large passages that open to the Seeing Collection. Pilot studies found that visitors easily pass between the two collections, usually without awareness that they have moved from one area to another. This is a useful finding for the Exploratorium in that it suggests that Seeing and Mind function well together in the visitor experience. However, this porous boundary was problematic for collecting data about Mind; we found that visitors needed to be contained physically and conceptually. To that end, all three Mind-Seeing passages were roped off during all data collection sessions.



1.0 Overview

1.3 Executive Summary

A four-pronged evaluation of the Mind Collection was conducted during December, 2007 and January, 2008 with follow-up phone interviews taking place during April, 2008. In total, 244 randomly selected, casual visitors participated in Pre- and Post-visit Interviews (64), a self-completed Exit Survey (92), an unobtrusive Tracking and Timing Study (63), or Follow-up Phone Interviews three months post visit (25). Findings show the Collection to be engaging, fun and thought provoking. The Collection effectively engenders several of its Desired Exhibit Impacts. It gives users a memorable experience, often charged with emotion and replete with insights into self and/or how minds work. Insights that in turn make some visitors ponder how the functioning of the mind impacts them, their perceptions, and the way people operate in society.

Mind visitors clearly enjoy the collection; they say as much in the Interviews and Surveys, and their long dwell time and observed behavior, playful and filled with laughter, support this. Respondents are interested in minds and how they work even before visiting the Collection, often offering thoughtful questions or musing about minds. After a visit, they are eager to share their thoughts in the Survey and Interviews. The rich, thoughtful conversations these visitors had with interviewers about their exhibit experiences provide further evidence of high engagement with exhibits and exhibit content.

Visitors appreciate the collection as a means of demonstrating how the mind works, how it perceives and how it is influenced, to give visitors a broader understanding of the mind. Respondents give much emphasis to perception, by which they mean the ways in which we use our senses and minds to perceive and interpret the world around us, and the fact that we as people should be aware that our perceptions may not accurately reflect reality.

Visitor comments about how minds work mirror many different exhibits in the Collection, touching on perceptions being impacted by prejudice, subtle cues of which we may be unaware, past experiences, emotions, mood, senses, and more. They readily articulate lessons learned about self and minds/the human condition, often relating these pearls of wisdom to their own lives or society.

Observation tells us that the exhibits which garner the most attention include Startle Response, A Sip of Conflict, Master Mind Machine, Bronze Hand, Easy Search Difficult Search, Time to Think, and Poker Face. Some exhibits often enjoy more than one use by a visitor, including Startle Response, Cabinet of Cuteness, Center of Attention, Cute-ify, Trading Places, and others.

Conversations with respondents highlight exhibits that move them to consider their own perceptions and biases or how they may be perceived by others, as well as their own abilities or shortcomings. Respondents have much to say along these lines in reaction to A Sip of Conflict, Who Lives Here, True Mirrors, Center of Attention, Mind Cinema, Startle Response, Color Your Judgment, Emotion Tracer, Mood Lighting and Stretching Your Attention.



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1.0 Overview

When musing about ideas or questions they have before and after visiting the Mind Collection, visitor comments generally shift from considering mental processes to reflecting on firsthand experiences with their own mind, often considering what those meant to them personally or what might be their ramifications for society. References to mental processes post-visit are fewer, but more varied than pre-visit.

In contrast to an exhibition with one Big Idea, the Mind Collection aims to engender several Desired Exhibit Impacts (see Desired Exhibit Impacts below). Almost all Survey and Interview participants evidence at least one of those Impacts. Most Mind visitors have a fun or otherwise memorable encounter with an exhibit element (Impact 2A). Many times that involves discovering or rediscovering something about one's own abilities and/or the mind or how it works (Impacts 1A and 1B). The visit experience is emotionally rich and varied as visitors engage with exhibits and ponder discoveries so made (Impact 1C and 2B). They are taken aback to recognize their own reactions and prejudices and are sometimes moved to ponder how these things impact their lives and/or relationships.

While some visitor responses suggest that they are aware of using and/or learning about their own minds while engaging with exhibits in the Mind Collection, visitors generally do not talk about the exhibits as vehicles for self study or recognize the Collection as an outgrowth of serious mind research (Impact 3). Follow-up Phone Interview participants evidence more awareness of Mind exhibits as vehicles for exploring their own minds and emphasize that this makes the Mind Collection distinct from the rest of the Museum.

1.4 Desired Exhibit Impacts

Principal Investigators leading the Mind Collection development team articulated three main impacts that they hope visitors will experience.

1. Visitors will sense that these exhibits are vehicles for internal investigation, that the real subject of them is "my own mind" and/or the minds of other people who are present.
 - A. Visitors experience new insights/learning about mind
 - B. Visitors experience new insights/learning about themselves
 - C. Visitors register surprise/fun/discomfort at the experience/insight
 - e.g., I see that I don't look as expected in the "mirror" *and* I dis/like it
 - e.g., I found out that I carry racial bias *and* this makes me uncomfortable
 - e.g., the toilet drinking fountain was funny/weird/memorable *and* I feel icky about drinking from it even though I know it's clean (cognitive dissonance)
2. Visitors have two or three singular experiences with the exhibit(s) that impressed them, stick out for them.
 - A. Experiences that are fun, exciting, memorable
 - B. Experiences that invoke the type of cognitive dissonance described above
 - C. Experiences that make them aware that these exhibits are different from others in the Museum because "I'm exploring my own mind." [though it is not important that visitors be able to articulate a distinction]



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3. Visitors will understand that the mind can be studied...
 - A. That they have been doing this themselves through these exhibits (see above)
 - B. That the mind is the subject of study by researchers
 - C. That the exhibits in this collection reflect the scientific study of the Mind and is not a collection of 'touchy feely stuff' and experiences that is ungrounded in science



1.0 Overview

1.5 Summary of Findings Presented By Impact Per New ISE Guidelines

Impact	ISE Impact Category ¹	Audience Objectives	Evidence
<p>1. Visitors will sense that these exhibits are vehicles for internal investigation, that the real subject of them is “my own mind” and/or the minds of other people who are present.</p>	<p>Knowledge</p>	<p>1A. Visitors experience new insights/ learning about mind</p>	<p>84% of Pre/Post-visit Interview participants report learning about (or reinforcing knowledge about) self or mind when discussing memorable exhibit experiences. Of the 117 exhibit experiences discussed, 45% reflect personal discoveries; 27% reflect discoveries about the mind and/or human experience.</p> <p>27% of Pre/post-visit Interview participants touch on discoveries made about self/mind when discussing questions they have post-visit.</p>
	<p>Knowledge</p>	<p>1B. Visitors experience new insights/ learning about themselves</p>	<p>14% of Pre/Post-visit Interview participants commented on exhibits making them aware of how their abilities or reactions compare with other visitors, and/or on enjoying watching others use an exhibit.</p> <p>36% of Exit Survey respondents describe learning an exhibit-specific point of information about the mind or how it functions. 23% describe discoveries about self.</p> <p>44% of Phone Interview participants recall learning insights into the mind during their visit three months prior; 24% learned about themselves.</p>
	<p>Engagement</p>	<p>1C. Visitors register surprise/fun/dis comfort at the experience or insight</p>	<p>In 117 exhibit experience conversations, 41% reference an emotional reaction to the exhibit and 33% an emotional reaction to discoveries made while using the exhibit.</p> <p>28% of Phone Interview participants recall generally good or positive feelings about the Mind Collection; less than 24% reference surprise or cognitive dissonance.</p>

¹ Friedman, A. (Ed.). (March 12, 2008). Framework for Evaluating Impacts of Informal Science Education Projects [On-line]. (Available at: http://insci.org/resources/Eval_Framework.pdf)

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Impact	ISE Impact Category	Audience Objectives	Evidence
<p>2. Visitors have two or three singular experiences with the exhibit(s) that impressed them, stick out for them.</p>	Engagement	<p>2A. Experiences that are fun, exciting, memorable</p>	<p>100% of Pre/post-visit Interview participants had at least one memorable exhibit experience to discuss; 83% chose to discuss two.</p> <p>91% of Pre/post-visit Interview and 88% of Exit Survey respondents report enjoying the Collection.</p> <p>Tracking & Timing subjects evidence enjoyment and laughter; and dwell times indicate high engagement.</p> <p>28% of Phone Interview participants describe memorable experiences of the senses including odors, lights and colors.</p> <p>16% of Phone Interview participants recall having fun.</p>
	Engagement	<p>2B. Experiences that invoke the type of cognitive dissonance described above</p>	<p>In 117 exhibit experience conversations, 41% reference an emotional reaction to the exhibit and 33% an emotional reaction to discoveries made while using the exhibit.</p> <p>20% of Phone Interview participants reference the toilet and/or cognitive dissonance in some way.</p>
	Knowledge	<p>2C. Experiences that make them aware that these exhibits are different from others in the Museum because "I'm exploring my own mind." [though it is not important that visitors be able to articulate a distinction]</p>	<p>13% of Exit Survey respondents, when writing about what they learned in the Collection, touch on self exploration but do not generally articulate a meta-awareness of these exhibits being different from others at the Museum.</p> <p>44% of Phone Interview participants characterize the Mind Collection as distinct from the rest of the Museum because the content is more "internal" to the user and less about phenomena outside of self.</p>

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Impact	ISE Impact Category	Audience Objectives	Evidence
3. Visitors will understand that the mind can be studied...	Knowledge	3A. That they have been doing this themselves through these exhibits	10% of Exit Survey respondents, when writing about the intent of the Collection acknowledge that they have been studying themselves or that the exhibit helps people learn about themselves. 20% of Phone Interview participants acknowledge in some way that they were using/learning about their own mind.
	Knowledge	3B. That the mind is the subject of study by researchers	<5% of Pre/post-visit Interview respondents touch on this.
	Knowledge	3C. That the exhibits in this collection reflect the scientific study of the Mind and is not a collection of 'touchy feely stuff' and experiences that is ungrounded in science	<10% of Exit Survey respondents touch on this.



1.0 Overview

1.6 Remediation

Findings from the Pre/post-visit Interviews, Exit Survey and Tracking and Timing Study point to two general areas that may benefit from remediation. The physical layout is such that one area tends to get overlooked. And, while the data show strong evidence of Desired Exhibit Impacts 1 and 2 among visitors, Impact 3 is not registering with them.

The raised, carpeted area gets overlooked by most visitors; exhibits located there get the least use. A look at the tracking and timing maps tells us that only a quarter of the sample enters that area. Visitors who enter Mind through its main entrance have to turn hard to the left to see or approach the raised, carpeted area. It is possible that when the stanchions separating Mind from Seeing are not in use, this area will get more attention because visitors who enter Mind from the very rear, by way of Seeing, get a view of the raised, carpeted area as they move through the Collection. This may serve to attract more visitors to this area. (4.2.1)

There may also be a touch of Melton's Right Turn Bias in play, and this may be influencing visitor use of exhibits. Upon entering Mind through the canopied entrance, about one third of this sample (32%), keep to the right; specifically to the right of Poker Face. This is likely to be impacted by the presence of stanchions during data collection, thus visitor paths may be substantially different under normal conditions. (4.2.1)

Throughout the onsite studies, visitors describe many memorable experiences and lessons that they learned about themselves or minds, and even emotional reactions to same (Impacts 1 and 2). They do not acknowledge that Mind exhibits are different from others at the Museum (Impact 2C). Very few respondents reference the fact that the mind can be studied, and they do not articulate that they have been using these exhibits to study their own mind (Impact 3A). There are very few references to the idea that these exhibits relate directly to research that is being done on the mind (Impact 3C).

A meta-perspective of the experience, as touched on by Impacts 2c and 3 is difficult to detect with onsite studies that have to be conducted during the respondent's visit. Respondents tend to be excited about and interested in what they have just experienced and haven't had a chance to reflect on it. Indeed, three months post-visit, Phone Interview participants evidence Impact 2C. Close to half (44%) characterize the Mind Collection as distinct from the rest of the Museum because the content is related to themselves/minds, not external phenomena (Impact 2C). A fifth (20%) also specify that they were learning about their own minds through these exhibits (Impact 3A).

Potentially useful, though not directly tied to Impacts or questions of remediation, are comments that visitors have about specific exhibits and/or the Collection. Visitors offer a few suggestions during Post-visit Interviews (2.2.1.c). Also during Post-visit Interviews, visitors discussed exhibit experiences. Those comments are grouped by exhibit and listed in Appendix D.



1.0 Overview

1.7 Research Design & Rationale

The evaluation questions generated by staff and refined by staff and the evaluator required several studies to address thoroughly. Because we don't want to overburden respondents, four separate studies were developed for four separate samples.

The only way to determine how experiencing the Mind Collection impacts visitor thinking about minds is to talk to visitors both before and after their visit. Participants in the Pre/post-visit answered several questions about their expectations of the Collection and their interest in and questions about minds before and after visiting the Collection. Post-visit interviews also addressed memorable exhibits, what made them memorable, and what ideas and feelings they engendered. This study was conducted as interviews using standardized forms to allow interviewers to probe for completeness and clarity.

An Exit Survey in the form of a self-completed questionnaire form addressed overarching perceptions of the Mind Collection rather than individual exhibits. Respondents reported what they felt the purpose of the Collection is and what, if anything, they felt they discovered. Because the Pre/Post-visit Interview participants were strongly cued by the Pre-visit interview before entering the Collection, Exit Survey participants were not cued, but invited to participate upon exiting the area. Cueing participants heightens their attention and provides data on how an exhibit performs with motivated visitors. Using uncued respondents makes for a more rigorous test.

Of course, the only way to assess long term impacts of an exhibit experience is to talk with visitors after their visit; in this case, by about three months. To that end, 49 visitors were recruited upon exiting the Mind Collection area in January and phoned in April. Respondents were asked about their recollections of their visit to the Mind Collection, the exhibits they used and any ideas or feelings they recalled having about them. These conversations also addressed how visitors perceived of the Mind Collection relative to the rest of the Museum, and what, if anything, they have pondered regarding minds or the Mind Collection since their visit.

To get reliable data on visitor dwell time, activities and behaviors an observational study is necessary. A full Tracking and Timing study using low-tech paper maps closely followed Serrell's work.²

² *Paying Attention: Visitors in Museum Exhibitions*, Serrell, American Association of Museums 1998, page 72



1.0 Overview

Evaluation Questions:

Visitor Use Of and Reactions To The Mind Collection:

- Do visitors enjoy the Mind Collection?
- Are people engaged by the ideas presented in the exhibits?
- Which exhibits seem to get the most use and/or are most memorable/powerful for visitors?
- What were visitors' expectations before entering the Mind Section? Were their expectations met? What, if anything, did they expect to find but did not?

Visitor Take-home Messages of Mind Collection:

- How do visitors characterize the exhibit and their experiences of it?
- What do visitors report learning/discovering/understanding through their experience with these elements?

Mind Collection Impacts on Visitor Thinking About Minds

- What types of ideas and questions do visitors have about the mind before and immediately after their visit to the collection?
- How does the collection impact visitors' curiosity and understanding of the nature of how the mind functions, how it figures out what to do?
- Do visitors make connections between their experiences in the new section and their own mental experiences outside the Exploratorium?
- Do they continue to ask questions about the mind after their visit to the Exploratorium?

Visitor Awareness of Desired Exhibit Impacts

- Do visitors evidence awareness of Attention, Emotion and Judgement as a part of the mind's function before and/or after visiting the collection? If so, how does the exhibit appear to impact this?
- Do visitors comments evidence Desired Exhibit Impacts?



1.0 Overview

1.8 Mind Collection Photos

Entrance area – canopy





1.0 Overview

A Sip of Conflict



Startle Response





1.0 Overview

1.9 Acknowledgements

The evaluator would like to thank the thoughtful and dedicated members of the Mind Collection team for their perceptive insights and helpful support. This work could not have been done without the tireless and patient efforts of several data collectors: Barbara Berry, Beth Gardner, Annette Gavigan, Adam Klinger, Gypsy McFelter, and Kelli Zehnder.

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2.0 Pre/post-visit Interviews

2.0 PRE/POST-VISIT INTERVIEWS

2.1 Introduction & Method

Visitors approaching the Mind Collection entrance were selected using a random sampling protocol and invited to participate in pre- and post-visit interviews. Upon completing the Pre-visit Interview, interviewers carefully described the location and borders of the Mind Collection, asking participants to return for their Post-visit Interview before visiting other parts of the Museum. Thank you gifts were provided to participants who completed both parts of the study. Sixty-four participants are included in this sample.

Using cued respondents for an exit study is a somewhat less rigorous test of an exhibit than using un-cued participants. We chose to conduct these Pre- and Post-interviews with the same subjects, thus cueing them by means of the first interview, to allow us to look at if and how the Collection impacts visitor thinking or questions about minds.

While face-to-face interviews allow the interviewer to probe for fuller understanding of responses, they can also be vulnerable to respondents' inclination to please by saying what they think the interviewer wants to hear. The diverse responses collected appear to be quite candid and suggest that the tendency to want to please the interviewer may not be prevalent in this study. That questions in the latter part of the Post-interview get more non-responses than earlier questions suggests that this instrument was a bit long and may have fatigued respondents. This is particularly noticeable in Post Questions 7 and 8.

While piloting this study, it became clear that visitors flowed easily between Mind and Seeing usually with no awareness that they had moved from one Collection to another. For the sake of collecting useful data about Mind visitors needed to be contained physically and conceptually. To that end, stanchions were placed at each of the three broad passages between Mind and Seeing, leaving only the main entrance to the Mind area open. Hung on stanchion ropes were signs reading, "please do not cross." To help limit crossover, one particularly attractive Seeing element was moved away from the Seeing-Mind boundary and Explainers were enlisted to help keep the ropes in place. These measures helped to contain most, but not all visitors. The use of stanchions produced an artificial condition by limiting the flow of visitors between the Seeing and Mind areas which may impact the visitor experience and use of the collection.

2.1.1 Highlights of what we learned in this study:

- Upon hearing the name "Mind Collection" visitors expect to find out about how minds work in general, and particularly how they perceive. Visitors expect illusions and puzzles that trick the mind. After visiting the Collection, a majority of visitors feel satisfied, for most there was nothing they had expected or wanted to see that they did not find. A few visitors have suggestions for the exhibits based on questions or interests they have. (2.2.1.b-2.2.1.c)
- Visitors are naturally interested in minds, offering a variety of thoughtful ideas and questions about minds pre-visit. (2.2.2)



2.0 Pre/post-visit Interviews

- When considering questions and ideas that visitors discuss pre- and post-visit, there is a shift from pondering mind processes, to reflecting upon discoveries and/or experiences that relate to exhibit content. (2.2.2)
- Visitors name a wide range of exhibits as most memorable, they do not cluster around one or two exhibits. This suggests that exhibit interfaces and content are varied enough to attract and speak to a wide range of visitors. (2.2.4)
- Visitors are impressed by the intrinsic interest of the exhibits and the content they present. They also tell us that the exhibits are fun, cool, entertaining. (2.2.4.b)
- Most respondents report discovering something about mind and/or self by using these exhibits. Some of the time, the experience or the discovery engender emotional reactions too. (2.2.4.c – 2.2.4.e)
- A majority of respondents exhibit moderate to high engagement with exhibits. They also report that they enjoyed the Collection. (2.2.6, 2.2.3)
- A few visitors are asking for more information on the mechanics of how brains/minds function. (2.2.1.c, 2.2.2.c)

2.2 Pre/Post-Visit Interview Findings

2.2.1 What do visitors expect of the Mind Collection and did it meet those expectations?

2.2.1.a Previous Awareness of the Mind Collection

Less than a quarter of Pre/Post-visit Interview participants had heard about the Mind Collection prior to their visit (22%). Several of those were intrigued and amused by the promotions, often mentioning the toilet exhibit (A Sip of Conflict). Most did not articulate specifics based on the marketing. Because the banners and other marketing efforts were started after data collection began, we would not expect high levels of exposure.

Pre-Question 1

Did you hear about the Mind Collection before you arrived here today?	n = 64
No	77%
Yes	22%
I don't know	2%

Pre-Question 1a

How did you hear about it?	n = 64
Banner	5%
Newspaper	5%
Exploratorium (brochure, newsletter, staff)	5%
Radio	3%
Television	3%
Website	3%
Other (Southwest Airline Magazine)	2%



2.0 Pre/post-visit Interviews

2.2.1.b Expectations of the Mind Collection

Expectations of “the Mind Collection” most commonly revolve around aspects of how the mind works (42%). Most of these are somewhat broad ideas about how the mind thinks, perceives, process and the like. Many respondents expect experiences with illusions and/or activities that trick the mind and perception (30%). A smaller number of respondents touched on some aspect of emotion or affect including fears or phobias, and/or emotions as a part of mind (11%). Mentioned with less frequency are expectations that the exhibit will include surprise, interactivity, multi-sensorial elements, brain physiology, and brain samples.

The table below includes sample responses. The reader is encouraged to review a complete list of visitor responses to this question in Appendix A.

Pre-Question 2

What do you expect to do or find out about in something called the Mind Collection?	n = 64	Sample Responses
How Minds Work, Specific Example	42%	<ul style="list-style-type: none"> ▪ How the mind works? How it collects & perceives information? ▪ Maybe how the brain works, how opinions are formulated, & maybe what colors mean something. ▪ Probably how the mind can play tricks on you. Your perceptions and different than the reality. Optical illusions for example. How the mind works. A collection of minds on display. ▪ Haven't thought about it. When I hear "Mind Collection," I think we are going to explore the mind or brain. How memories are made or stored. How do neurons connect to each [other], how long term & short term memory are stored, and how they are different? ▪ Maybe find out more about what your mind can do. Like what your mind can comprehend. Maybe see things people have done in the past that were life changing experiences. Because they would have seen something that made a broader understanding of how things work in your mind. ▪ Probably how we perceive things. Maybe like how processes of mind work & how we see things in the world that's processed into image. Maybe thoughts & emotions. ▪ How the mind works. Thought processes. Like doing math, just using your brain in every day life. ▪ Probably about perception & what happens internally. The mental mechanisms we use to perceive. By going into exhibit, just want to find out more.

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2.0 Pre/post-visit Interviews

What do you expect to do or find out about in something called the Mind Collection?	n = 64	Sample Responses
Illusions And/or Puzzles	30%	<ul style="list-style-type: none"> ▪ See stuff that is weird, isn't really there but seems like it is, like optical illusions. ▪ Probably things that defy spatial reality, optical illusions ▪ Mind twisters. I expect for things to surprise me. ▪ Optical illusions I guess. Because what you see isn't always what you believe and seeing isn't always believing. ▪
How Minds Work, Nonspecific	14%	<ul style="list-style-type: none"> ▪ Strange things about the mind. Things we didn't know about our mind. DK. Maybe tests that show minds can and can't do things or transform things. ▪ Just probably suppositions of how the mind works. I haven't given it a lot of thought actually. Very little expectations. ▪ I guess, how and why the mind works.
Affective, Emotions	11%	<ul style="list-style-type: none"> ▪ Things that scare you, things that scare the mind. Like if something is nasty, you don't want to - if you find candy on the floor you wouldn't want to eat it even though it is candy. ▪ I am afraid it's a test I'll flunk, & I'm afraid I'll get dizzy. ▪ Maybe phobias like arachnophobia; things people may be fearful of because of their mind. ▪ Probably how we perceive things. Maybe like how processes of mind work & how we see things in the world that's processed into image. Maybe thoughts & emotions.
Surprise, Cognitive Dissonance	9%	<ul style="list-style-type: none"> ▪ Things that you have to think twice about. I had read about the toilet you can drink out of ("Sip of Conflict"). ▪ Something that challenges what you already believe, think is normal, or think reality is. I was already thinking about the toilet, but the more I thought about it, I wondered if it would bother me. Maybe [exhibit will] make me think different. ▪ I just expect some unique or curious perspective on the mind, but I have no idea. That's what I like about the Exploratorium; you never know what to expect.
Reference To Toilet	9%	<ul style="list-style-type: none"> ▪ Toilet bowl I can drink out of it. Things that mess with your mind.
Interactive, Multi-Sensory	8%	<ul style="list-style-type: none"> ▪ How the mind works, how we perceive the world & our place in it. How we interact with other people. More importantly, I expect to use all my senses to experience the exhibit.
Refer To Prior Awareness: Marketing/Ads, Entry Panel	8%	<ul style="list-style-type: none"> ▪ Drinking out of toilet. A way to find out if you're lying or not. Walking under the ladder – that's what the news said. ▪ Unsure. The ad was comical. I had an argument with the virtual audience; the audience said [I] was stupid.
Brain Physiology, Including Left/Right	8%	<ul style="list-style-type: none"> ▪ I'm not sure. I have no idea. Maybe stuff about the brain. I'm imagining stuff about the different parts of the brain & how they interact with each other.
Refers To Other Exploratorium Exhibits	5%	<ul style="list-style-type: none"> ▪ I'm expecting it to be like the other exhibits, interactive. ▪ No idea, maybe like the tactile dance[?] -- about the senses

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2.0 Pre/post-visit Interviews

What do you expect to do or find out about in something called the Mind Collection?	n = 64	Sample Responses
		get you to be more aware of all your senses.
See Brains/ Examples Of Individuals	5%	<ul style="list-style-type: none"> Maybe a brain or something. A real brain would be cool.
Nothing Offered	8%	

2.2.1.c Were Expectations of the Mind Collection Met?

Post-visit, a majority of visitors report that there was nothing they had hoped to see that was not in the Collection (77%). They may be well satisfied with what they saw and did, still taking in and reflecting on what they did, and/or fatigued by the interview process. Several respondents voiced suggestions for the exhibits based on their expectations or interests (13%), and a few voice questions that they still have (9%); several of these folks are looking for more information on the mechanism of how the mind/brain does what it does. Other responses describe positive reactions to the exhibits and experiences (11%) or simply make observations about what they found in the Collection (6%).

The table below includes sample responses. The reader is encouraged to review a complete list of visitor responses to this question in Appendix B.

Post Question 8

Is there anything you had expected to do or find out about that wasn't there?	n=64	Sample Responses
No, Don't Know	77%	--
Suggestions Based On Expectations or Interests (All Suggestions are included here.)	13%	<ul style="list-style-type: none"> I have a suggestion. One activity that talked about electing people based on an image. Have more about the isms, like racism, sexism, etceteras. And have that activity with those isms. It's unusual and may play an important role for kids to see those things. Opens-up discussion as a teacher about racism or a bias, not just the quality of pictures. There are various screens or categories with our perceptions. 5th grade has a lot about the brain and I want to see biology, like for the reaction time exhibit and where nerve endings go. Diagrams to show where the nerves are. A lot had to do with perception and I want more anatomy, right brain, left brain, and handedness. How does the brain determine traits, like handedness. More optical illusion drawing, like in psychology class. The old woman versus young woman. I thought it was really a neat idea, the toilet; it was great, creative & great photo opportunity. I thought there would be more exhibits on thought processes, that it would be more clinical than it was. More about babies; more on a less-trained mind. How an

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2.0 Pre/post-visit Interviews

Is there anything you had expected to do or find out about that wasn't there?	n=64	Sample Responses
		adult mind reacts to something versus a baby's mind. <ul style="list-style-type: none"> ▪ More experiments with short term & long term memory. I thought it would be interesting. ▪ More how the brain works. The senses, how your brain reacts. ▪ More optical illusions. ▪ Should have had stuff drop from ladder where the superstition came from, showing differences between male & female minds, if any.
Positive Reaction To Exhibit	11%	<ul style="list-style-type: none"> ▪ No, not really. I guess I liked [that] they used sensory perception to get into the mind, a sensible way. It was different than reading a book; it brings home more intensely. ▪ No. Had probably everything, good variety, covered all aspects ▪ No, I didn't have an expectation. I learned something [color thing]. I feel satisfied.
Other Expectations Or Questions	9%	<ul style="list-style-type: none"> ▪ How you go from neural responses to complicated reasoning? How does [the] brain work? ▪ Not really, except why your mind works that way. After some exhibits, I was still confused at why that happens. ▪ The memory & the brain. ▪ Yeah, actually ... I know there is research in the link between different areas of the brain & the experiences that activate them.
Observations About Content	6%	<ul style="list-style-type: none"> ▪ I guess there'd be more on optical illusions, but I guess that's the other side. More, a lot on sensory perception with smells, but more on emotional response than what I thought it would be. ▪ No. The ones where you had to guess who lived where – found it easy. The prominent things in the picture tipped you off right away. ▪ The pores thing (See Yourself Sweat). I hadn't thought about how much our bodies perspire; thought it was when we did physical activity; just breathing is good enough.
Not Trying To, Didn't Engage Much	5%	<ul style="list-style-type: none"> ▪ No. Not [I didn't have] a lot of preconceived ideas, I just wandered in mindlessly.
Saw What I Expected	5%	<ul style="list-style-type: none"> ▪ I thought it was more on lots of things. Showed how minds work & I didn't expect anything different; this was my first time with something like this. ▪ No, actually when I came I knew I would see things I wouldn't know about.



2.0 Pre/post-visit Interviews

2.2.2 What ideas or questions do visitors have about the mind or how it works before and after visiting the Collection?

2.2.2.a Do visitors wonder about minds?

The Pre-visit Interview begins by asking respondents if they have heard about the Mind Collection before arriving (Pre Question 1), and what they would expect of something called the Mind Collection (Pre Question 2). Pre Question 3 then asks if the respondent ever wonders about the mind. These three questions serve to warm up the respondent’s thinking, such that when asked what sort of questions or ideas s/he has about the mind, s/he will be able to respond quite easily.

A majority of these participants report that they indeed “wonder about how our minds work” *some to a lot* (86%).

Pre-Question 3

Do you ever wonder how our minds work? So where would you put yourself on this scale?	n = 64
1. Not at all	3%
2.	11%
3. Some	36%
4.	30%
5. A lot	20%

2.2.2.b What ideas and questions do visitors have about minds pre-visit?

Questions and ideas that these respondents have about minds are richly varied and very thoughtful. A large majority had something to say about this (86%). Most respondent comments reveal a high level of engagement with the ideas they discuss.

Thoughts and questions are dominated by specific questions about how the mind works (39%). Reference to social interaction/psychology follow (20%). Other issues that surface include memory and/or learning (14%), nature vs. nurture (13%), emotions (9%), brain physiology (8%), perceptions in general (8%) and how perceptions vary between people (6%), and health and/or age-related issues (8%). Less frequent are comments about locations in the brain for various functions, unused brain capacity, mental illness, and drug use.

The table below includes sample responses. The reader is encouraged to review a complete list of visitor responses to this question in Appendix C.



2.0 Pre/post-visit Interviews

Pre-Question 4

What ideas or questions do you have about minds or how they work?	n = 64	Sample Responses
How Mind Works, Other Specific Example	39%	<ul style="list-style-type: none"> ▪ How is it possible that we can think and how all of this happens? ▪ I really wonder about how we perceive something through our senses & how our minds process that. I know it works both ways, with one influencing the other. How they interact, the senses. ▪ Usually when I think about it [mind], it's in connection to progression - to how people come to think the way they do, how they get there. ▪ I guess how exactly does it work, how you understand things, make connections, our emotions, & how mind determines emotions & your mind can see things & respond to what you're seeing. What drives a person. ▪ Why when you spin around you get dizzy even though you stopped spinning. ▪ Everything. I don't understand how they work. How you think something but don't say it.
Social Interactions, Psychology	20%	<ul style="list-style-type: none"> ▪ I am very interested in interpersonal relationships. How we perceive someone else, like meeting someone for the first time, how I will perceive or have expectations of them. What past experiences will shape my perception of them, the new person. ▪ Learned responses – how we end up being who we are. Psychology of the mind. How my son gets his personality. ▪ I'm interested in how drugs affect the mind. Social interactions & how the mind works; I just took a psychopharmacology class.
No, Nothing Offered	16%	--
Memory And/Or Learning	14%	<ul style="list-style-type: none"> ▪ How can we have memories of some things, but not of others.
Nature Vs. Nurture, Development	13%	<ul style="list-style-type: none"> ▪ How much of it is chemical or something else, for a single person within their own mind. How much is outside force versus what is already there. ▪ How or why they develop? Why are some people smarter? Is it genetic or environmental factors? How can two smart people have a dumb kid? Is it them?
Emotions	9%	<ul style="list-style-type: none"> ▪ Minds can be easily tricked. Sometimes peoples' emotions are at forefront of what they're thinking so what's in their heads is a trigger response not carefully thought out. There's not always a time for analysis or a knee-jerk quick response.
Brain Physiology	8%	<ul style="list-style-type: none"> ▪ Mostly about memory & reactions, how the brain works physically.



2.0 Pre/post-visit Interviews

What ideas or questions do you have about minds or how they work?	n = 64	Sample Responses
Perceptions, How We Perceive	8%	<ul style="list-style-type: none"> I'm interested in thoughts & emotions. How they interrelate in the mind, how they're formed. Senses, perceptions, the whole gamut. I think how interpreting colors or sounds. I don't know, music & identifying tunes. [If] a person [is] tone deaf, what places in the mind places in the mind I guess, Minds are different than a brain.
Health and/or Age Related	8%	<ul style="list-style-type: none"> What causes Alzheimer's? We just had an aunt recently pass away. I consider the plasticity of the mind, its ability to adapt, & how it ages.
Dreams	6%	<ul style="list-style-type: none"> ...like when you have dreams, how your mind gives you those images.
Locations In Brain For Different Functions	6%	<ul style="list-style-type: none"> Interested in various locations inside our minds – some are more linear or holistic. I'm an artist; what happens where.
Unused Brain Capacity	6%	<ul style="list-style-type: none"> I guess more of a physiological versus psychological aspect of the mind. More the biology of it. We only use a certain percentage of our brains. Why is that? How much of the brain/mind do we actually use? How much is functioning? I'm interpreting mind and brain as synonymous. Always hear different amounts of brain/mind you use.
Perceptions Can Vary Between People	6%	<ul style="list-style-type: none"> Why we don't all think the same and have the same emotions and feelings. Biggest question is how people perceive differently the same things or same sequence of things. My job is writing & explaining things; people come to different conclusions or perceptions of something I describe the mind as an erratic computer.
Mental Illness, Drugs	5%	<ul style="list-style-type: none"> I'm interested in how drugs affect the mind. Social interactions & how the mind works; I just took a psychopharmacology class. Recently I think about how the substances people take influence their cognitive abilities. [Hearing about it] Over last few years . Alcohol, pharmaceuticals, and over the counter stuff; diet meds., that kind of thing.
How Mind Works, Not Specific	2%	<ul style="list-style-type: none"> Why do we have minds? Why do we have them? Why aren't we all just robots?

2.2.2.c *What ideas and questions do visitors have about minds post-visit, have they changed?*

When discussing ideas and questions post-visit, fewer respondents appear highly engaged than when discussing these things pre-visit. In fact, in post-visit interviews, respondents most often had nothing to offer in terms of ideas or questions about minds (42%). This may be due to visitors feeling satisfied with what they encountered, or their needing to process it still, leaving



2.0 Pre/post-visit Interviews

them with no further ideas or questions to offer up for discussion at the time of the interview. Certainly interview fatigue may also contribute to this apparent drop in engagement as this question comes late in the interview following sometimes lengthy exhibit experience conversations (Post Questions 2-6). Even given somewhat less engagement, many visitor responses are rich and worth reading. The table below includes sample responses. The reader is encouraged to review a complete list of visitor responses to this question in Appendix C.

While pre-visit questions and ideas most commonly address mind processes, post-visit musings most often reflect upon discoveries and/or experiences that relate to exhibit content (20%). A good number of visitors comment on specific exhibits (16%). Specific questions or examples of how the mind works are fewer among post-visit responses (16%) that pre-visit (>50%), and they are more varied with less emphasis on perceptions than seen pre-visit. There is still a desire among several respondents for more information about the mechanics of how the mind/brain actually functions. A few respondents state that their questions were not answered in the Collection (8%). About the same number volunteered that they had learned something (8%).

Post-visit questions are very often completely unrelated to pre-visit musings. It appears that respondents latch onto ideas that they came upon in the Collection which they had never thought of before, or just didn't strike on during the pre-visit interview.

Post Question 7

Now that you've had a chance to visit the Mind Collection, I wonder what ideas or questions you have about minds or how they work?	N=64	Sample Response
No Questions, No Ideas	42%	--
Reflections on Self, Mind, Human Experience	20%	<ul style="list-style-type: none"> ▪ Why we think certain things/opinions. How you can make judgments about people (referred to Who Lives Here?). ▪ I'm really curious about other people's experiences or reactions, especially the candidate one. How culture affects our minds, decisions, perceptions. ▪ Exhibits bring out how important emotions are in how you perceive something, how you look at world, & how you are feeling. ▪ I found it reassuring; when you live inside a mind, you think certain things are unique to you, but [they are] really a common function of the mind. ▪ Just goes to show you, you don't know everything even if you have ideas or good perception it doesn't mean you're right. ▪ Not any questions, but very interesting how your mind plays tricks on you. I think I read people well.

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2.0 Pre/post-visit Interviews

Now that you've had a chance to visit the Mind Collection, I wonder what ideas or questions you have about minds or how they work?	N=64	Sample Response
Comments and Questions Re: Specific Exhibit	16%	<ul style="list-style-type: none"> ▪ I have a suggestion. One activity that talked about electing people based on an image. Have more about the isms, like racism, sexism, etceteras. And have that activity with those isms. It's unusual and may play an important role for kids to see those things. Opens-up discussion as a teacher about racism or a bias, not just the quality of pictures. There are various screens or categories with our perceptions. 5th grade has a lot about the brain and I want to see biology, like for the reaction time exhibit and where nerve endings go. Diagrams to show where the nerves are. ▪ I wonder if you put finger stress sensor in the public speaking booth (Center of Attention), what the readings would show for the different crowds' responses. ▪ The cute exhibit was interesting, would have been interested if they could have defined what makes someone beautiful or pretty.
How Mind Works, Specific Example	16%	<ul style="list-style-type: none"> ▪ How is a reaction to being scared, how it can be measured. ▪ Why in different situations your mind responds or acts differently? If you walk in a room if it's black or pink, how it affects our mind. ▪ Yes, I do. Pondered people for thousands of years how intangible items like thought translate into physical processes. ▪ Whether or not as you get old, do you learn more? If you did them repeatedly, would you get better? As you age, are you stuck at your level? ▪ Great individual exhibits, but what ties them together – looking for a narrative that does this, explains the principles behind the phenomena. The individual exhibits show how the mind works, but what are the underlying principles behind the phenomena in the exhibit?
Still Have Same Questions I Came In With	8%	<ul style="list-style-type: none"> ▪ I still have same questions but they're more specific. ▪ This was more about emotions than I expected. I still have all the same questions as I did when I came.
Learned Something New In Exhibit	8%	<ul style="list-style-type: none"> ▪ I think it answered questions for me. I knew a lot of answers & it fortified answers for me, tested those principles. ▪ I like the association of things, seeing eyes & emotions; politicians I liked – through media & advertising, see how our minds are tricked. It's all about emotions & cheers; learning you are being sold an emotion. People can be sad without showing it in their eyes; getting past the brightness of colors & making up your mind; toilet; I can't settle for what's being sold, that's my spin. Letters are messed up, with practice you can get good about anything.



2.0 Pre/post-visit Interviews

Now that you've had a chance to visit the Mind Collection, I wonder what ideas or questions you have about minds or how they work?	N=64	Sample Response
Positive Reaction To Exhibit	8%	<ul style="list-style-type: none"> ▪ I don't know. I thought it was pretty thorough, pretty cool. I liked the mind games, talking about perceptions & how we perceive things. ▪ No, but this is a great exhibit, what people wonder about. It's a fun way of discovering yourself.
Fun, Surprise, Cognitive Dissonance In Exhibit	8%	I don't understand with the toilet, I was cautious, freaked out about drinking out of it. Why it's nerve-wracking to drink from, when I know it's clean water.
Didn't Learn Anything New, Didn't Find Answers To My Questions	6%	<ul style="list-style-type: none"> ▪ How'd they get the camera on the fly? That's how my mind works: [asks] what's the process? More about perceptions than what I thought it was going to be. I didn't have too many expectations. I don't know if I learned anything new. ▪ How something that touches something & explains it. I don't find anything out I didn't know.
Social Experience Of Exhibit	6%	<ul style="list-style-type: none"> ▪ The only thing I regret is the rest of group is ahead of me, didn't get to compare against group – you got more out of it with a partnered group. ▪ Didn't get to do everything (since with kid). A good variety but not leaving with questions.

2.2.2.d Evidence of Desired Visitor Impacts

About a quarter of respondents touch on some aspect of the exhibit developers' Desired Exhibit Impacts (27%) in answering Post Question 7. All of these have to do with making discoveries about self/mind (Impact 1) and/or having a memorable experience (Impact 2A).

Five respondents also strike on the elements of emotion and judgment, aspects of mind that guided exhibit developers but weren't necessarily intended as take home messages:

- Exhibits bring out how important emotions are in how you perceive something, how you look at world, & how you are feeling.
- Connections between our feelings and what happens in our heads, our senses.
- Why we think certain things/opinions. How you can make judgments about people (referred to house exhibit).
- This was more about emotions than I expected. I still have all the same questions as I did when I came.
- I like the association of things, seeing eyes & emotions; politicians I liked – through media & advertising, see how our minds are tricked. It's all about emotions & cheers; learning you are being sold an emotion.



2.0 Pre/post-visit Interviews

2.2.3 Do Visitors Enjoy the Mind Collection

A large majority of Pre/Post-visit Interview participants enjoyed the Mind Collection; 91% placed their level of enjoyment at four and above on a five-point Likert scale. None indicated that they did not enjoy the Collection. Even the two respondents who disliked specific exhibits answered this question in the affirmative.

Post- Question 1

Did you enjoy the Mind exhibits? So where would you put yourself on this scale?	n = 64
1. Not at all	0%
2.	0%
3. Some	9%
4.	58%
5. A lot	33%

2.2.4 Which Mind Collection Exhibits Stand Out For Visitors

Questions 2 – 6, Visitors were allowed to name and discuss up to two exhibits.

- Did any Mind exhibits stand out for you in some way? Which one?
- What made it stand out for you?
- Did you discover anything about yourself or minds using [that exhibit]?
- How did that make you feel?

2.2.4.a Most Memorable Exhibits

Every respondent had at least one exhibit they wanted to discuss and most (83%) identified two exhibits or more. Data collectors interviewed respondents about up to two exhibits each. In total, 117 exhibit conversations were recorded as listed in the table below. Visitor comments, grouped by exhibit, are included in Appendix D.

That respondents named a large number of exhibits as most memorable, rather than clustering around a very few, suggests that the Collection effectively attracts and speaks to a wide range of people via diverse exhibit content and interface types.

Exhibits That Stood Out for Respondents	Frequency (n=117)
A Sip of Conflict	9
Who Lives Here?	8
Center of Attention	6
Mind Cinema	6
Startle Response	6



2.0 Pre/post-visit Interviews

Exhibits That Stood Out for Respondents	Frequency (n=117)
Color Your Judgement	5
Emotion Tracer	5
Mood Lighting	5
Stretching Your Attention	5
Dare to Compare	4
Judging the Odds	4
Talk to Daisy	4
Time to Think (Reaction Time)	4
Trading Places	4
True Mirrors	3
Be Here Now	3
See Yourself Sweat	3
The Eyes Have It	3
Cute-ify	2
Animal Camera	2
Cabinet of Cuteness	2
Color Conflicts	2
Communicate With Your Body	2
Competent Candidates	2
Count The bounces	2
Divided Attention	2
Mirrorly a Window	2
Poker Face	2
Reading eyes	2
Albert is Watching	1
Bronze Hand	1
Easy Search, Difficult Search	1
Perilous Portal	1
Polite Smile, Delight Smile	1
Master Mind Machine/Talk to Daisy*	1
Stretching Your Attention/Count the Bounces*	1
The Eyes Have It/Polite Smile, Delight Smile*	1

**These respondents pondered these exhibits in pairs in terms of their content and impact.*



2.0 Pre/post-visit Interviews

2.2.4.b Why Are These Exhibits Memorable?

Interviewers explored visitor reactions to the exhibits that they cited, asking why the exhibit stood out for them, what, if anything, the visitor discovered about him/herself or the mind, and what, if any, emotional reaction that engendered.

Naturally, visitors tend to reference content specific to the exhibit they are discussing. Of the 80% of exhibit experience conversations that reference specific content, about three quarters put it into the context of their experience with it stating that it was fun, interesting, referencing a discovery made, etc. (63% of conversations). In some conversations that reference specific content, visitors focus on describing the act of using the exhibit or reporting the information it presented as they explain why the exhibit was memorable (17%).

That the exhibit was fun, funny, cool, entertaining made it memorable in about a quarter of the cases (27%). In about a fifth of these conversations, respondents found exhibits memorable because they were intrinsically interesting, particularly realistic or unexpected in some way (21%). In some cases (18%), respondents report that the exhibit was memorable because of the discovery they made about self/minds while using it.

Why did the exhibit stand out for you?	n=117	Sample Responses
Reference To Specific Content In Context Of The Experience and/or Lesson Learned	63%	<ul style="list-style-type: none"> ▪ Different people's perceptions of what is cute differs. (Cute-ify) ▪ It was kind of freaky. Concentration psyched out into thinking that was your hand. (Bronze Hand) ▪ It was interesting to see the emotions. My line was going down, then when it said I had to sing, it went way up. (Emotion Tracer) ▪ It's interesting how language is less important than body expressions sometimes. (Reading Eyes)
Fun, Entertain, Humor, Felt Good	27%	<ul style="list-style-type: none"> ▪ Deadly sour candy made me laugh. (Cinema) ▪ Because it put me in a good mood. I was starting to get tired & it woke me up. (Mood Lighting) ▪ The chance to coordinate and concentrate. Because concentration is a nice feeling. (Stretching Your Attention)



2.0 Pre/post-visit Interviews

Why did the exhibit stand out for you?	n=117	Sample Responses
Intrinsic Interest: Realistic, Interesting, Unexpected; Cognitive Dissonance	21%	<ul style="list-style-type: none"> ▪ I'm interested in animals. I watch animals a lot, & it is interesting for me to see from their point of view as an outside observer. (Animal Camera) ▪ It is very realistic, the stains. (A Sip of Conflict) ▪ It was unexpected. It was such a random thing. I was expecting something to happen on the screen. (Startle Response)
Because Of Discovery	18%	<ul style="list-style-type: none"> ▪ It made me realize how difficult it is to keep track of many things. (Stretching Your Attention) ▪ I haven't realized how many times my mind wanders, and it shows an interesting way to count them. I had never thought of that before. (Be Here Now) ▪ Made you realize how humans are different from dogs. Dogs see things as they really are. (A Sip of Conflict)
Reference To Specific Content Without Other Comment	17%	<ul style="list-style-type: none"> ▪ The perception of what you thought it was. You tried to concentrate on the letters less than the bird, but if you concentrated more on the one or the other you'd lose it. ▪ First I started as a guesser and then I went to the other side. It gave you better understanding of the game and how it works. You have a 50/50 chance to get it right, but it changes with your choice.
Emotional, Cognitive Dissonance	11%	<ul style="list-style-type: none"> ▪ It makes you feel happy & then it tears you down. Instead of getting a compliment, you get rejected. It was hard; it hurt. (Center of Attention) ▪ The toilet was freaking me out. Not supposed to drink out of it. It's gross.
Personal Performance With Exhibit	9%	<ul style="list-style-type: none"> ▪ Again, surprising result. It was difficult to go above four balls.

2.2.4.c Emotional Reactions to Exhibits

Visitors talk easily about how the exhibit made them feel, sometimes elaborating on what drew them to the exhibit, or what had made it memorable. Specific comments about emotional reactions to exhibits are generally positive or evidence some sort of struggle with the content. Very few respondents disliked the exhibit itself. Of 117 exhibit experiences, 41% include an emotional reaction.



2.0 Pre/post-visit Interviews

Emotional Response to Exhibit Experience	n=117	Sample Responses
Positive: Interested, Engaged, Goofy, Good, Entertained	15%	<ul style="list-style-type: none"> ▪ Funny and scared. It was funny to see yourself scared.(Startle Response) ▪ Kinda goofy. (Communicate With Your Body) ▪ Good... because it's cool to know what you are. (Dare to Compare) ▪ Didn't make me feel good or bad, just interesting, curious why I would react one way & others differently. (A Sip of Conflict)
Surprised	10%	<ul style="list-style-type: none"> ▪ Surprised about how you can communicate; there are standardized ways of asking certain questions through the eyes [like] "Are you okay?", [while] others are harder. (Reading Eyes)
Cognitive Dissonance	9%	<ul style="list-style-type: none"> ▪ It makes me feel a little silly. I know it is pure water, but it just makes me not want to. I mean I know it is clean, I'll probably do it on a dare. Maybe, well, no, I know I'll drink out of it before I go, but my mind still says, "No, don't!" (A Sip of Conflict) The toilet was freaking me out. Not supposed to drink out of it. It's gross. (A Sip of Conflict) ▪ It was eerie. The idea that you think you're looking at your hand, but it's messing with your mind. Your mind's saying something's wrong here. (Bronze Hand)
Negative, Uncomfortable, Nervous	4%	<ul style="list-style-type: none"> ▪ Very bad, uncomfortable because of the laughing. (Center of Attention) ▪ I could only remember one thing at a time. It made me feel stupid. I wanted to get better, make my mind stronger. Work out my mind. (Stretching Your Attention)
Didn't Like Exhibit	3%	<ul style="list-style-type: none"> ▪ I didn't like it. It relies on you pressing the button, which feels less accurate. (Be Here Now) ▪ Reminded me of my introductory to psychology class, so I walked out. (Mind Cinema)

2.2.4.d Discoveries About Self/Mind Made By Respondents Using These Exhibits

Out of 64 respondents, 54 report making some sort of discovery about the mind and/or him/herself (84% of the sample). A small number of these respondents noted that the exhibit reaffirmed or reminded them of this information; their "discoveries" are included in the table below. In some cases an individual respondent discussing two exhibit experiences will report a discovery at only one of them.

In all, 77% of these 117 exhibit experiences did result in some sort of discovery. In many cases multiple types of discoveries are cited. Most frequently, exhibit-spurred discoveries are personal in nature, i.e., discovering some ability or weakness that one has (45%). Coming in a distant second are discoveries about the mind or the human condition (27%). Many discoveries, whether personal or generalized to humanity are specific to exhibit content.



2.0 Pre/post-visit Interviews

Discoveries about Mind and/or Self	n=117	Sample Responses
Personal Discovery	45%	<ul style="list-style-type: none"> ▪ Egocentric. It is a bias I have that mammals, especially humans, have more intention than other animals. (Animal Camera) ▪ It made me realize that I am vulnerable to the environment & people's responses to me. (Center of Attention) ▪ I think I'm a smart person, but I was wrong. It's not bad...enlightening. (Who Lives Here) ▪ I, too, tend to stereo-type people & sometimes [am] judgmental. (Who Lives Here)
The Mind, Human Condition Discovery	27%	<ul style="list-style-type: none"> ▪ The connection between what your eyes were seeing & what [your] nose was telling you. (Color Your Judgement) ▪ You can laugh and be scared at the same time. (Startle Response) ▪ Yeah, how linked we are to the way we perceive people based on physical characteristics. (Competent Candidates) ▪ I learned about how your thoughts can control the biology of your mind, and the mental aspect can control the physical aspect. (Emotion Tracer)
No discovery cited for this exhibit experience	33%	--

2.2.4.e Emotional Reactions to Discoveries Made Using These Exhibits

Visitors are less likely to voice an emotional reaction to their discovery than they are to the exhibit experience. Those visitors that could articulate some sort of reaction to what they had learned about self and/or mind most often felt interested, curious or surprised. Some had negative reactions such as being embarrassed or feeling stupid. A small number of respondents described a variety of other feelings including feeling competitive and resigned. Out of 117 exhibit experiences, 33% register some type of emotional reaction to discoveries made while using the exhibit.

Emotional Reaction to Discoveries about Mind and/or Self	n=117	Sample Responses
Interested, Curious, Concerned, Surprised	16%	<ul style="list-style-type: none"> ▪ I have to work on my attention span & concentration. I don't know why [it makes me feel this way], I thought I could concentrate more and wander so much even though I tried my best not to. (Be Here Now) ▪ Surprised I was caught up in them (exaggeration of gender differences). (Trading Places)

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2.0 Pre/post-visit Interviews

Emotional Reaction to Discoveries about Mind and/or Self	n=117	Sample Responses
Negative: Embarrassed, Stupid, Frustrated, Not Strong	9%	<ul style="list-style-type: none"> ▪ Not strong, & I thought I was. I thought it was a good test. It got to me. It makes you feel really good in the beginning but cuts you down. It can still affect emotion, even a machine. I thought I was strong, & whatever, not let other people get to me. But even a machine. (Center of Attention) ▪ Not so great, but it may be okay to have those stereotypes. That sometimes stereotyping is correct & not negative. (Who Lives Here)
Positive: Good	5%	<ul style="list-style-type: none"> ▪ Good, my mind is able to learn, an interesting experience. Can think they [minds] could be different. (Stretching Your Attention) ▪ It makes me feel good that I have a sharp nose. That I have another sense other than my eyes that I'm good at. (Color Your Judgement)
Other: Various, Competitive, Resigned	3%	<ul style="list-style-type: none"> ▪ Resigned. Sometimes you can sometimes you can't do certain things. It was amusing...fun to participate in. ▪ It makes me feel glad that we can make judgments beyond superficial things. But it makes me scared that we react so quickly to those things. What was hard, was the first race was white versus black, and that made me uncomfortable [as it was] one of those things you encounter everyday but a topic we sidestep. It is very relevant to Obama & the current presidential race. (Competent Candidate)

2.2.5 Visitor Awareness of Others Using These Exhibits

Several respondents (17%) commented on exhibits making them aware of how their abilities or reactions in comparison with other visitors, and/or on enjoying watching others use an exhibit. Exhibits that they refer to in this way are:

Exhibits Where Visitors Are Aware of Others	Select Visitor Comments
<ul style="list-style-type: none"> ▪ A Sip of Conflict (3) ▪ Cabinet of Cuteness ▪ Cute-ify ▪ Bronze Hand ▪ Who Lives Here? ▪ Stretch your attention ▪ Communicate with Your Body ▪ Mind Cinema ▪ Divided Attention 	<ul style="list-style-type: none"> ▪ I got a kick watching people going up & deciding whether to drink or not. (A Sip of Conflict) ▪ I think I had a reaction to watching other people try or not try. I was laughing. The feeling [came up], not "that's wrong," but it's a part of us, a deeply ingrained belief that you react to. (A Sip of Conflict) ▪ I'm pretty normal; same reaction as everyone else. (Bronze Hand) ▪ Maybe. I probably had a stronger reaction than I thought. Opening the drawers, not only my reaction, but other people's as well. People of other ages. (Cabinet of Cuteness) ▪ I have discovered that I have the same cuteness instinctive



2.0 Pre/post-visit Interviews

Exhibits Where Visitors Are Aware of Others	Select Visitor Comments
	feeling as other people. (Cute-ify) ▪ I didn't do it very well. Most people can do two or three; two is the maximum for me. (Divided Attention)

2.2.6 Apparent Level of Visitor Engagement With These Exhibits

Conversations about exhibit experiences were evaluated for the apparent level of engagement of the respondent as described in the table below. Each exhibit experience is assessed in this way, not each individual respondent. Because these participants were cued for this study, we expect a fairly high rate of high engagement. As shown in the table below, 30% of the 117 exhibit conversations reveal a high level of engagement with the exhibit. Among un-cued respondents in the Exit Survey, 26% of respondents evidence a high level of engagement with the exhibit.

Level of Engagement	n=117	Description and Example
0: Low	18%	Very minimally articulate or thoughtful about the exhibit experience; the response alone cannot identify which exhibit is being discussed. Often these visitors have literally nothing to say other than to mention an exhibit. ▪ No, my goal in coming here to the museum was not to be introspective; I'm a tourist. ▪ No response to questions about the exhibit experience
1: Moderate	51%	Moderately articulate, in discussing or describing the immediate experience. ▪ It was a good challenge. One of those activities that forces you to focus on that activity when you're at it. (Stretching Your Attention) ▪ We did each other. I didn't expect it to be that close. You always see yourself differently than others do. (Dare to Compare) ▪ Just interesting how it was talking back to me. (Talk to Daisy)



2.0 Pre/post-visit Interviews

Level of Engagement	n=117	Description and Example
2: High	30%	<p>Very articulate, descriptive and thoughtful about the exhibit experience, making wider generalizations or connections between one exhibit and another, or between this exhibit and something outside of the Museum.</p> <ul style="list-style-type: none"> ▪ It's encouraging, I'm a biology person; so a lot of times they talk about mental aspects helping with physical sickness, like placebos. Mental perception may be a way to help people out medically. (Emotion Tracer) ▪ Concerned my mind wanders, yet I don't react. What's up with that? (Be Here Now and Startle Response) ▪ Like I'm going to go home and think about it because I seek to improve my life. My bedroom is painted yellow; green might be nice. (Mood Lighting)

2.2.7 Evidence of Desired Exhibit Impacts

Of the 64 participants in this study, all but one evidence at least one aspect of the three desired Exhibit Impacts as articulated by the Mind Collection developers. Of the 117 exhibit experiences discussed with interviewers, 108 touch on at least one impact, as shown in the table below. Naturally, the most common impact engendered by these exhibit experiences was Impact 2.A., having a memorable experience (78%). Many experiences also touched on Impact 1, giving the user insight into themselves (42%), the mind (30%), and in some cases, emotional reactions to those insights (18%). Comments from only two respondents came close to connecting these exhibits with mind research, Impact 3: one referred to Emotion Tracer as a demonstration of how lie detectors work; another was reminded of her psychology class by the Cinema.

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2.0 Pre/post-visit Interviews

Desired Exhibit Impacts (per Mind Collection Developers)		Frequency n=117	
Impact 1	<p>Visitors will sense that these exhibits are vehicles for internal investigation, that the real subject of them is “my own mind” and/or the minds of other people who are present.</p> <p>A. Visitors experience new insights/learning about mind B. Visitors experience new insights/learning about themselves C. Visitors register surprise/fun/discomfort at the experience/insight</p> <ul style="list-style-type: none"> ▪ I discovered that the mind and the body don't always work together. ▪ How I'm equally susceptible to looks for smiles tap into my own personal bias. Disappointing. ▪ Kind of bad that I just judge things. 	A	30%
		B	42%
		C	18%
Impact 2	<p>Visitors have two or three singular experiences with the exhibit(s) that impressed them, stick out for them.</p> <p>A. Experiences that are fun, exciting, memorable B. Experiences that invoke the type of cognitive dissonance described above C. Experiences that make them aware that these exhibits are different from others in the Museum because “I’m exploring my own mind.” [though it is not important that visitors be able to articulate a distinction] D. Experiences that stick with them for unanticipated reasons...</p> <ul style="list-style-type: none"> ▪ It was funny to see yourself scared. ▪ That it was a toilet as a drinking fountain; my perception is that it is gross. Read the sign, realized my mind said it's clean, but still couldn't do it the boys had no problem. 	A	78%
		B	6%
		C	0%
		D	1%
Impact 3	<p>Visitors will understand that the mind can be studied...</p> <p>A. That they have been doing this themselves through these exhibits (see above) B. That the mind is the subject of study by researchers C. That the exhibits in this collection reflect the scientific study of the Mind and is not a collection of ‘touchy feely stuff’ and experiences that is ungrounded in science D.</p> <ul style="list-style-type: none"> ▪ It's encouraging, I'm a biology person; so a lot of times they talk about mental aspects helping with physical sickness, like placebos. Mental perception may be a way to help people out medically. 	A	0%
		B	2%
		C	0%



2.0 Pre/post-visit Interviews

2.2.7.a Exhibits Associated with Desired Impacts

Just as visitors name a wide range of exhibits that stand out for them, we see that a wide range of exhibits seem capable of engendering the Desired Exhibit Impacts. Again, this suggests that the exhibits are working well as a collection to attract and impress a variety of people.

Desired Impact	Exhibits Associated with Desired Impacts	
Impact 1	<ul style="list-style-type: none"> ▪ Color Your Judgment (3) ▪ Competent Candidates (2) ▪ Count the Bounces (2) ▪ Cute-ify (2) ▪ Dare to compare (2) ▪ Divided Attention ▪ Emotion Tracer (3) ▪ Judging the Odds (2) ▪ Mind Cinema [film about base jumper] ▪ Mirrorly a Window (2) ▪ Mood Lighting (2) ▪ Animal Camera (2) ▪ Polite Smile, Delight Smile ▪ A Sip of Conflict (7) 	<ul style="list-style-type: none"> ▪ See Yourself Sweat (3) ▪ Startle Response (4) ▪ Stretch your attention (3) ▪ stretch attention ▪ The Eyes Have It ▪ Time to Think (3) ▪ Trading places (4) ▪ True Mirrors ▪ Who Lives Here? (8) ▪ Be Here Now (2) ▪ Bronze Hand ▪ Cabinet of Cuteness (2) ▪ Center of Attention (5) ▪ Color Conflicts (2)
Impact 2	<ul style="list-style-type: none"> ▪ Albert Is Watching ▪ Animal Camera (2) ▪ A Sip of Conflict (7) ▪ Be Here Now (2) ▪ Bronze Hand ▪ Cabinet of Cuteness (2) ▪ Center of Attention (5) ▪ Color Conflicts ▪ Color Your Judgment (4) ▪ Competent Candidates ▪ Count the Bounces (2) ▪ Cute-ify (2) ▪ Dare to Compare (2) ▪ Divided Attention ▪ Easy search ▪ Emotion Tracer (4) ▪ Judging the Odds (3) ▪ Mind Cinema (5) 	<ul style="list-style-type: none"> ▪ Mirrorly a Window (2) ▪ Mood Lighting (4) ▪ Perilous Portal ▪ Poker Face (2) ▪ Polite Smile, Delight Smile ▪ Reading Eyes ▪ See Yourself Sweat(2) ▪ Startle Response (4) ▪ Stretching Your Attention (5) ▪ Talk to Daisy (4) ▪ The Eyes Have It (3) ▪ Time to Think (3) ▪ Trading places (4) ▪ True Mirrors (2) ▪ Who Lives Here? (8) ▪ The eyes have it and polite/delight smile.
Impact 3	<ul style="list-style-type: none"> ▪ Emotion Tracer 	<ul style="list-style-type: none"> ▪ Mind Cinema



2.0 Pre/post-visit Interviews

2.2.8 Sample Demographics & Visit Description

A random sampling protocol was used to select participants. The target audience for this evaluation reflects the target audience for the Collection, all visitors age 11 and up.

Mind team members are curious about where the Collection figures into a visitor's day at the Museum because it is located in the back of the facility. If visitors tend not to arrive to the Mind area until late in their visit, we can logically expect them to be more fatigued and perhaps limiting their time. These data show that a majority of Mind visitors are in the middle of their visit (61%), and less than 20% near the end. Among Exit Survey participants, 54% were in the middle of their visit, and 37% near the end.

Pre- Question 5a

Where are you in your Exploratorium visit right now?	n=64	Late Morning 11:00-2:00	Early Afternoon 12:00-1:30	Mid-Afternoon 1:30-3:00	Late Afternoon 3:00-5:00
Near The Beginning	15 (23%)	2	8	6	0
Near The Middle	39 (61%)	2	18	13	7
Near The End	10 (16%)	1	2	4	2

Pre- Question 5b

How many are in your group today?	n=64
One	17%
Two	25%
Three	16%
Four	17%
Five or more	25%

Pre- Question 5c

Are you here....	n=64
Multigenerational	44%
Adults With Peers	38%
Adult alone	14%
Teen With Peers	3%
Teen Alone	2%



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Pre- Question 5d

In what age range are you?	n=64
8-12	3%
13-18	14%
19-25	23%
26-60	53%
60+	6%

Pre- Question 5e

What gender are you?	n=64
Female	58%
Male	42%

Pre- Question 5f

Is English your second language?	n=64
No	83%
Yes	17%

Dwell time in the Mind Collection*	n=64 (hours:minutes)
Mean (total/62)	0:41
Minimum	0:06
Maximum	2:01
Median	0:34

***Note:** There is a slight chance that this data is inflated due to the possibility of respondents spending time in the adjacent seeing exhibit. Interviewers were very explicit about the borders of the Mind Collection, but those borders are very porous. These respondents are believed to have stayed in Mind during this time, though occasionally during data collection visitors were seen to circumvent the stanchions



3.0 Exit Survey

3.0 EXIT SURVEY

3.1 Introduction & Method

This Exit Survey closely follows the self-completed questionnaire form outlined in Beverly Serrell's book, *Paying Attention: Visitors and Museum Exhibitions*.³ While Serrell conducts this survey effort with cued visitors, in this study respondents were not cued because participants in the Pre/Post-visit Interview study are strongly cued. Working with un-cued respondents provides a more rigorous test of an exhibition.

Where the Pre/post-visit Interviews address individual exhibits, the Exit Survey addresses the visitor's overall experience of the Collection. This instrument uses writing prompts to elicit feedback from visitors about what they perceive as the intent and message of the Collection, what information they are taking away with them, and what associations, if any, they make with the content presented. Being a self-completed survey, rather than an interview, we cannot probe to clarify responses.

Data collectors randomly selected visitors as they were exiting the Collection. Ninety-two respondents are included in this sample.

While piloting this study, it became clear that visitors flowed easily between Mind and Seeing usually with no awareness that they had moved from one Collection to another. For the sake of collecting useful data about Mind visitors needed to be contained physically and conceptually. To that end, stanchions were placed at each of the three broad passages between Mind and Seeing, leaving only the main entrance to the Mind area open. Hung on stanchion ropes were signs reading, "please do not cross." To help limit crossover, one particularly attractive Seeing element was moved away from the Seeing-Mind boundary and Explainers were enlisted to help keep the ropes in place. These measures helped to contain most, but not all visitors. The use of stanchions produced an artificial condition by limiting the flow of visitors between the Seeing and Mind areas which may impact the visitor experience and use of the collection.

3.1.1 Highlights Of What We Learned In This Study

- Respondents enjoyed the Mind Collection. (3.2.1)
- Responses to these prompts generally describe the intent of the Collection as to demonstrate how the mind works (~30%), how it perceives (~30%) and how it is influenced (~12%) to give visitors a broader understanding of the mind (51%) and encourage them to ponder this (24%). For instance, much emphasis is given to perception and the fact that we as people should be aware that our perceptions may not accurately reflect reality. (3.2.2)
- Visitors readily report learning specific information related to exhibits they used (36%). A range of exhibits are reflected in their remarks: we judge others (*Who Lives Here*), the nature of focus and attention (*Count the Bounces*, *Be Here Now*, *Stretching Your Attention*, *Divided*)

³ *Paying Attention: Visitors in Museum Exhibitions*, Serrell, American Association of Museums 1998, pages 72-75



3.0 Exit Survey

- Attention), faces can reveal would-be hidden truths (The Eyes Have It, Polite Smile, Delight Smile, Poker Face), (3.2.3)
- Visitors make note of their own ability, skill or behavior in an exhibit (23%). Visitors are taken by their experience of A Sip Of Conflict, Bronze Hand, Center Of Attention, True Mirror and Poker Face. Center Of Attention elicits quite strong lessons of self, as do True Mirror and A sip Of Conflict, and comments often reveal an emotional reaction to the experience. Less common are lessons about perceptions varying between people (4%), references to the body-mind-emotion connections (4%) and the complexity of the mind (3%). (3.2.3)
 - Responses suggest that visitors are well engaged by the exhibits. (3.3)

3.2 Exit Survey Results

3.2.1 Do Visitors Enjoy the Mind Collection?

Exit Survey respondents certainly enjoyed their visit to the Mind Collection. Fully 98% enjoyed it *some to a lot*, 88% rating their enjoyment at more than *some*.

Exit Question 4

Did you enjoy the Mind exhibits?	n=92
1. Not at all	1%
2.	1%
3. Some	10%
4.	50%
5. A lot	38%

3.2.2 What messages do visitors perceive in the Mind Collection?

Exit Survey Question 2 asks respondents “what would you say is the main purpose” of the Mind Collection exhibits and then offers two writing prompts, “To show...” and “To make people...” Almost all respondents chose to answer both parts.

Responses to these prompts generally describe the intent of the Collection as to demonstrate how the mind works (~30%), how it perceives (~30%) and how it is influenced (~12%) to give visitors a broader understanding of the mind (51%) and encourage them to ponder this (24%). For instance, much emphasis is given to perception and the fact that we as people should be aware that our perceptions may not accurately reflect reality.

Specific comments about how minds work reflect many different exhibits in the Collection, touching on perceptions being impacted by prejudice, subtle cues of which we may be unaware, past experiences, mood, senses, and more. About a quarter of these respondents are moved to reflect on their own abilities and/or shortcomings. A few visitors are awed by the complexities and/or capacity of the mind. Two visitors strike precisely on the idea of the Collection being a



3.0 Exit Survey

vehicle to exploring one's own mind: To show... "It really is all in our head" and "[an] experience of mind working."

Looking at responses to Exit Questions 2a and 2b with an eye towards the Desired Visitor Impacts we see that both sets most frequently relate to Impact 1 with over 80% of responses touching on experiencing insight(s) about the mind and/or self. About 10% of each set also touch on Impact 3 as they evidence self awareness, e.g., studying one's self via these exhibit experiences, or acknowledge that the mind is understudy and these exhibits relate to that research.

The tables below include sample responses. The reader is encouraged to review all responses to Exit Questions 2a and 2b in Appendices E and F.

Exit Question 2

What would you say is the main purpose of the exhibits in the Mind Collection?

2a. To show...	n=92	Sample Responses
How Mind Works, Non-Specific	27%	<ul style="list-style-type: none"> • People how their minds really work • How the mind works
Perceptions, How We Perceive	17%	<ul style="list-style-type: none"> • How the mind affects the way we perceive the world. • How perception influences our outlook on things • How you perceive things. • People's perceptions and how they process information.
Minds React, Respond	13%	<ul style="list-style-type: none"> • How the mind reacts to different situations. • Different reactions of individuals • How our minds work in reaction to everyday occurrences and impressions from people around us.
Perceptions Can Be Different From Reality, Illusions, Tricks	12%	<ul style="list-style-type: none"> • How people's thoughts are different from reality • How our brain can play tricks on us • How the mind can be tricked or pick up things we wouldn't think it could • The manner in which the mind affects our perception of reality
We / Our Minds Are Subject To Influences Including Past Experience	12%	<ul style="list-style-type: none"> • People that their initial perceptions shape the choices they make & that thoughts & actions may not be based on actual present events but memories of past occurrences. • How people can react or be misled by their knowledge. Mind can play tricks on you. • How minds are trained to think a certain way • People the way they naturally think is because of their culture
Emotion -Thought - Action Connection	10%	<ul style="list-style-type: none"> • How your emotions influence your actions • How the mind functions mentally/emotionally • Brain processes and interaction of motor skills • How objects make you feel

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2a. To show...	n=92	Sample Responses
Make Visitor Aware Of Things They Might Not Have Noticed/Known	7%	<ul style="list-style-type: none"> To reveal lesser known aspects of how the mind works Interesting tidbits on perceptions and thinking that we aren't usually aware of To test yourself mentally
Body, Mind-Body Connection	5%	<ul style="list-style-type: none"> Some of the facts your mind interact with your body To show us how the mind & body work & the intricate processes that go on without us thinking about it ... every day.
Senses	5%	<ul style="list-style-type: none"> Different things your mind absorbs when it sees, smells, glances at stuff How visual sensory directly correlated to how your mind perceives things
Wow Minds Are Grand!	4%	<ul style="list-style-type: none"> How interesting the mind is. What we know & still are learning about the mind, emotions, perception Our minds are more powerful than we realize The mind is an amazing thing!
Complexity Of Mind, Range Of Human Consciousness	5%	<ul style="list-style-type: none"> The mind is more complex than many people realize That there's a lot more going on with human consciousness than many people think about most of the time That the mind is intricate & responsive
How Mind Works, Specific (Not Perception)	3%	<ul style="list-style-type: none"> How perception & cognition work In a fundamental way the mechanics of some of the mind's receptors
Specific Content	3%	<ul style="list-style-type: none"> Different ways the body reacts to light
The Collection Is A Vehicle To My Own Mind	2%	<ul style="list-style-type: none"> If it really is all in our head Experience of mind working

Desired Exhibit Impacts (per Mind Collection Developers) Exit Question 2a		Frequency n=92	
Impact 1	Visitors will sense that these exhibits are vehicles for internal investigation, that the real subject of them is "my own mind" and/or the minds of other people who are present.	A	79%
	A. Visitors experience new insights/learning about mind	B	3%
	B. Visitors experience new insights/learning about themselves C. Visitors register surprise/fun/discomfort at the experience/insight	C	--

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Desired Exhibit Impacts (per Mind Collection Developers) Exit Question 2a		Frequency n=92	
Impact 2*	Visitors have two or three singular experiences with the exhibit(s) that impressed them, stick out for them.	A	1%
	A. Experiences that are fun, exciting, memorable	B	--
	B. Experiences that invoke the type of cognitive dissonance described above	C	2%
	C. Experiences that make them aware that these exhibits are different from others in the Museum because "I'm exploring my own mind." [though it is not important that visitors be able to articulate a distinction]	D	--
Impact 3	D. Experiences that stick with them for unanticipated reasons...		
	Visitors will understand that the mind can be studied...	A	1%
	A. That they have been doing this themselves through these exhibits (see above)	B	3%
	B. That the mind is the subject of study by researchers	C	7%
	C. That the exhibits in this collection reflect the scientific study of the Mind and is not a collection of 'touchy feely stuff' and experiences that is ungrounded in science		

*These questions are not geared for feedback on this aspect of the visitor experience.

Exit question 2

What would you say is the main purpose of the exhibits in the mind collection?

2b. To Make People...	n=92	Sample Responses
Realize, Aware, Understand, Broader Understanding	51%	<ul style="list-style-type: none"> • Aware at above/start thinking more deeply about the mind/perception • Better understand how our minds work • Think, evaluate how they think • Understand more about their inner selves • More aware of how we perceive things that we encounter • Aware of their natural instincts • Understand in an easy, hands-on way
Think About How Our Minds Work, Subtleties of Perceptions, Processes, Influences On Our Thinking & Reactions	24%	<ul style="list-style-type: none"> • Think about the reasons behind what they think & why • Think around the way their perceptions work instead of merely gathering information from the perceptions themselves • Think more about how their thoughts are formed
Reflections On One's Own Mind and/or The Human Condition, Introspection	25%	<ul style="list-style-type: none"> • Realize it's all in the mind • More aware of their subconscious thoughts/impressions when interfacing with their world • Think about their own minds, how they work

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2b. To Make People...	n=92	Sample Responses
		<ul style="list-style-type: none"> • Better aware of themselves • Think about the reasons behind what they think & why
How Mind Works, Nonspecific	18%	<ul style="list-style-type: none"> • More aware on how our minds work & understand the things we see • Realize what the brain can do
Think	11%	<ul style="list-style-type: none"> • Think, feel, understand • Think differently • Think
Perceptions, How We Perceive	11%	<ul style="list-style-type: none"> • More aware of their senses, perceptions, different ways of focusing • Think about how they perceive the world around them
Emotion – Thought – Action Connection	10%	<ul style="list-style-type: none"> • Aware how the mind controls reactions, emotions, perceptions • Consider the chemical/neurological process of the brain & how they affect our reactions & feelings • Aware of such connection between your senses & the brain interpretation • More aware of what can influence & signal certain emotions
Make Visitor Aware Of Things They Might Not Have Noticed/ Known	9%	<ul style="list-style-type: none"> • Experience different aspects of their mind that they don't normally focus on • Think about the world they didn't realize is around them all the time • Look at things in a new way
Challenge/Question Assumptions	9%	<ul style="list-style-type: none"> • Think about the way our brains process input; challenge our assumptions. • Re-evaluate their reasons for responding to things the way that they do
Body, Mind-Body Connection	8%	<ul style="list-style-type: none"> • Aware of how the brain affects our body • Think about the everyday things with with do [?] - & use our body & mind for – & about how amazing it is. • Understand the mind/body connection
Perceptions Can Differ From Those Of Other People	7%	<ul style="list-style-type: none"> • Understand why/how other people may see things differently • Think about how other people think & perceive things
Minds React, Respond	5%	<ul style="list-style-type: none"> • Understand their reactions to stimuli • Think about reactions
Perceptions Can Be Different From Reality, Illusions, Tricks	4%	<ul style="list-style-type: none"> • More aware of illusions • Think about what they see & what is perceived is truth
Wow Minds Are Grand!	4%	<ul style="list-style-type: none"> • Feel in awe of the mind. • Think about how the mind operates in very surprising ways
Complexity Of Mind, Range Of Human Consciousness	4%	<ul style="list-style-type: none"> • Think I realize how complex our brains are • Aware of the amount of data their brain[s] can hold
Interactions With Other People	3%	<ul style="list-style-type: none"> • Aware that they can tell a lot about someone just from certain cues • Think about their interactions with others

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2b. To Make People...	n=92	Sample Responses
How Mind Works, Specific (Not Perception)	3%	<ul style="list-style-type: none"> Think about the way our brains process input; challenge our assumptions.
We / Our Minds Are Subject To Influences Including Past Experiences	3%	<ul style="list-style-type: none"> Appreciate socio-biology/power of mind Think about whether bias or preconceived expectations are affecting their judgments
Less Frequent Responses	2%	<ul style="list-style-type: none"> Specific Content
	2%	<ul style="list-style-type: none"> Senses
	2%	<ul style="list-style-type: none"> Reference To Exhibit/ Interaction
	2%	<ul style="list-style-type: none"> Other: Ask, React

Desired Exhibit Impacts (per Mind Collection Developers) Exit Question 2b		Frequency n=92	
Impact 1	Visitors will sense that these exhibits are vehicles for internal investigation, that the real subject of them is "my own mind" and/or the minds of other people who are present. A. Visitors experience new insights/learning about mind B. Visitors experience new insights/learning about themselves C. Visitors register surprise/fun/discomfort at the experience/insight	A	58%
		B	26%
		C	1%
Impact 2*	Visitors have two or three singular experiences with the exhibit(s) that impressed them, stick out for them. A. Experiences that are fun, exciting, memorable B. Experiences that invoke the type of cognitive dissonance described above C. Experiences that make them aware that these exhibits are different from others in the Museum because "I'm exploring my own mind." [though it is not important that visitors be able to articulate a distinction] D. Experiences that stick with them for unanticipated reasons...	A	2%
		B	--
		C	1%
		D	--
Impact 3	Visitors will understand that the mind can be studied... A. That they have been doing this themselves through these exhibits (see above) B. That the mind is the subject of study by researchers C. That the exhibits in this collection reflect the scientific study of the Mind and is not a collection of 'touchy feely stuff' and experiences that is ungrounded in science	A	10%
		B	--
		C	1%

*These questions are not geared for feedback on this aspect of the visitor experience.



3.0 Exit Survey

3.2.3 What Do Visitors Report learning About in the Mind Collection?

Exit Question 3 asks respondents “What is one new idea that you are taking away with you?” and offers two writing prompts: “I didn’t know, or I never realized...” (3a), and “It reminded me that...” (3b). Over 90% of respondents answered at least one of these parts, and about 40% responded to both.

In responding to the first prompts (3a), these visitors most frequently cite a specific exhibit-related lesson (36%). Several exhibits are well represented among respondent comments. Many visitors are quite taken by how readily we judge others (Who Lives Here). The nature of focus and attention also impress visitors (Count the Bounces, Be Here Now, Stretching Your Attention, Divided Attention). That faces can reveal would-be hidden truths comes across strongly (The Eyes Have It, Polite Smile, Delight Smile, Poker Face). Gut reactions and playing the odds also make a showing among these responses (Judging the Odds).

Second-most common are comments about one’s own ability, skill or behavior in an exhibit (23%). Visitors are taken by their experience of A Sip Of Conflict, Bronze Hand, Center Of Attention, True Mirror and Poker Face. Center Of Attention elicits quite strong lessons of self, as do True Mirror and A sip Of Conflict, and comments often reveal an emotional reaction to the experience. Less common are lessons about perceptions varying between people (4%), references to the body-mind-emotion connections (4%) and the complexity of the mind (3%).

A large number of responses to Exit Question 3a touch on Desired Visitor Impacts. Again we see Impact 1 most often with close to 90% of these comments touching on insights about the mind, self and/or emotional reactions to those insights. Over 50% relate to some aspect of Impact 2, describing memorable experiences with emotional content and/or some awareness of exploring one’s own mind using these exhibits. A few comments touch on research of the mind, Impact 3.

The table below include sample responses. The reader is encouraged to review all responses to Exit Question 3a in Appendix G.

Exit Question 3. What is one new idea that you are taking away with you?

3a. I Didn’t Know, Or I Never Realized That...	n=92	Sample Responses
Specific Exhibit Lesson	36%	<ul style="list-style-type: none"> • How much you can label people without knowing them • Focus/concentration causes you to miss simple things. • Mood change; Light has such an effect • I strongly dislike toilets. • It’s hard to look at yourself in a mirror in reverse! You move differently. • You could detect from muscles around your eyes that a smile was fake • The percentage of gut feeling is less than if you

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3.0 Exit Survey

3a. I Didn't Know, Or I Never Realized That...	n=92	Sample Responses
		changed your mind
Self Reflective Specific, e.g., Skill, Ability, Behavior In An Exhibit	23%	<ul style="list-style-type: none"> • How much aversion I would have to the toilet water fountain • It feels weird to have "phantom" sensations • The reaction from an audience would make or brake me • I could do so well at the Monty Hall game (Vegas, here I come!) • My nose was so crooked. Weird. • I was good at knowing when people were lying
Voicing An Emotional Reaction	14%	<ul style="list-style-type: none"> • How easily the mind can be tricked & how weird one can feel after your mind's beliefs have been challenged
Face Reveals Lies, Thoughts, Emotions	11%	<ul style="list-style-type: none"> • You could detect from muscles around your eyes that a smile was fake • You can tell someone's emotions/thoughts from their eyes • Eyes had a lot to do with expressing emotion • Facial recognition of emotion could be taught • scientists/observers can tell through a photo - "a forced smile" versus "a natural smile"
Attention/ Focus/ Concentration	8%	<ul style="list-style-type: none"> • Focus/concentration causes you to miss simple things. • My kid's attention span is still real short • I didn't realize that my attention span could be improved just by relaxing
Perceptions Can Differ From Those Of Other People	4%	<ul style="list-style-type: none"> • Different people see different colors • How different I look to other people than to myself (in the mirror) • People can see me differently than what I see in myself.
Emotion – Thought – Action – Body Connection	4%	<ul style="list-style-type: none"> • hand/foot coordination is natural & hard to separate • Standing on the "stage" with audience sounds really affected my feelings despite nobody was there. • Perception of my feelings • Your mind does most of your physical reactions
Complexity Of Mind, Range Of Human Consciousness	3%	<ul style="list-style-type: none"> • The mind is a complex thing- can play tricks. Fingertips sweat a lot. • The mind is complex
Comments Re: Fun, Surprise, Cognitive Dissonance In Exhibit	3%	<ul style="list-style-type: none"> • How much aversion I would have to the toilet water fountain • Drinking out of a toilet carries a strong emotional repellent factor
Perceptions, How We Perceive	3%	<ul style="list-style-type: none"> • Perception of my feelings • How much you can label people without knowing them • There are more cues in the world than I had

The Mind Collection Summative Evaluation



3.0 Exit Survey

3a. I Didn't Know, Or I Never Realized That...	n=92	Sample Responses
		anticipated
Self Reflective, Broad	3%	<ul style="list-style-type: none"> I like playing child-oriented games/activities as much as I do.
Less Frequent References	2%	<ul style="list-style-type: none"> Ref To Idea That Perceptions Can Be Different From Reality, Illusions, Tricks
	2%	<ul style="list-style-type: none"> We / Our Minds Are Subject To Influences
	2%	<ul style="list-style-type: none"> Connection To Life Outside The Exhibit
	2%	<ul style="list-style-type: none"> How Mind Works, Nonspecific
	4%	<ul style="list-style-type: none"> Other / Don't Know

Desired Exhibit Impacts (per Mind Collection Developers) Exit Question 3a		Frequency n=92	
Impact 1	Visitors will sense that these exhibits are vehicles for internal investigation, that the real subject of them is "my own mind" and/or the minds of other people who are present. A. Visitors experience new insights/learning about mind B. Visitors experience new insights/learning about themselves C. Visitors register surprise/fun/discomfort at the experience/insight	A	50%
		B	27%
		C	12%
Impact 2	Visitors have two or three singular experiences with the exhibit(s) that impressed them, stick out for them. A. Experiences that are fun, exciting, memorable B. Experiences that invoke the type of cognitive dissonance described above C. Experiences that make them aware that these exhibits are different from others in the Museum because "I'm exploring my own mind." [though it is not important that visitors be able to articulate a distinction] D. Experiences that stick with them for unanticipated reasons...	A	29%
		B	13%
		C	13%
		D	1%
Impact 3	Visitors will understand that the mind can be studied... A. That they have been doing this themselves through these exhibits (see above) B. That the mind is the subject of study by researchers C. That the exhibits in this collection reflect the scientific study of the Mind and is not a collection of 'touchy feely stuff' and experiences that is ungrounded in science	A	8%
		B	2%
		C	1%



3.0 Exit Survey

3.2.4 What associations do visitors make with the Mind Collection?

Exit Question 3 asks respondents “What is one new idea that you are taking away with you?” and offers two writing prompts: “I didn’t know, or I never realized...” (3a), and “It reminded me that...” (3b). Fewer visitors responded to the second prompt which allows respondents to make connections to life outside the Collection. These responses most often discuss specific lessons reflecting several exhibits, as with Question 3a (10%).

Visitor comments bring into the discussion references to school (Gut Reaction v. test taking at school), movie stars (they have fake smiles), personal needs (to meditate more, to be nicer), and the danger of manipulation on people and their thinking (“People often miss things that are right in front of them when they are told to concentrate on something else, like the fear tactics used by the government.”).

As with earlier questions, the Desired Exhibit Impacts most commonly found in these responses have to do with gaining insights into the mind or self, Impact 1 (~40%). Impacts 2 and 3 are touched on by fewer than 10% of these responses.

Exit Question 3. What is one new idea that you are taking away with you...

3b. It Reminded Me That...	n=92	Sample Responses
No Response or Not Applicable	49%	--
Information About Minds and/or How They Work		
Other Specific Exhibit Lesson	10%	<ul style="list-style-type: none"> • Males are often color insensitive • Colors can really affect one's mood • I knew it already, but the toilet exhibit was a powerful reminder of the impact of emotions on our actions • Reflexes slow with age • You miss a lot when you are focused • You should not come to prejudged conclusions • Cuteness is determined by smallness & large eyes, etc.
We, Our Minds Are Subject To Influences Including Past Experience	8%	<ul style="list-style-type: none"> • People can be programmed & manipulated. Scary.
Emotion – Thought – Body Connection	7%	<ul style="list-style-type: none"> • Body language is a major form of communication • Your brain affects & controls how you “experience” something. • Our emotions are a product of our experiences, I guess • Every thought or emotion we have is both very simple & extremely complex.
Complexity Of Mind, Range Of Human Consciousness	4%	<ul style="list-style-type: none"> • We've only scratched the surface of the mind's potential • The mind isn't as complicated as it sounds • Every thought or emotion we have is both very simple

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3.0 Exit Survey

3b. It Reminded Me That...	n=92	Sample Responses
		& extremely complex.
Attention, Focus, Concentration	4%	<ul style="list-style-type: none"> • People often miss things that are right in front of them when they are told to concentrate on something else, like the fear tactics used by the government • You miss a lot when you are focused
Perceptions Can Be Different From Reality, Illusions, Tricks	3%	<ul style="list-style-type: none"> • Perceptions are not always reliable as absolute arbiters of what we experience • What you sense is not always real
Perceptions, How We Perceive	3%	<ul style="list-style-type: none"> • The way you take in information sensually affects your thoughts & perceptions • Your brain affects & controls how you “experience” something. • What you perceive & feel is influenced by more factors than you normally think about
Reflections About Minds and/or Self		
Connection To Life Outside The Collection	7%	<ul style="list-style-type: none"> • That I should be nicer • Many movie stars have fake smiles • I should still go with my gut answer rather than keep changing my answer because that is what they teach us in school • I need to meditate more often
More To Learn - Personally and Societally	5%	<ul style="list-style-type: none"> • You're never too old to learn something new • We believe we know a lot about human mind & function but we are still learning
Self Reflective Specific, e.g., Skill, Ability, Behavior... In An Exhibit	5%	<ul style="list-style-type: none"> • Gut reactions, while often helpful, should not preclude approaching new situations with an open mind/thinking about things objectively • I need to do more mind teasers • I am not smarter than a fifth grader • I am not as focused as I think I am • I'm a sharp focus person
Self Reflective, Broad	4%	<ul style="list-style-type: none"> • That I should be nicer • I don't know everything about myself. • Gut reactions, while often helpful, should not preclude approaching new situations with an open mind/thinking about things objectively
Less Frequent References	2%	• Past Experiences Influence Thinking/ Reactions
	2%	• Face Reveals Lies, Thoughts, Emotions
	8%	• Other

The Mind Collection Summative Evaluation



3.0 Exit Survey

Desired Exhibit Impacts (per Mind Collection Developers) Exit Question 3b		Frequency n=92	
Impact 1	Visitors will sense that these exhibits are vehicles for internal investigation, that the real subject of them is "my own mind" and/or the minds of other people who are present. A. Visitors experience new insights/learning about mind B. Visitors experience new insights/learning about themselves C. Visitors register surprise/fun/discomfort at the experience/insight	A	32%
		B	17%
		C	3%
Impact 2*	Visitors have two or three singular experiences with the exhibit(s) that impressed them, stick out for them. A. Experiences that are fun, exciting, memorable B. Experiences that invoke the type of cognitive dissonance described above C. Experiences that make them aware that these exhibits are different from others in the Museum because "I'm exploring my own mind." [though it is not important that visitors be able to articulate a distinction] D. Experiences that stick with them for unanticipated reasons...	A	5%
		B	1%
		C	1%
		D	1%
Impact 3	Visitors will understand that the mind can be studied... A. That they have been doing this themselves through these exhibits (see above) B. That the mind is the subject of study by researchers C. That the exhibits in this collection reflect the scientific study of the Mind and is not a collection of 'touchy feely stuff' and experiences that is ungrounded in science	A	3%
		B	3%
		C	0%

*These questions are not geared for feedback on this aspect of the visitor experience.



3.0 Exit Survey

3.3 Level of Engagement

Exit Survey responses as a whole were evaluated for the apparent level of engagement of each individual respondent. Because these participants were not cued for this study, we expect a moderate rate of high engagement. As shown in the table below 26% of these 92 un-cued respondents appear highly engaged. Among cued respondents in the Pre/Post-visit Interviews, 30% of exhibit conversations evidence a high level of engagement with the exhibit.

Level of Engagement	n=117	Description and Example
0: Low	12%	<p>Very minimally articulate or thoughtful about their exhibit experience. Often these visitors have literally nothing to say other than the vaguest notion.</p> <ul style="list-style-type: none"> ▪ No response ▪ I need more time ▪ How the mind works
1: Moderate	62%	<p>Moderately articulate, in discussing or describing their experience.</p> <ul style="list-style-type: none"> ▪ How people react to various stimuli ▪ How unreliable our senses can be about “true” reality ▪ The complexities of the mind. A lot of things are just in the mind. ▪ How the mind affects the way we perceive the world
2: High	26%	<p>Very articulate, descriptive and thoughtful about the exhibit experience, making wider generalizations or connections between one exhibit and another, or between this exhibit and something outside of the Museum.</p> <ul style="list-style-type: none"> ▪ I didn't realize that my attention span could be improved just by relaxing ▪ Think about the way our brains process input; challenge our assumptions. ▪ Speech & visual clues create varying understanding of words ▪ How minds are trained to think a certain way ▪ People that their initial perceptions shape the choices they make & that thoughts & actions may not be based on actual present events but memories of past occurrences



3.0 Exit Survey

3.4 Sample Demographics and Visit Description

A random sampling protocol was used to select participants. The target audience for this evaluation reflects the target audience for the Collection, all visitors age 11 and up.

About one third of these respondents state that they have a special interest or training that helped them understand the Mind exhibits. Most of these have a degree or first hand experience with psychology, engineering or science. These findings not out of line with a 2006 survey conducted by the Exploratorium which found that about one third of the audience had completed a graduate degree (33%) and slightly more had completed college (36%).

These respondents are as likely to report enjoying Mind (86%) as are respondents who did not identify themselves as having special interest or training (87%). These data suggest that Mind is successful with visitors of varying backgrounds.

Mind team members are curious about where the Collection figures into a visitor's day at the Museum because it is located in the back of the facility. If visitors tend not to arrive to the Mind area until late in their visit, we can logically expect them to be more fatigued and perhaps limiting their time. These data show that a majority of Mind visitors are in the middle of there exhibit (54%) and about a third are near the end (37%). Among Pre/post-visit Interview participants, 61% were in the middle of their visit, and 16% near the end.

Exit Question 1

Do you have any special interest, knowledge or training that you feel helped you better understand or appreciate the exhibits in this area?	n=92
No	67%
Yes	33%

1a. If yes, please describe.

- I worked here for two years, 8 years ago
- I have a degree in Child Development & am getting my Specialist Degree in School Psychology
- I took psychology in high school & in the military I did psych-ops training
- Medical health care professional
- Medical student & Ph.D. chemist
- I took psychology in high school so it was cool seeing what I read about put into practice.
- Like & have studied psychology
- Degree in Software & Electrical Engineering
- Engineering degree
- I'm an engineer by trade & I took a psychology Education
- I work with video, audio & computers
- I've studied science at university
- Mechanics & physics
- I took a physics class
- Cognitive elements interest me
- I am a visual artist & enthusiast of mind/space information
- I have been here before



3.0 Exit Survey

Exit Question 6a

Where are you in the Exploratorium visit right now?	n=92	Late Morning 11:00-2:00	Early Afternoon 12:00-1:30	Mid-Afternoon 1:30-3:00	Late Afternoon 3:00-5:00
Near the Beginning	6 (7%)	--	2	--	4
Near the middle	50 (54%)	1	13	15	21
Near the end	34 (37%)	--	12	15	7

Exit Question 6b

How many are in your group today?	n=92
One	8%
Two	32%
Three	18%
Four	16%
Five or more	26%

Exit Question 6c

Are you here.....	n=92
Multigenerational	51%
Adults With Peers	37%
Adults Alone	8%
Teen Peers	3%

Exit Question 6d

Your age?	n=92
8-12	1%
13-18	8%
19-25	24%
26-59	63%
60+	3%

Exit Question 6e

Your gender?	n=92
Female	52%
Male	46%



4.0 Tracking & Timing Study

4.0 TRACKING & TIMING STUDY

4.1 Introduction & Method

This Tracking and Timing study closely follows the methodology outlined in Beverly Serrell's book, *Paying Attention: Visitors and Museum Exhibitions*.⁴ Data collectors randomly selected visitors as they approached the Mind Collection entrance and unobtrusively tracked their path through the exhibit on a paper map. Visitor behaviors were noted as listed on the Observed Behaviors Table below. Entrance and exit times were recorded to calculate dwell time in the Collection. At the request of the Mind Collection team, dwell times were also recorded at three exhibits (Cabinet of Cuteness, Cute-ify, and Emotion Tracer). The 52 exhibits observed include six text panels; Making Faces was not present during data collection. Sixty-three visitors are included in this sample. Please see pages 4-11 and 4-12 for a sample Tracking & Timing Map and Data Sheet.

An observational study such as this provides objective information that interviews and surveys cannot capture. Visitors have a hard time remembering exactly what they did or how long they spent doing it. Systematic observation provides reliable data on visitor behavior, dwell time and elements attended to. Observation subjects are not interviewed, and cannot usually be heard well, so data is limited to what can be observed. The nature of tracking and timing data requires meticulous work in the field and in processing, which makes the method subject to human error.

While piloting this study, it became clear that visitors flowed easily between Mind and Seeing usually with no awareness that they had moved from one Collection to another. For the sake of collecting useful data about Mind visitors needed to be contained physically and conceptually. To that end, stanchions were placed at each of the three broad passages between Mind and Seeing, leaving only the main entrance to the Mind area open. Hung on stanchion ropes were signs reading, "please do not cross." To help limit crossover, one particularly attractive Seeing element was moved away from the Seeing-Mind boundary and Explainers were enlisted to help keep the ropes in place. These measures helped to contain most, but not all visitors. The use of stanchions produced an artificial condition by limiting the flow of visitors between the Seeing and Mind areas which may impact the visitor experience and use of the collection.

4.1.1 Highlights Of What We Learned From This Study

- Exhibits that get the most attention: Startle Response, A Sip of Conflict, Master Mind Machine, Bronze Hand, Easy Search Difficult Search, Time to Think, and Poker Face. (4.2.1)
- An average dwell time of 23 minutes demonstrates good engagement among visitors. The somewhat low average number of elements attended to, 11, is in line with what can be expected of large exhibitions or collections. (4.2.2)
- Most visitors do not attend to the raised, carpeted area; 25% were observed to enter that area. This may be affected by the use of stanchions to separate Seeing from Mind during data collection.

⁴ *Paying Attention: Visitors in Museum Exhibitions*, Serrell, American Association of Museums 1998, pages 72-75



4.0 Tracking & Timing Study

4.2 Summary Of Tracking & Timing Findings

4.2.1 Exhibits That Get the Most Attention & Seem To Engender High Interest or Excitement

When looking at where visitors stop, call each other over, laugh, read and watch other visitors, Startle Response tops every list. Among the top ten for four of these five behaviors are: A Sip of Conflict and Master Mind Machine. Appearing among the top ten on three of these five lists are: Bronze Hand, Easy Search Difficult Search, Time to Think, and Poker Face. These seven attention grabbers are located along the most direct path through the area from the entrance canopy to the back wall. These seven exhibits are circled in red on the exhibit map (page 4-12).

Looking at which exhibits at least two visitors attended to more than once, again we find Startle Response leading the pack. Other exhibits that enjoy repeat visits include Cabinet of Cuteness, Center of Attention, Cute-ify and Trading Places. Farther down this list are several of the attention grabbers discussed above, including A Sip of Conflict, Master Mind Machine, Time to Think and Poker Face.

Exhibits located in the raised, carpeted area get the least use. A look at the tracking and timing maps tells us that only a quarter of the sample enters that area. Visitors who enter Mind through its main entrance have to turn hard to the left to see or approach the raised, carpeted area. It is possible that when the stanchions separating Mind from Seeing are not in use, this area will get more attention because visitors who enter Mind from the very rear, by way of Seeing, get a view of the raised, carpeted area as they move through the Collection. This may serve to attract them.

There may also be a touch of Melton’s Right Turn Bias in play, and this may be influencing visitor use of exhibits. Upon entering Mind through the canopied entrance, about one third of this sample (32%), keep to the right; specifically to the right of Poker Face.

Top 10 Exhibits Where Visitors Stop			
Exh. Number	Exhibit Title	Count	N=63
41	Startle Response	38	60%
26	Master Mind Machine	37	59%
4	A Sip of Conflict	32	51%
10	Color Your Judgment	27	43%
48	Who Lives Here?	27	43%
18	Easy Search, Difficult Search	23	37%
44	The Eyes Have It	22	35%
45	Time to Think (Reaction Time)	21	33%
2	Albert is Watching	20	32%
11	Communicate With Your Body	20	32%
27	Mind Cinema	20	32%



4.0 Tracking & Timing Study

Top 10 Exhibits Where Visitors Call Others Over and/or Get Called To			
Exh. Number	Exhibit Title	Count	N=63
41	Startle Response	3	5%
18	Easy Search, Difficult Search	3	5%
6	Bronze Hand	2	3%
8	Center of Attention	2	3%
9	Color Conflicts	2	3%
13	Count the Bounces	2	3%
23	Hand-Foot Coordination	2	3%
26	Master Mind Machine	2	3%
32	Poker Face	2	3%
39	Reading Eyes	2	3%

Top 10 Exhibits Where Visitors Laugh			
Exh. Number	Exhibit Title	Count	N=63
41	Startle Response	12	19%
4	A Sip of Conflict	10	16%
32	Poker Face	7	11%
6	Bronze Hand	4	6%
39	Reading Eyes	4	6%
28	Mirrorly A Window	3	5%
22	Judging the Odds	3	5%
23	Hand-Foot Coordination	3	5%
45	Time to Think (Reaction Time)	3	5%
19	Emotion Tracer	3	5%

Top 10 Exhibits Where Visitors Read			
Exh. Number	Exhibit Title	Count	N=63
41	Startle Response	19	30%
18	Easy Search, Difficult Search	16	25%
15	Dare to Compare	15	24%
26	Master Mind Machine	14	22%
4	A Sip of Conflict	12	19%
48	Who Lives Here?	11	17%
10	Color Your Judgment	11	17%
2	Albert is Watching	11	17%

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4.0 Tracking & Timing Study

5	Be Here Now	10	16%
9	Color Conflicts	10	16%

Top 10 Exhibits Where Visitors Watch Others			
Exh. Number	Exhibit Title	Count	N=63
41	Startle Response	25	40%
26	Master Mind Machine	14	22%
45	Time to Think (Reaction Time)	10	16%
4	A Sip of Conflict	9	14%
7	Cabinet of Cuteness	9	14%
14	Cute-ify	8	13%
29	Mood Lighting	8	13%
42	Stretching Your Attention	6	10%
32	Poker Face	5	8%
6	Bronze Hand	5	8%
22	Judging the Odds	5	8%
11	Communicate With Your Body	5	8%
20	Fast Faces	5	8%

Exhibits To Which \geq Two Visitors Return For First Or Additional Use(s)			
Exh. Number	Exhibit Title	Count	N=63
41	Startle Response	10	16%
7	Cabinet of Cuteness	7	11%
8	Center of Attention	6	10%
14	Cute-ify	5	8%
46	Trading Places	4	6%
17	Divided Attention	3	5%
48	Who Lives Here?	3	5%
3	Animal Camera	2	3%
4	A Sip of Conflict	2	3%
10	Color Your Judgement	2	3%
11	Communicate With Your Body	2	3%
26	Master Mind Machine	2	3%
27	Mind Cinema	2	3%
32	Poker Face	2	3%
44	The Eyes Have It	2	3%
45	Time to Think (Reaction Time)	2	3%
47	True Mirrors	2	3%



4.0 Tracking & Timing Study

4.2.2 Visitor Dwell Time, Stops & Sweep Rate

Visitors in this study average 23 minutes in the Mind Collection while under observation.⁵ The average number of stops made by these visitors is 11. In her book, *Paying Attention: Visitor and Museum Exhibitions*, Beverly Serrell analyzes this data to understand how well an exhibit is used and how engaged visitors are by it.⁶

Serrell looks at the square footage of the exhibit space divided by average time spent to calculate the Sweep Rate. In this case, 5,200 square feet divided by 23 minutes gives us a Sweep Rate of 208 square feet per minute. This is within the range of a well-used exhibit (up to 300 square feet per minute), and much better than the average Sweep Rate of 400 for large exhibitions.

Serrell also considers exhibit stops in her analysis. In a well-used, engaging exhibit a high number of visitors will stop at at least 51% of exhibits; these are “Diligent Visitors.” Average for a large exhibit is 23% Diligent Visitors. Of the 52 exhibits observed in the Mind Collection, six are text panels. Excluding text panels, 51% of 46 exhibits equals 23 exhibits, meaning that a diligent visitor will stop at 23 exhibits or more. In this study, four subjects, 6% of the sample, are Diligent Visitors, far below average for a large exhibition.

Given the somewhat large size of the Mind Collection, and number of exhibits it includes, a high number of Diligent Visitors may not be attainable. In her summative evaluation of the Exploratorium’s Seeing Collection which had an average dwell time of 20 minutes and an average number of stops of 18, Serrell notes:

“I keep wanting to compare this collection to an exhibition, because that is my usual frame of reference for other museum evaluations using tracking and timing. I have found that exhibitions of this size—with 8,500 square feet and 93 elements—are unlikely to have a high percentage of diligent visitors. There are too many things to do and see to expect half of the visitors to engage with the exhibits in a thorough manner, that is, visit most of the elements. Typically, after about 20 minutes, regardless of the size of the space, most visitors are ready to move on to another area or take a break. I suspect this generalization holds true for the *Seeing* collection as well.”

Serrell’s suspicion would seem to hold for the Mind Collection too. In discussing Mind findings with the evaluator, Serrell emphasizes her opinion that exhibitions with over 50 elements do not usually enjoy thorough use in terms of the number of elements attended to.

Seeing and Mind are embedded in a large museum context with very many other elements to attract visitors. Many of those other, enticing elements are visible to visitors in Seeing and/or

⁵ Data collectors noted seeing several Tracking and Timing subjects re-visit the Mind Collection while no longer under observation. This suggests that the true amount of time spent an exhibits used by visitors may be greater than this study can assess.

⁶ *Paying Attention: Visitors in Museum Exhibitions*, Serrell, American Association of Museums 1998, page 72



4.0 Tracking & Timing Study

Mind because of the very open nature of the Collection area boundaries. Visitors are easily pulled to other areas, often not knowing that they moved from one exhibition or collection to another. Perhaps Exploratorium visitors, being used to having so much to choose from, develop a system of light browsing to try and cover everything.

Note also that Mind visitors spend a little more time than did Seeing visitors, yet they stop at fewer exhibits. It may be that the exhibits within Mind require longer stops for full use/engagement. Indeed, many Mind exhibits require two people to use properly and involve taking turns. In many instances, visitors invest time waiting in line to use elements such as Center of Attention and Startle Response.

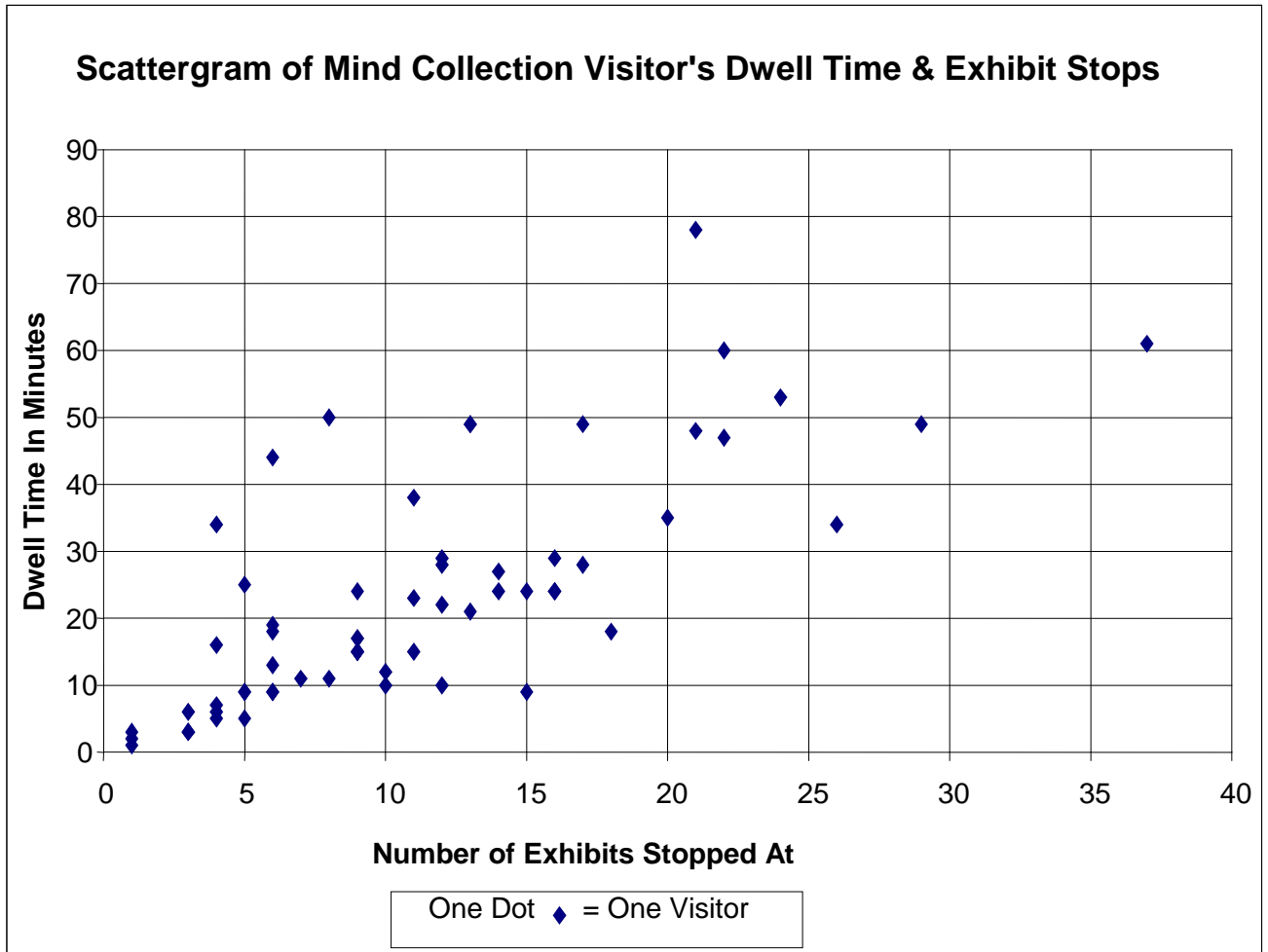
4.2.2.a Visitor Time and Stops – Data Tables

Visitor Dwell Time in the Mind Collection (minutes)	
Min	1
Median	18
Mean	23
Max	78

Visitor Stops in the Mind Collection	
Min	1
Median	9.5
Mean	11
Max	37



4.0 Tracking & Timing Study





4.0 Tracking & Timing Study

4.2.3 Observed Visitor Behaviors

Exhibit Number on Map	Exhibit Title (n=63)	Call Over/Get Called Over	Discuss	Laugh	Read	Read Aloud	Point Out	Sit	Glance	Stop ≥ 3 sec.	Use Exhibit	Use Exh. With Partner	Watch Others
41	Startle Response*	4	11	12	19	1	3	10	3	38	15	4	25
26	Master Mind Machine*	2	13	2	14	1	4	0	7	37	21	4	14
4	A Sip of Conflict	1	15	10	12	0	2	0	1	32	8	2	9
10	Color Your Judgment	2	12	1	11	0	2	2	4	27	18	13	2
48	Who Lives Here?*	2	8	2	11	2	3	2	1	27	21	10	1
18	Easy Search, Difficult Search	3	5	0	16	1	7	0	1	23	18	3	0
44	The Eyes Have It	1	4	0	8	0	0	0	1	22	14	2	1
45	Time to Think (Reaction Time)	1	11	3	4	1	0	7	7	21	6	11	10
2	Albert is Watching*	1	7	1	11	0	0	0	3	20	15	3	3
11	Communicate With Your Body	1	3	2	5	0	0	1	5	20	4	4	5
27	Mind Cinema	1	0	0	2	0	1	9	4	20	9	7	1
6	Bronze Hand	3	7	4	6	1	0	13	2	19	4	13	5
14	Cute-ify	0	5	1	5	0	3	6	3	19	10	5	8
47	True Mirrors	1	5	1	4	0	0	0	3	19	14	6	2
7	Cabinet of Cuteness	0	3	2	5	0	0	1	4	17	7	9	9
8	Center of Attention	2	0	1	4	0	0	0	10	17	9	4	0
23	Hand-Foot Coordination	2	3	3	9	1	0	0	1	17	11	5	1
1	Aha Moment	0	8	2	7	0	1	9	2	16	5	8	2
15	Dare to Compare	0	6	2	15	0	0	0	3	16	5	5	3
17	Divided Attention	1	5	1	6	0	1	1	4	16	10	5	4
5	Be Here Now*	1	6	0	10	0	3	2	6	15	4	1	1
28	Mirrorly A Window	1	4	3	6	0	1	1	6	15	13	3	2
22	Judging the Odds	1	6	3	5	1	2	8	5	14	3	7	5
32	Poker Face	3	8	7	7	2	0	9	7	14	2	12	5
39	Reading Eyes	2	5	4	8	2	1	8	7	14	1	9	2
9	Color Conflicts*	2	3	0	10	0	1	1	3	13	10	4	0
20	Fast Faces	0	4	1	5	0	0	0	1	13	9	1	5
24	Judging Time	0	2	0	8	0	0	0	1	13	9	1	1
30	Perilous Portal	0	3	1	5	0	1	0	11	13	15	0	0
46	Trading Places	0	5	2	3	1	1	5	2	13	1	7	3
29	Mood Lighting*	1	0	0	5	0	0	1	1	12	3	2	8

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4.0 Tracking & Timing Study

Exhibit Number on Map	Exhibit Title (n=63)	Call Over/Get Called Over	Discuss	Laugh	Read	Read Aloud	Point Out	Sit	Glance	Stop ≥ 3 sec.	Use Exhibit	Use Exh. With Partner	Watch Others
12	Competent Candidates	0	3	1	5	0	1	0	0	11	7	4	1
42	Stretching Your Attention	1	4	0	0	0	1	1	1	10	3	1	6
49	Faces and Masks	0	2	1	3	0	0	1	3	10	0	1	0
13	Count the Bounces	2	2	0	2	0	1	0	1	8	5	1	1
40	See Yourself Sweat	0	4	0	2	0	1	7	0	8	6	2	2
33	Polite Smile, Delight Smile	0	2	0	2	0	2	1	1	7	7	2	1
3	Animal Camera	0	3	0	0	0	2	0	2	6	2	0	0
16	Disappearer	0	1	0	3	0	0	0	1	6	3	1	0
19	Emotion Tracer	0	2	3	2	0	0	3	1	6	2	4	2
21	Get Used To It	0	2	0	4	0	0	1	1	6	5	0	2
43	Talk to Daisy	0	2	1	0	0	0	1	1	5	3	2	3
36	Question 3 panel	0	1	0	4	0	0	0	2	4	0	0	0
52	Demonstration*	2	1	1	0	0	0	3	1	4	2	2	0
34	Question 1 panel	0	0	0	3	0	0	0	0	3	0	0	0
35	Question 2 panel	0	1	0	4	0	0	0	0	3	3	0	0
37	Question 4 panel	0	0	0	2	0	0	0	0	3	0	0	0
38	Question 5 panel	0	0	0	3	0	0	0	1	3	0	0	0
51	Entry Panel	0	1	0	3	0	0	0	1	3	1	0	0
53	Mark Twain	1	1	1	3	0	0	0	0	3	0	0	0
31	Philosopher's Orb*	0	0	0	0	0	0	1	0	2	1	0	0
50	Brain Slices in the case	1	0	0	0	0	0	0	3	1	1	0	0
25	Making Faces*	0	0	0	0	0	0	0	0	0	0	0	0

Exhibits located on the raised, carpeted area are shaded.

*Note that several exhibits were off line during some or all data collection sessions. Logically, these exhibits might have received more attention over the course of the study had they been available to visitors the entire time. The following table shows which exhibits were off line during how many of the 63 observations included in this sample.

Exh. #	Exhibit Title	Off Line During Observations	(n=63)
2	Albert is Watching	10	16%
5	Be Here Now	2	3%
9	Color Conflicts	6	10%
25	Making Faces	63	100%

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4.0 Tracking & Timing Study

Exh. #	Exhibit Title	Off Line During Observations	(n=63)
26	Master Mind Machine	16	25%
29	Mood Lighting	14	22%
31	Philosopher's Orb	45	71%
41	Startle Response	2	3%
48	Who Lives Here	9	14%

In addition to tallied behaviors shown in the table above, data collectors sometimes made notes of their observations. Visitors seem to enjoy their time with each other and the Mind exhibits.

- They spent a lot of time at Startle Response; took photos with cell phone. Lots of Laughter.
- Went straight from entrance to Competent Candidates to join woman who was already there. Used all exhibits together with other woman. Laughed constantly...
- Enjoyed Talk To Daisy very much, spent a long time with peers watching him type & laughing.



4.0 Tracking & Timing Study

4.2.4 Dwell Times at Specific Exhibits

Mind Collection team members requested that visitor stops at three exhibits be timed.

	Exhibit #7 Cabinet of Cuteness (n=17)	Exhibit #14 Cute-ify (n=19)	Exhibit #19 Emotion Tracer (n=5)
Minimum	0:03	0:03	0:35
Median	0:25	0:45	3:38
Mean	0:39	1:18	3:05
Maximum	1:29	3:28	5:01

4.3 Sample Demographics & Visit Description

Estimated Age of Subject	n=63
8-12	0
13-18	3
19-25	16
26-60	42
60+	1

Apparent Gender of Subject	n=63
Female	30
Male	33

How many appear to be in subjects' group?	n=64
One	12
Two	20
Three	15
Four	10
Five or more	6



4.0 Tracking & Timing Study

Apparent makeup of subject's group	n=64
Multigenerational	44%
Adult Peers	33%
Adult Alone	19%
Teen Peers	3%

The Mind Collection Exploratorium Summative Evaluation



Date:		Case#		Observer:		Time Enter:			
#	Element	X?	Behaviors Observed (coded)		#	Element	X?	Behaviors Observed (coded)	
1.	Aha Moment				27.	Mind Cinema			
2.	Albert is Watching				28.	Mirrorly A Window			
3.	Animal Camera				29.	Mood Lighting			
4.	A Sip of Conflict				30.	Perilous Portal			
5.	Be Here Now				31.	Philosopher's Orb			
6.	Bronze Hand				32.	Poker Face			
7.	Cabinet of Cuteness		Dwell: ____:____		33.	Polite Smile, Delight Smile			
8.	Center of Attention				34.	Question 1 panel			
9.	Color Conflicts				35.	Question 2 panel			
10.	Color Your Judgment				36.	Question 3 panel			
11.	Communicate With Your Body				37.	Question 4 panel			
12.	Competent Candidates				38.	Question 5 panel			
13.	Count the Bounces				39.	Reading Eyes			
14.	Cute-ify		Dwell: ____:____		40.	See Yourself Sweat			
15.	Dare to Compare				41.	Startle Response			
16.	Disappearer				42.	Stretching Your Attention			
17.	Divided Attention				43.	Talk to Daisy			
18.	Easy Search, Difficult Search				44.	The Eyes Have It			
19.	Emotion Tracer		Dwell: ____:____		45.	Time to Think (Reaction Time)			
20.	Fast Faces				46.	Trading Places			
21.	Get Used To It				47.	True Mirrors			
22.	Judging the Odds				48.	Who Lives Here?			
23.	Hand-Foot Coordination				49.	Faces and Masks			
24.	Judging Time				50.	Brain Slices in the case			
25.	Making Faces				51.	Entry Panel			
26.	Master Mind Machine				52.	Demonstration			
					53.	Mark Twain			

Was there a Demo at this time? No Magic Brain Dissection
 Exhibits gone or not working at this time*:
 Exhibits revisited for re-use:
 Exhibits watched/revisited for an opportunity to take a turn:
 Exhibits the subject gets called to by others in their party:

Observations & Notes:

** Most vulnerable: 25, 26, 31*

The Mind Collection Exploratorium Summative Evaluation

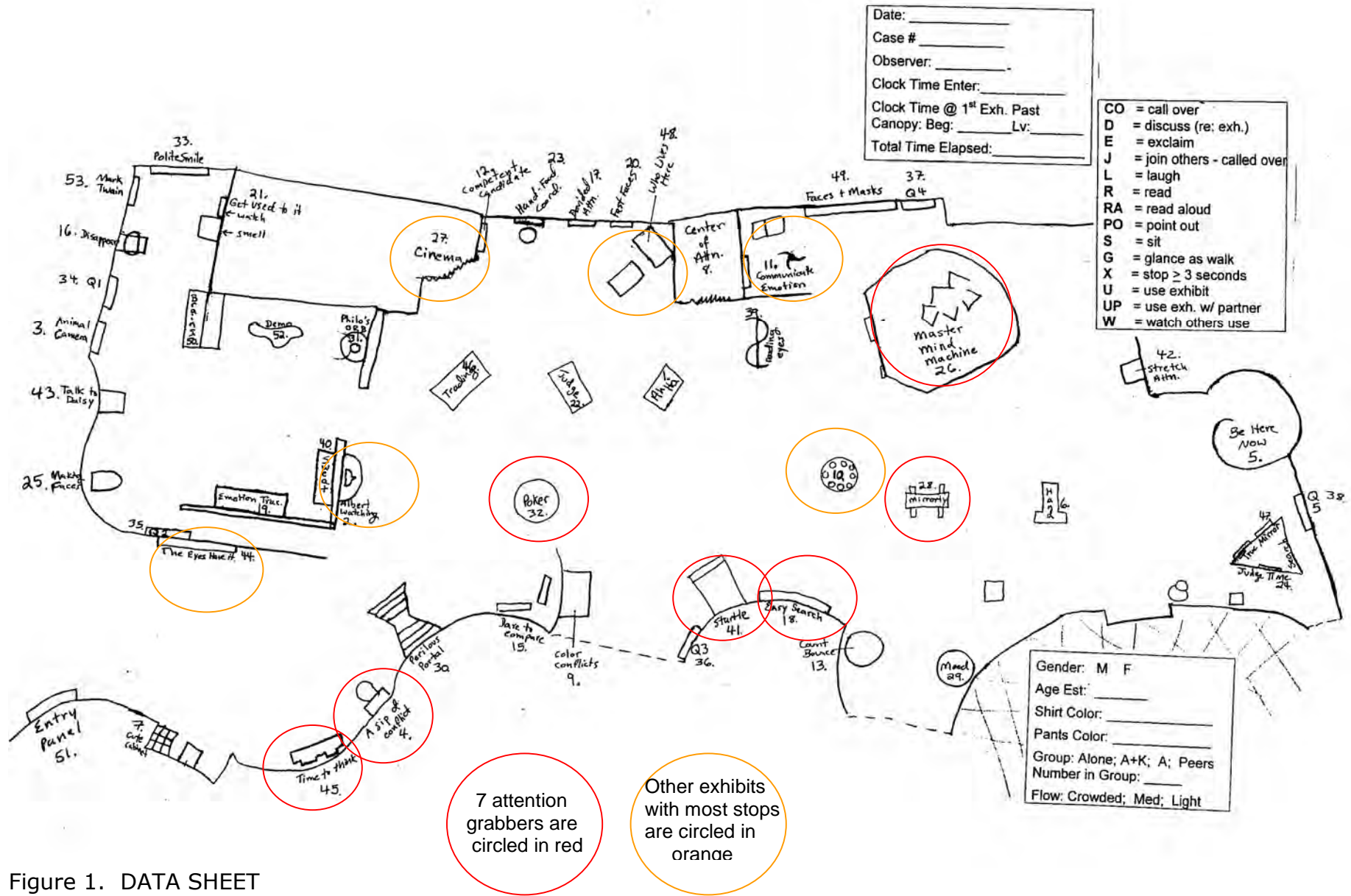


Figure 1. DATA SHEET



5.0 Follow-up Phone Interview Study

5.0 FOLLOW-UP PHONE INTERVIEW STUDY

5.1 Introduction & Method

Follow-up phone interviews conducted three months post-visit are intended to help us understand long-term impacts of the Mind Collection exhibits. Interviews address visitor memories of the exhibits as well as their overall impression of the Mind Collection in comparison with the rest of the Museum.

Visitors exiting the Mind Collection entrance were selected using a random sampling protocol and invited to participate in a short survey at that time, and another by phone several weeks in the future. Forty-nine visitors agreed to participate. Ultimately 25 participated in the telephone survey and are included in this sample. Note that one of these respondents had no recollection of the Mind Collection even with many prompts; another had only vague memories. Six others declined, had moved or had visited Mind again; two had bad phone numbers, the other 16 never picked up our call.

While piloting this study, it became clear that visitors flowed easily between Mind and Seeing usually with no awareness that they had moved from one Collection to another. For the sake of collecting useful data about Mind visitors needed to be contained physically and conceptually. To that end, stanchions were placed at each of the three broad passages between Mind and Seeing, leaving only the main entrance to the Mind area open. Hung on stanchion ropes were signs reading, “please do not cross.” To help limit crossover, one particularly attractive Seeing element was moved away from the Seeing-Mind boundary and Explainers were enlisted to help keep the ropes in place. These measures helped to contain most, but not all visitors. The use of stanchions produced an artificial condition by limiting the flow of visitors between the Seeing and Mind areas which may impact the visitor experience and use of the collection.

5.1.1 Highlights of What We Learned From This Study

- Almost half of respondents (44%) feel that the Mind Collection is distinct from the rest of the Museum because of the nature of the content, “So many of the other exhibits are physics and Mind is more internal...” These respondents are enthused about this and some ask for more of this type of exhibit.
- Three months post-visit, 92% of respondents evidence at least one of the Desired Exhibit Impacts. Most frequently, respondents evidence a fun/memorable experience (Impact 2A, 68%), insights into mind functions (Impact 1A, 44%), and awareness that Mind exhibits are distinct from others at the Museum (Impact 2C, 44%). Twenty percent specify that they explored their own minds using these exhibits (Impact 3A).
- As in the Post-visit Survey, these respondents most frequently find individual exhibits to be memorable because of the content or a message that is specific to that exhibit (44%). After that, long-term reasons why exhibits are memorable differ from those described by Post-visit Survey respondents immediately after experiencing Mind; they



5.0 Follow-up Phone Interview Study

become less detailed and more experiential in nature, either referencing the senses they used (28%) or some social aspect of the experience (28%).

- A majority of these respondents are highly engaged (56%) or moderately engaged (24%) by the exhibits they recall.
- Just over one quarter of respondents (28%) had thought of or been reminded of the Mind Collection since their visit. Most of their comments are very thoughtful and a few describe very frequent and/or profound musings.
- About a quarter of respondents (24%) recall talking with other people about the Mind Collection after their visit. Slightly more talked about the Exploratorium in general.

5.2 Follow-up Phone Interview Findings

5.2.1 How do visitors recognize and characterize the Mind Collection area three months later?

As the phone interviews began, about half of these respondents knew and recognized the Mind Collection by name (48%). Others recognized it by a description of its location (16%), the “toilet” (12%), another Mind exhibit (12%) or the canopied entrance (<10%).

When asked to recall and describe the Mind Collection, respondents most frequently touched on overall content, characterizing these exhibits as challenges to one’s mind that are different from other areas of the Museum (44%).

How would you describe the Mind Collection? [probe] Is it different from other areas of the Exploratorium?	Frequency (n=25)	Responses
Content is distinct	44%	<ul style="list-style-type: none"> ▪ I was there with my two-year-old niece and it seemed like they were more for adults. I felt entertained, oh, wow, that’s ‘interesting! I was stretched more there than in other areas. More for my enlightenment. I felt like I was challenged rather than just, roll this thing down and see if it goes faster. [probe] It was deeper, like that game brought up issues of sexism and racism. Completely different from the rest. ▪ The Mind exhibit asked lots of questions, challenges your sensation. It’s... ideas that are different from the norm, like the drinking fountain toilet. ▪ It did seem different. It seemed like a special exhibit. Almost like something in an art gallery, but I like all if it [Exploratorium] equally well. [probe re: art gallery comment] A bit like the exhibit in MOMA where you walk through areas and there are colors. ▪ It was more your reaction to things...[other parts of the Museum] was how things work or run. ▪ The one with reflex games, and it was in the back and on the left.



5.0 Follow-up Phone Interview Study

How would you describe the Mind Collection? [probe] Is it different from other areas of the Exploratorium?	Frequency (n=25)	Responses
		<ul style="list-style-type: none"> ▪ Oh yeah, they were fun! It was nice the way that fit in with the rest of the museum. And I thought that it was a very good way to introduce the subject [what subject] various ways of thinking and looking at things. ▪ Specifically I recall one where the machine startles you and shows you a picture of what you look like. I liked that. It was fun to see other people too. So many of the other exhibits are physics and Mind is more internal so it was nice to see other people doing it too. ▪ In general, that the exhibits made you think. I thought they were well picked. The intuitive answer isn't always the most obvious. The exhibits were well panned and I thought very well done. ▪ A lot of challenging games and a drink from the commode. ▪ There were a lot of cool mind tricks.
Location	28%	<ul style="list-style-type: none"> ▪ In the back
Exhibit-specific reference	12%	<ul style="list-style-type: none"> ▪ See below for exhibit information
Other	<5%	<ul style="list-style-type: none"> ▪ It seems newer, more updated
No response	26%	<ul style="list-style-type: none"> ▪

5.2.2 Which Mind Collection exhibits stand out for visitors three months later?

Memories of specific exhibits come to respondents' thoughts first when recalling their Mind experience (74%). These respondents reference 18 different exhibits, all of which are located on the main floor (not the raised, carpeted area that tends to get less attention). The most commonly cited exhibit is A Sip of Conflict (4), followed by Trading Places, Judging the Odds, Cute-ify, and none (3).

As in the Post-visit Survey, these respondents most frequently find individual exhibits to be memorable because of the content or a message that is specific to that exhibit (44%). Both populations reference "fun," but in fewer numbers. Apart from content and fun, long-term reasons why exhibits are memorable differ from those described by Post-visit Survey respondents immediately after experiencing Mind. They become less detailed and more experiential in nature, either referencing the senses they used (28%) or some social aspect of the experience (28%).

Most often, visitors don't recall having any specific ideas (48%) or feelings (36%) relating to their experience of the Mind exhibit that they discussed during the phone interview. Those who do remember ideas that they got from the exhibits most commonly refer to



5.0 Follow-up Phone Interview Study

specific exhibit content (24%), or their ability/skill with it (16%). The feelings described are generally positive (28%), or being interested or curious (24%).

Exhibits That Stood Out for Respondents 3 Months Later	Frequency (n=25)
A Sip of Conflict	4
None	4
Trading Places	3
Judging the Odds	3
Cute-ify	3
Who Lives Here?	2
Time to Think	2
The Eyes Have It	2
Startle Response	2
Center of Attention	2
True Mirrors	1
Poker Face	1
Mood Lighting	1
Mind Cinema	1
Count the Bounces	1
Competent Candidates	1
Color Your Judgement	1
Cabinet of Cuteness	1
Aha Moment	1

Why did the exhibit stand out for you?	n=25	Sample Responses
Reference To Specific Content In Context Of The Experience and/or Lesson Learned	44%	<ul style="list-style-type: none"> ▪ Its not everyday you see a drinking fountain toilet. so that really stuck in my mind. the lying one with the cards. it was really interesting to see if he was lying. i couldn't tell the difference. other people knew, how the body changes when you lie. ▪ I guess because they were thought provoking or one of those things was pretty obvious, but seeing how your mind works and what it blocks out was really interesting. the brain is pretty amazing, it reminds of reading about a person wearing glasses... ▪ The question on the floor, when I thought about I don't usually think about that. I asked my son that question and he said no, no i wouldn't .the facial expressions stood out because i was familiar with someone who had difficulty distinguishing facial expressions



5.0 Follow-up Phone Interview Study

Why did the exhibit stand out for you?	n=25	Sample Responses
		<ul style="list-style-type: none"> ▪ Who Lives Here: I like trying to figure that stuff out. Just because it looks that way it doesn't mean that the stereo type is correct. ▪ Because it was true. I personally think things like that are interesting - when you can prove something across the board, but can't explain why. ▪ It's something that I'm personally interested in. It was a game that challenged my own thinking on that sort of stuff.
Reference to the Social Aspect of the Exhibit	28%	<ul style="list-style-type: none"> ▪ Because my initial thought process was just very wrong. My kid wanted to play there for a long time. ▪ What I already described (because she got to see herself and other people react to the surprise) ▪ It was a topic of discussion that day with the person I was with... to interact with it, touch it, it was something that stayed with me . ▪ Because you had an interaction, you know similar cards separating in different ways. it requires focusing, which I usually don't.
Experiential, sensorial	28%	<ul style="list-style-type: none"> ▪ It was colors, it was very isolated, you sat there not strike anything else, and it was very visual. ▪ I'm not sure. Well, I remember smells, the mint and the oranges. The cartoon room I remember because of the couches. ▪ I will tell you, I had never gone through that experience before and it was really neat. It was like an ah ha experience. ▪ probably because that was the one I answered the question about. it just made it stick more. that's probably what makes it come back to mind ▪ Maybe the colors and smells because they were bright, distinct colors and interesting smells. And the game where you have to guess which door it's behind. Not sure which one stands out the most.
Fun	16%	<ul style="list-style-type: none"> ▪ It was one of the few that I actually tried. It was kind of neat. It was funny. ▪ It was fun. it made it into a competition.
Other	<10%	<ul style="list-style-type: none"> ▪ You had to stand in line to get in there. It was one of 2 things we checked out in that area. We stared at the lights on the back wall while we waited. New exhibits need to be near the front, not at the back. Me and my husband and out two teen boys were all tired by the time we got to the back [goes on to describe how there is so much to touch and do that they are tired by the time they get to the back] ▪ Seeing The degree of immediate hands on usage. (Anything else?) No, I was just watching them for a moment. (why do you think that stood out for you?) Just watching them play and interact with each as well as the exhibit.



5.0 Follow-up Phone Interview Study

Ideas from exhibits that visitors recall 3 months later.	n=25	Responses
No, I don't recall	48%	<ul style="list-style-type: none"> ▪
Content Related	24%	<ul style="list-style-type: none"> ▪ yeah, I think the skydiving raised questions about why different people have different drives, how we all approach life differently and why. nature vs. nurture ▪ A little bit... I don't know if I learned anything. I've done a lot of jobs in the past where I've tried to teach similar things. Like the fountain, just because you know it's clean doesn't mean your mind will let you drink out of the toilet. I'm a nanny now. In the past I took psychology, it was my major for a while. And as a camp counselor. I try to teach the kids that just because something looks a certain way, not to go by the stereo type but to experience it for themselves. ▪ Actually the cartoon one, I thought about how you can make anything cute like that, and I thought about it and its pretty true ▪ it definitely made me think about things I hadn't thought about in a long time. not necessarily new ideas, but things that I hadn't really though about in a while. ▪ Just interesting, that's the way other people see you. I didn't realized I looked that way.
Personal Ability	16%	<ul style="list-style-type: none"> ▪ I guess so, I thought that I'd be better at it than I was. It went into specific things that people do when they're lying that I wasn't aware of. ▪ My boy friend is a lot smarter than me. [probe] The two balls in different holes on a long square thing - you have to turn it and my boyfriend just walked right up and did it.
Other (Social, Reflect, Toilet)	12%	<ul style="list-style-type: none"> ▪ Just a realization of how we are and there's just no explanation ▪ I was really, I have an eight year old and a 4 year old, and I was surprised at the level of science that they could engage in at this age. the genetics up stairs and that they got the underlying principals behind it. my 4 year old loves to press buttons ▪ toilet drinking fountain, that's something new!



5.0 Follow-up Phone Interview Study

Feelings from exhibits that visitors recall 3 months later.	n=25	Responses
No, n/a	36%	<ul style="list-style-type: none"> ▪
Generally Positive	28%	<ul style="list-style-type: none"> ▪ I liked it, it was entertaining. Interesting to actually see what my face looks like when I'm surprised. ▪ It made me feel great. it made think how many times I do things without paying attention, and it made me really think. it funny, because I don't really realize something is second nature, and sometimes you miss things. ▪ It made me feel good. I like that perspective. I think it is an important way to approach relationships and understanding people ▪ Just an overall happy place. ▪ Made ma laugh. It was sort of charming, nothing major. ▪ I enjoyed that part of the exhibit. ▪ Mostly amusing, mostly very good, actually
Interested, Aware, Curious	24%	<ul style="list-style-type: none"> ▪ Not like negative or positive, just like an awareness, I guess. ▪ I guess it makes me feel, well, I wanted to see what was happening, it made we want to know more about how the mind works ▪ the large space, and large amount of science was reflecting the same idea of vastness of science seemed to be appropriate and funny and telling ▪ Intrigued, I guess. ▪ A little more curious about things [things in the exhibit, life in general?] It sparked my curiosity about something you would expect and not expect to do, I guess.
Toilet, Cognitive Dissonance	<10%	<ul style="list-style-type: none"> ▪ Made me realize it's perfectly clean, but just the way you are brought up. (What do you mean the way you were brought up?) You're taught toilets are dirty.
Other (Surprise, Tired)	<10%	<ul style="list-style-type: none"> ▪ I was surprised, but other than surprise it was fine. ▪ By the time wt got to the back we were tired [goes on to discuss this and reiterates that new exhibits should be near the front]



5.0 Follow-up Phone Interview Study

5.2.3 Apparent level of visitor engagement with these exhibits

Discussion of the Mind Collection and/or specific exhibits reveals a high level of engagement among a majority of these respondents (14). Six appeared to be moderately engaged and five not well engaged.

Level of Engagement	n=25	Description and Example
0: Low	20%	<p>Very minimally articulate or thoughtful about their exhibit experience. Often these visitors have literally nothing to say other than the vaguest notion.</p> <ul style="list-style-type: none"> No response, no exhibits recalled You had to stand in line to get in there. It was one of 2 things we checked out in that area. We stared at the lights on the back wall while we waited. New exhibits need to be near the front, not at the back. Me and my husband and our two teen boys were all tired by the time we got to the back [goes on to describe how there is so much to touch and do that they are tired by the time they get to the back]
1: Moderate	24%	<p>Moderately articulate, in discussing or describing their experience.</p> <ul style="list-style-type: none"> I'm not sure. Well, I remember smells, the mint and the oranges. The cartoon room I remember because of the couches.
2: High	56%	<p>Very articulate, descriptive and thoughtful about the exhibit experience, making wider generalizations or connections between one exhibit and another, or between this exhibit and something outside of the Museum.</p> <ul style="list-style-type: none"> It stood out because the different ways that the three of us interpreted it. It got us involved in a big discussion about autism. I work with autistic kids and my husband failed that test completely, he couldn't read the emotions. That's why we went - my son saw it on the plane. He showed it to us and wanted to go and we found out that it's in our back yard. [is that why it stood out?] Yes, the ad, and because it's so odd. You'd never get another chance to do that.



5.0 Follow-up Phone Interview Study

5.2.4 Do visitors think or talk about Mind Collection exhibits or content after their visit?

Since their visit to the Mind Collection, about half of these visitors report *not* thinking about/being reminded of it (52%) or talking about it with others (44%). Of those who had pondered it (28%), most made very thoughtful comments; some of which reveal that the respondent thinks about lessons or experiences in Mind quite frequently. Respondents reflect on specific content or lessons learned from the exhibits, relating it to their lives, but they do not articulate questions about minds or the Collection.

One respondent was very moved and has made lifestyle changes based on what s/he learned from the Mind Collection: “Anytime I see a pattern or a game or even the reading, I just remember oh I should pay attention now. To me it was a really great thing to remind me to pay attention. I am now into puzzles, I do Sudoku and trying other puzzles, and it really made me realize I need to use my brain.”

Have you thought about/has anything reminded you of your visit to Mind?	n=25	Responses
No	52%	
Yes, specific to Mind	28%	<ul style="list-style-type: none"> ▪ My husband is a painter and we were talking about color and I mentioned that one that's like a bowl with colors that you put over your head. [probe] Yes and he was talking about how the color yellow makes a room feel happy. ▪ There was something about facial expressions, but I can't recall what reminded me... something about the ability to interpret faces or not. ▪ There was an article in the paper about turning toilet water into drinking water. It's a great idea if you can get past the fact that it's toilet water. They can get it cleaner than regular tap water. ▪ Yes, I read a book that referred to one of the problems that is actually in your exhibit. the Monty Hall, Let's Make A Deal parallel. the book explains in detail why the normal intuition is wrong about that. it reminded me of thinking it at the Exploratorium. I didn't want to believe that the explanation at the Exploratorium was correct. <ul style="list-style-type: none"> ▪ Every time I eat an orange I think back to that day, or smell a rose. I heard that smell is really strong with memory, so I guess I kept thinking I'll remember it because of the smells. ▪ Many things. Anytime I see a pattern or a game or even the reading, I just remember oh I should pay attention now. To me it was a really great thing to remind me to pay attention. I am now into puzzles, I do Sudoku and trying other puzzles, and it really made me realize I need to use my brain. ▪ Card games, playing poker, trying to tell if someone is lying and things like that... other than cleaning my bathroom, the toilet, that is probably it.



5.0 Follow-up Phone Interview Study

Have you thought about/has anything reminded you of your visit to Mind?	n=25	Responses
Yes, non-specific [even after probing questions]	20%	<ul style="list-style-type: none"> ▪ Nothing specifically in my daily life, but I have a fun memory of my day there. ▪ I think, lately anytime i think of San Francisco. i hadn't been there in a very long time.

Did you talk with others about your visit?	n=25	Responses
No	44%	
Yes, in general terms	32%	<ul style="list-style-type: none"> ▪ With my friends and family members that we went there. [probe] Just how many things there are to do, first it's the building, the environment and the architecture. The whole thing. That you were able to save it... it didn't get turned into a restaurant or something, you guys did something creative, kind of giving back to the community. And so much to see and do. It's a great way to spend a morning. ▪ Yeah, I did actually. They were thinking of going and I recommended it. ▪ I told people it was good and they should go to it. [probe, specifics] Don't remember. ▪ no, not specifically but generally about the Exploratorium. I recommended that they go, and i think a couple did, and to bring the kids.
Yes, specifically about the Mind Collection	24%	<ul style="list-style-type: none"> ▪ yes, to many people. there was an exhibition that i wanted to see, but i bought a ticket but not a reservation. i loved the new game sand told many people about them ▪ I talked with the person I went with that day. We talked about how cool we both thought it was. Not just reading it somewhere, but actually experiencing it. ▪ Only if the Exploratorium came up in conversation. It came up the other day and we mentioned the new Mind exhibit - you gotta check out the toilet. ▪ i told my boyfriend's nieces and nephews. i told them about the drinking toilet, they're little kids, and they went "ewww", and me trying to guess if their uncle was lying. ▪ To my sister. Her and her boyfriend had gone a few weeks before. We talked about her experience and outs. We talked about the toucher dome... They mentioned the toilet and they didn't drink out of it. I told the lady I baby sit about it, that it would be great for her older son to go. I told some other families I sit. sure, lots of folks. ▪ I told a lot of people that it was a good place to bring your kids, because it was fun and educational. this is really corny, but that the mind exhibit would really make you think.



5.0 Follow-up Phone Interview Study

5.2.5 Other Comments

Anything else?	n=25	Responses
Positive comments	20%	<ul style="list-style-type: none"> ▪ just that i enjoyed it. ▪ I did think it was very good and professional and interesting.
Other, specific comments	12%	<ul style="list-style-type: none"> ▪ It would be nice if they could figure out a way to not let people touch that one (Easy Search, Difficult Search) ▪ No. Well, something not related to Mind, but I thought the overall area was a little dirty. ▪ Well I guess there were a couple that were closed which were disappointing, but that was it.
Mind exhibits are distinct, make more	<10%	<ul style="list-style-type: none"> ▪ I would say: AWESOME! i would be very happy to see that growing a little bigger. instead of just science experiments. more visual, more interactive, more interesting. More of those games. I now look for books now for brain games., because of the games of I did there. ▪ I think its good. I think they should develop it more. [probe] I was bummed it was all the way in the back. People might miss it. They need something to draw more attention to it. It's a big place and you can't do it all. As an adult, I think that was the most interesting one. [probe] deeper, more for adults, not just "roll this thing", for her "enlightenment" Completely different from the rest.

5.2.6 Evidence of Desired Exhibit Impacts

Three months post-visit, 23 of these 25 respondents evidence at least one of the Desired Exhibit Impacts. Most frequently, respondents evidence a fun/memorable experience (Impact 2A, 17), insights into mind functions (Impact 1A, 11), and awareness that Mind exhibits are distinct from others at the Museum (Impact 2C, 11). Note that 25% acknowledge in some way that the Mind exhibits are about one's own mind as opposed to external phenomena.



5.0 Follow-up Phone Interview Study

Desired Exhibit Impacts (per Mind Collection Developers)		Frequency n=25	
Impact 1	<p>Visitors will sense that these exhibits are vehicles for internal investigation, that the real subject of them is “my own mind” and/or the minds of other people who are present.</p> <p>A. Visitors experience new insights/learning about mind B. Visitors experience new insights/learning about themselves C. Visitors register surprise/fun/discomfort at the experience/insight</p> <ul style="list-style-type: none"> ▪ Because my initial thought process was just was very wrong. ▪ I will tell you, I had never gone thought that experience before and it was really neat. It was like an ah ha experience. 	A	44%
		B	24%
		C	24%
Impact 2	<p>Visitors have two or three singular experiences with the exhibit(s) that impressed them, stick out for them.</p> <p>A. Experiences that are fun, exciting, memorable B. Experiences that invoke the type of cognitive dissonance described above C. Experiences that make them aware that these exhibits are different from others in the Museum because “I’m exploring my own mind.” [though it is not important that visitors be able to articulate a distinction] D. Experiences that stick with them for unanticipated reasons...</p> <ul style="list-style-type: none"> ▪ It is clearly a separate focus but so was the auditory part. It clearly had a focus that was different from any other area. ▪ It seemed like a special exhibit. Almost like something in an art gallery, but I like all if it [Explo] equally well. [probe re: art gallery comment] A bit like the exhibit in MOMA where you walk through areas adn there are colors. 	A	68%
		B	20%
		C	44%
		D	<10%
Impact 3	<p>Visitors will understand that the mind can be studied...</p> <p>A. That they have been doing this themselves through these exhibits (see above) B. That the mind is the subject of study by researchers C. That the exhibits in this collection reflect the scientific study of the Mind and is not a collection of ‘touchy feely stuff’ and experiences that is ungrounded in science</p> <ul style="list-style-type: none"> ▪ I felt entertained, oh, wow, that’s 'interesting! I was stretched more there than in other areas. More for my enlightenment. I felt like I was challenged rather than just, roll this thing down and see if it goes faster. [probe] It was deeper, like that game brought up issues of sexism and racism. ▪ AWESOME! I would be very happy to see that growing a little bigger. instead of just science experiments. More visual, more interactive, more interesting. more of those games. I now look for books now for brain games. 	A	20%
		B	<10%
		C	0



5.0 Follow-up Phone Interview Study

5.3 Sample Demographics & Visit Description

A random sampling protocol was used to select participants. The target audience for this evaluation reflects the target audience for the Collection, all visitors age 11 and up.

Mind team members are curious about where the Collection figures into a visitor’s day at the Museum because it is located in the back of the facility. If visitors tend not to arrive to the Mind area until late in their visit, we can logically expect them to be more fatigued and perhaps limiting their time. These data show that a majority of these respondents visited the Mind Collection during the mid- to late afternoon (18) and toward the middle (10) or end (12) of their time at the Museum. During the course of the phone interviews, two respondents voiced being very tired by the time they were at Mind.

Pre- Question 5a

Where are you in your Exploratorium visit right now?	n=25	Late Morning 10:00-12:00	Early Afternoon 12:00-1:30	Mid-Afternoon 1:30-3:00	Late Afternoon 3:00-5:00
Near The Beginning	1	0	1	0	0
Near The Middle	10	1	1	4	5
Near The End	12	0	2	5	4

Pre- Question 5b

How many are in your group today?	n=25
One	1
Two	10
Three	4
Four	3
Five or more	4

Pre- Question 5c

Are you here....	n=25
Multigenerational	14
Adults With Peers	6
Adult alone	1
Teen With Peers	1
Teen Alone	0



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Pre- Question 5d

In what age range are you?	n=25
8-12	0
13-18	1
19-25	2
26-60	20
60+	0

Pre- Question 5e

What gender are you?	n=25
Female	18
Male	7

Pre- Question 5f

Does English appear to be a second language?	n=25
No	22
Yes	3



APPENDIX A – Visitor Responses to Pre Question 2

What do you expect to do or find out about in something called the Mind Collection?

- Oh, a lot of illusions & visual things. Optical, colorful things to determine left or right brain. A lot of lighting. Maybe phobias like arachnophobia; things people may be fearful of because of their mind.
- Probably how the mind works. What stimulates the mind. How it tricks itself. DK. That you're seeing one thing, but it's really another. I'm thinking of magic almost. The optical illusion.
- How the mind works, how we retain things, & how it tricks our perception.
- I have no idea but maybe how brain chemistry works, [like] right or left brain controls stuff, optical illusions & how your mind interprets pictures.
- Probably how the mind can play tricks on you. Your perceptions are different than the reality. Optical illusions for example. How the mind works. A collection of minds on display.
- Probably mind puzzle type things or different ways you might react.
- How their imaginations work; probably about the brain; [specific] how does it work; what's in it; how does it use your thinking.
- How the mind works, how we perceive the world & our place in it. How we interact with other people. More importantly, I expect to use all my senses to experience the exhibit.
- Something about the brain and how it works. Like how information is transmitted to your brain. DK.
- Don't know – how minds decide what to do & how they make decisions.
- How the mind works? How it collects & perceives information?
- Perceptions of things and how the mind works. Perceptions of reality, color, and light. Maybe memory.
- Haven't thought about it. When I hear "Mind Collection," I think we are going to explore the mind or brain. How memories are made or stored. How do neurons connect to each [other], how long term & short term memory are stored, and how they are different.
- I'm not sure. I have no idea. Maybe stuff about the brain. I'm imagining stuff about the different parts of the brain & how they interact with each other.
- Things that you have to think twice about. I had read about the toilet you can drink out of ("Sip of Conflict").
- How your mental processes work; how you make decisions. [Subject had read intro panel.]
- Well I read that (points to exhibit intro under "Mind" entrance sign). Anything you think you will see, do or endure. Probably about emotional reactions to things you see or experience. It's hard [to] imagine. Maybe. Well, I don't know. Something to do with the brain or reactions. I'm not sure, but look at some things that look interesting, like a ladder, a toilet, people's eyes. Lots of interesting stuff to react to.
- Probably how we perceive things. Maybe like how processes of mind work & how we see things in the world that's processed into image. Maybe thoughts & emotions.
- How minds decide what to do.
- Probably about perception & what happens internally. The mental mechanisms we use to perceive. By going into exhibit, just want to find out more.
- Maybe a brain or something. A real brain would be cool. How the mind works. Thought processes. Like doing math, just using your brain in every day life.
- How the human brain works. For example, how people think about things & how your mind works.
- About perception; how we perceive; thinking about the mind & processes; logic; how the brain works.
- I guess how your mind processes things.
- Maybe find out more about what your mind can do. Like what your mind can comprehend. Maybe see things people have done in the past that were life changing experiences. Because they would have seen something that made a broader understanding of how things work in your mind.
- No, not for mind. "Mind Collection" [makes me think about] memory. How the mind stores memory. How we remember things.
- Maybe how the brain works, how opinions are formulated, & maybe what colors mean something.
- Probably things that defy spatial reality, optical illusions



- Optical illusions I guess. Because what you see isn't always what you believe and seeing isn't always believing.
- Maybe optical illusions [and] beyond that. Something that challenges what you already believe, think is normal, or think reality is. I was already thinking about the toilet, but the more I thought about it, I wondered if it would bother me. Maybe [exhibit will] make me think different.
- Mind twisters. I expect for things to surprise me.
- I assume mind games, mind tricks [describe] An optical illusion, something where you look at it and it looks one way but in reality it is another.
- I would have thought optical illusions, but no. Maybe more about the anatomy of the brain.
- Don't know. You see something but in your mind it's something else.
- I think it would be puzzles or things that might require you to do a little thinking. I glanced in there, it looks interesting, Give you pause for thought. Maybe psychology.
- See stuff that is weird, isn't really there but seems like it is, like optical illusions.
- No idea. Maybe scientific experiments [like] you look at one thing & then look at [it] another way, like an illusion. Just scientific things. Different scientific things.
- No idea. How we're tricked and illusions.
- I guess, information as [to] how the mind works. Like in optical exhibit, shows what eye looks like & optical illusions. In here, same things for the mind.
- Optical illusions
- Maybe some optical illusions & some insights into perceptions. Why would it gross people out to drink out of the toilet? Why the two conflicting things, why your mind is split.
- I would think the mind.
- Just probably suppositions of how the mind works. I haven't given it a lot of thought actually. Very little expectations.
- No idea. I suppose something about how the mind works.
- Strange things about the mind. Things we didn't know about our mind. DK. Maybe tests that show minds can and can't do things or transform things. DK.
- I just expect some unique or curious perspective on the mind, but I have no idea. That's what I like about the Exploratorium; you never know what to expect.
- Information about the brain & information cells.
- Things that would have [to] do with how minds think. How they think; you could see it. Some people imagine things, but this is the proof how it really works.
- I guess, how and why the mind works.
- Exhibits that will stimulate the mind somehow. Like those Halloween things where it's a box and it's covered and you feel around, but what you feel and thing it is, isn't what it is.
- I'm expecting it to be like the other exhibits, interactive.
- Things that scare you, things that scare the mind. Like if something is nasty, you don't want to - if you find candy on the floor you wouldn't want to eat it even though it is candy.
- Unsure. The ad was comical. I had an argument with the virtual audience; the audience said [I] was stupid.
- Drinking out of toilet. A way to find out if you're lying or not. Walking under the ladder – that's what the news said.
- I am afraid it's a test I'll flunk, & I'm afraid I'll get dizzy.
- I don't know, sensory things? Seeing, hearing.
- No expectation; it's been a long time since I've been in here.
- Don't know.
- No idea, maybe like the tactile dance[?] -- about the senses get you to be more aware of all your senses.
- Just happy to find something to entertain 2-year old son.
- No clue. The museum is something totally different than what I thought.
- Toilet bowl I can drink out of it. Things that mess with your mind.
- No idea.
- I have no idea.



APPENDIX B – Visitor Responses to Post Question 8

Is there anything you had expected to do or find out about that wasn't there?

- More optical illusion drawing, like in psychology class. The old woman versus young woman. I thought it was really a neat idea, the toilet; it was great, creative & great photo opportunity.
- More how the brain works. The senses, how your brain reacts.
- I guess there'd be more on optical illusions, but I guess that's the other side. More, a lot on sensory perception with smells, but more on emotional response than what I thought it would be.
- Yeah, actually ... I know there is research in the link between different areas of the brain & the experiences that activate them.
- Not really, except why your mind works that way. After some exhibits, I was still confused at why that happens.
- The one suggestion I made. A lot had to do with perception and I want more anatomy, right brain, left brain, and handedness. How does the brain determine traits, like handedness.
- More experiments with short term & long term memory. I thought it would be interesting.
- The memory & the brain.
- Should have had stuff drop from ladder where the superstition came from, showing differences between male & female minds, if nay.
- More about babies; more on a less-trained mind. How an adult mind reacts to something versus a baby's mind.
- How you go from neural responses to complicated reasoning? How does [the] brain work?
- No. The ones where you had to guess who lived where – found it easy. The prominent things in the picture tipped you off right away.
- More optical illusions.
- The pores thing (See Yourself Sweat). I hadn't thought about how much our bodies perspire; thought it was when we did physical activity; just breathing is good enough.
- I thought there would be more exhibits on thought processes, that it would be more clinical than it was.
- No, not really. I guess I liked [that] they used sensory perception to get into the mind, a sensible way. It was different than reading a book; it brings home more intensely.
- No. Had probably everything, good variety, covered all aspects
- No, nothing. It had a nice variety. Everything was great, really interesting.
- No, I didn't have an expectation. I learned something [color thing]. I feel satisfied.
- No, thought it was great. Very well done.
- No. I really liked the gorilla one where you watch people bounce balls with white shirts.
- I thought it was more on lots of things. Showed how minds work & I didn't expect anything different; this was my first time with something like this.
- It was more about the technical mind than it was about shocking me. I'm more surprised by the exhibits out there (main floor).
- No (18)
- No, actually when I came I knew I would see things I wouldn't know about.
- No, [be]cause I didn't have specific expectations.
- I don't think so.
- No, came in with open mind, curious what was there.
- No preconceived notions
- No. It answered most of my questions.
- No, not really.
- No, no expectations
- Hard to say because I didn't have a chance to go all the way through it. DK.
- No. Not [I didn't have] a lot of preconceived ideas, I just wandered in mindlessly.
- I didn't have much expectations.



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- I really had no idea what would be in there.
- Not really. I didn't know what it was about to begin with.
- No, didn't really have any expectations.
- No. I didn't have a lot of expectations.
- Not really.
- Nothing really, like I said we went in with no expectations.
- I don't think so.
- I didn't expect anything; came here to see what's there.
- Not really; I didn't know what to expect.
- Can't really say. I think the museum would be a great place to come to with kids. If just wandering around, not purposefully, then can't judge exhibits that well.
- No, no expectations.



APPENDIX C – Visitor Responses to Pre Question 4 & Post-Question 7

Pre Question 4	Post Question 7
What ideas or questions do you have about minds or how they work?	Now that you've had a chance to visit the Mind Collection, I wonder what ideas or questions you have about minds or how they work?
I guess how exactly does it work, how you understand things, make connections, our emotions, & how mind determines emotions & your mind can see things & respond to what you're seeing. What drives a person.	How something that touches something & explains it. I don't find anything out I didn't know.
I really wonder about how we perceive something through our senses & how our minds process that. I know it works both ways, with one influencing the other. How they interact, the senses. I am very interested in interpersonal relationships. How we perceive someone else, like meeting someone for the first time, how I will perceive or have expectations of them. What past experiences will shape my perception of them, the new person.	I'm really curious about other people's experiences or reactions, especially the candidate one. How culture affects our minds, decisions, perceptions.
Well, I guess, connection between the mind & our thoughts. Our mind is something [that] allows us to get through obstacles; how you feel & how it all connects together; how our brain makes those things work.	Well, none right now. If I decided to study in a course, I'd study it then; right now I'm winging it & having fun.
I'm interested in thoughts & emotions. How they interrelate in the mind, how they're formed. Senses, perceptions, the whole gamut.	This was more about emotions than I expected. I still have all the same questions as I did when I came.
Usually when I think about it [mind], it's in connection to progression - to how people come to think the way they do, how they get there. [Think about] certain topics...an example would be politics...psychological. How do people's minds develop from childhood to adulthood?	How'd they get the camera on the fly? That's how my mind works: [asks] what's the process? More about perceptions than what I thought it was going to be. I didn't have too many expectations. I don't know if I learned anything new.
Mostly about memory & reactions, how the brain works physically.	No
DK. How is it possible that we can think and how all of this happens. How can we have memories of some things, but not of others.	DK how to say it. Connections between our feelings and what happens in our heads, our senses.
How much of it is chemical or something else, for a single person within their own mind. How much is outside force versus what is already there.	No
Brain is elementary – how do we get up to complicated reasoning from neuron responses; what is thought? What is reasoning?	I still have same questions you asked before, address perception questions, but don't go into deeper thinking or complicated reasoning or what thinking is.
The chemicals in our minds and how our brain creates the mind.	DK. I don't have any questions.
That's a hard question to answer in such a small space. I suppose I wonder about patterns of behavior the most.	Nothing that I didn't have before.

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Pre Question 4	Post Question 7
I think how interpreting colors or sounds. I don't know, music & identifying tunes. [If] a person [is] tone deaf, what places in the mind places in the mind I guess, Minds are different than a brain.	I like the association of things, seeing eyes & emotions; politicians I liked – through media & advertising, see how our minds are tricked. It's all about emotions & cheers; learning you are being sold an emotion. People can be sad without showing it in their eyes; getting past the brightness of colors & making up your mind; toilet; I can't settle for what's being sold, that's my spin. Letters are messed up, with practice you can get good about anything.
Interested in various locations inside our minds – some are more linear or holistic. I'm an artist; what happens where?	Exhibits bring out how important emotions are in how you perceive something, how you look at world, & how you are feeling.
How we can think of such weird things sometimes that we can't normally comprehend other times. I remember having that happen to me. DK.	I don't understand with the toilet, I was cautious, freaked out about drinking out of it. Why it's nerve-wracking to drink from, when I know it's clean water.
How your mind works in dreams. If people have accidents, a little piece controls so much.	No, but this is a great exhibit, what people wonder about. It's a fun way of discovering yourself.
Everything. I don't understand how they work. How you think something but don't say it.	I still have same questions but they're more specific.
Like why it works the way it does. How we can feel when something bad is going to happen.	How they can develop & do all this stuff. It's weird how we can think & see all we can see.
I don't know. It depends on your interest [whether or not] you'll find out things. A lot of different ways water works. If you are interested in that, then you'll see it & find out about doing research on it & look into it.	No questions, ideas ... I think it is funny how minds run in routine, like the toilet; you know but your mind still reacts the same.
I consider the plasticity of the mind, its ability to adapt, & how it ages.	No, I don't.
The thing I've been thinking about more recently is why our minds are set down certain paths. Habits of thought. Thinking, for example, one thing will happen & it doesn't happen repeatedly. Your mind adjusting to thinking it won't happen.	I found it reassuring; when you live inside a mind, you think certain things are unique to you, but [they are] really a common function of the mind.
Interested in visual, illusions. Like the posters on the board over by the bathroom, your eye, or mind, places a pattern there that really is just a bundle of squares and triangles.	Nothing really, like I said, just went in to experience it.
Why when you spin around you get dizzy even though you stopped spinning.	How is a reaction to being scared, how it can be measured.
I thought about it on the news. Common sense versus what you really believe. You're not supposed to drink out of toilet, but you know this one is clean, [yet] you still don't want to drink.	Why we think certain things/opinions. How you can make judgments about people (referred to house exhibit).
How they make our bodies do different things, like movements.	No
Learned responses – how we end up being who we are. Psychology of the mind. How my son gets his personality.	I think it answered questions for me. I knew a lot of answers & it fortified answers for me, tested those principals.
Why do we have minds? Why do we have them? Why aren't we all just robots? DK. Why we don't all think the same and have the same emotions and feelings.	Why in different situations your mind responds or acts differently? If you walk in a room if it's black or pink, how it affects our mind.

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Pre Question 4	Post Question 7
<p>I'm fascinated by the research being done [on] the brain, which is, you know, a lump of jelly. More & more research done in recent years shows more & more information. I think it's interesting how people perceive things. Nature versus nurture. How the nature of our brains can inform our emotions. Or how our emotions can affect how our brains perceive things. The way those two affect each other & the big impact on our lives.</p>	<p>Nothing surprising in there. What I expected, emotional reactions to things. Nothing surprising.</p>
<p>I'm interested in how drugs affect the mind. Social interactions & how the mind works; I just took a psycho-pharmacology class.</p>	<p>I wonder if you put finger stress sensor in the public speaking booth (Center of Attention), what the readings would show for the different crowds' responses.</p>
<p>Like when you do something you know not to do, you do it anyways (sic), you think about the consequences [yet] do it anyways (sic); & also, like when you have dreams, how your mind gives you those images.</p>	<p>I don't have questions.</p>
<p>How one person can think so negative, but another can think positive about the same thing. Like if your boyfriend goes out without you. Some people think that is disrespectful, but you know if you're cool with it so what. Like how people always argue about what's healthy? What's not. Or magic, some people know it's something moving something out of sight, and some people think, you know, it just happens.</p>	<p>No. I actually understand it.</p>
<p>Not really questions or ideas. Drinking out of a toilet, it's just wrong. Our preconceived notions of what's right and wrong.</p>	<p>Just goes to show you, you don't know everything even if you have ideas or good perception it doesn't mean you're right.</p>
<p>I guess more of a physiological versus psychological aspect of the mind. More the biology of it. We only use a certain percentage of our brains. Why is that?</p>	<p>No, it was an interesting addition to my education.</p>
<p>The physiological side of it and a lot of questions about morality. Maybe it's related to physiology and some people who don't seem to sense what's right or wrong and some do. Maybe a physiological component to this. There was an article in Time about this recently.</p>	<p>I'm trying to understand more of the subtleties and more parts of the subconscious mind.</p>
<p>Recently I think about how the substances people take influence their cognitive abilities. Over last few years . Alcohol, pharmaceuticals, and over the counter stuff; diet meds., that kind of thing. Minds can be easily tricked. Sometimes peoples' emotions are at forefront of what they're thinking so what's in their heads is a trigger response - not carefully thought out. There's not always a time for analysis or a knee-jerk quick response.</p>	<p>I wish there was something about someone's price point. Where a top price and you get it to go higher. If you're an independent contractor, you could see how high they're willing to go. The psychology in pricing.</p>
<p>How memories are stored. Essential memories. Is it a combination, the synapses & connections in the brain? How they store memory is amazing, but I don't understand.</p>	<p>I wonder why something so logical, it's obviously a toilet you can drink out of, people won't do it or walk under the ladder.</p>
<p>One thing always intrigues me is color perception. How our.. the actual light hitting your eyes is us perceiving color and as we grow up we're told this is red, this is blue. Is the blue I see the same as the blue you see? If I look through your eyes it might look green to me. Memory, how we store things and retrieve it.</p>	<p>Still the ones I said when I came in are the ones of most interest.</p>

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Pre Question 4	Post Question 7
How many etons[?] are stored for short term memory? Same for everyone or different? Haven't thought of any other questions.	How the insights can be, can be generated, can be incubated. How the prejudice decides upon us. [For example,] I think about wood tools & the cards you place & the other one (points to phone).
Pretty much how they work. Like memory & that is stored. We know how computer memory works, but how do we store [memory]? Is it chemical or electrical? I just didn't understand that at all.	What I love, am interested about was in memory & how it works. Some exhibits were like tests for your memory but didn't really answer the question I had when I walked in.
Mostly how to teach & retain, how to help memory.	Didn't get to do everything (since with kid). A good variety but not leaving with questions.
How does the brain which is fat, store memory. Our brain is made of fat but how does it store the information in there? I know it has to do with electrical current.	No, none.
Fascinated with how memory is stored.	Yes, I do. Pondered people for thousands of years how intangible items like thought translate into physical processes.
An interest as a specialized teacher – how it affects learning.	Understand how left & right brains play into this & how learning styles play into this, & [how] group reactions differ.
I haven't thought about that. I want to find out if this will change my mind or give me some new information.	The cute exhibit was interesting, would have been interested if they could have defined what makes someone beautiful or pretty.
None at the moment	No
None	No
No questions	No
None yet.	No
DK.	How different things work, different parts of the brain. Like memory and sight. I'm wondering about those connections. Because they come to mind.
DK.	I don't remember what all was there. Too much at once. DK.
Maybe, nothing comes to mind.	Um, no questions.
Couldn't say	No
Not spontaneously. No.	No.
From a health care background, & because of my family members, want to know about Alzheimer's & how to prevent it. Also I hope my kids explore their minds & are bright.	Not any questions, but very interesting how your mind plays tricks on you. I think I read people well.
How or why they develop? Why are some people smarter? Is it genetic or environmental factors? How can two smart people have a dumb kid? Is it them? Too many other questions for you to write down.	Whether or not as you get old, do you learn more? If you did them repeatedly, would you get better? As you age, are you stuck at your level?

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Pre Question 4	Post Question 7
I'm an 8th grade teacher so I have some brain development theory. I'm interested mostly in consciousness: where it goes, where does it go? Why do you dream about people and situations you don't want to dream about or aren't really relevant? The things that just pop up.	No, I didn't have specific questions going in. I'm just a naturally curious person.
What causes Alzheimer's? We just had an aunt recently pass away.	None, really.
Medical ideas. I'm studying medicine. It's all about neurons.	No questions left. He already explained everything (looked at partner, who identified himself as a brain neurobiologist).
How much of the brain/mind do we actually use? How much is functioning? I'm interpreting mind and brain as synonymous. Always hear different amounts of brain/mind you use.	I have a suggestion. One activity that talked about electing people based on an image. Have more about the isms, like racism, sexism, etceteras. And have that activity with those isms. It's unusual and may play an important role for kids to see those things. Opens-up discussion as a teacher about racism or a bias, not just the quality of pictures. There are various screens or categories with our perceptions. 5th grade has a lot about the brain and I want to see biology, like for the reaction time exhibit and where nerve endings go. Diagrams to show where the nerves are.
How senses are divided & which parts of the brain deal with which sense. Sometimes I wonder about dreams, what influences our dreams, why we dream the things we do.	It seemed like it had a lot to do with self & others' perceptions, so maybe a technical explanation, a literal one. Showing parts of the brain correspond to smells & senses.
Biggest question is how people perceive differently the same things or same sequence of things. My job is writing & explaining things; people come to different conclusions or perceptions of something I describe the mind as an erratic computer.	I guess the biggest question ... Great individual exhibits, but what ties them together – looking for a narrative that does this, explains the principles behind the phenomena. The individual exhibits show how the mind works, but what are the underlying principles behind the phenomena in the exhibit?
I guess how people can look at things and see them differently, how they process differently, and why that is the case.	The only thing I regret is [the] rest of group is ahead of me, didn't get to compare against group – you got more out of it with a partnered group.
Too many, but specifically about schizophrenia (I'm hopefully going to school to be a psychiatrist.)	I still don't get the [judging] odds one, even though it's been explained to me several times. I still don't get it.
Many always curious about the idea that we don't use all of the mind that's available to us.	We have blinders on in some ways. It's good to see examples of the way we see things, the reinforcement.
Our capacity, weather or not we're using all of it. How & why we can use more of it or the whole idea of ESP.	I don't know. I thought it was pretty thorough, pretty cool. I liked the mind games, talking about perceptions & how we perceive things.



APPENDIX D – Visitor Responses to Post Questions 2-6

Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
Albert Is Watching	It caught attention right away [as] interactive. Both robots. I don't do anything? It reacts to me.	It made me kind of nervous because I didn't expect it. I didn't expect it to move [or] to respond to me without doing anything.	
Animal Camera	I'm really interested in the natural world, & seeing how animals experience our same world was really cool. You didn't necessarily have to physically participate. For me it was very relaxing, kind of meditative. Everything else is so hands-on, to be able to just observe. Everything else you had to use your other senses; this was more spiritual. As a person alone, a lot of the other exhibits take two people. This I could do on my own.	It was just fun to watch. It sort of teaches me about myself. I was looking for something less crowded.	
Animal Camera	I'm interested in animals. I watch animals a lot, & it is interesting for me to see from their point of view as an outside observer. I guess because some of it was unexpected. [For example,] the tortoise that just pushes, how fast the turkeys move through the grass, the scorpion seemed to move with a real sense of purpose.	Yeah. I think I have an assumption that some creatures are more random with their movement than they appear to be, [like] the scorpion. I don't give enough credit for its intention.	Egocentric. It is a bias I have that mammals, especially humans, have more intention than other animals.
A Sip of Conflict	Made you realize how humans are different from dogs. Dogs see things as they really are.	Yes. I thought I could do it, but when I took a drink, it was repellent.	Engaged, interested.
A Sip of Conflict	The toilet was freaking me out. Not supposed to drink out of it. It's gross.	Kids can drink out of it, but adults say no; it's a learned experience.	
A Sip of Conflict	It is very realistic, the stains. I got a kick watching people going up & deciding whether to drink or not.	That even though someone tells you something is sanitary, they will still not do it. Even though they know, their mind won't let them. The mind is really strong, to have old ideas not let you do something.	
A Sip of Conflict	I think it is a very strong emotional response; no one wants to drink from the toilet.	I didn't use it. For some reason I didn't walk under the ladder. It is too ingrained in my head not to drink from a toilet.	I think I had a reaction to watching other people try or not try. I was laughing. The feeling [came up], not "that's wrong," but it's a part of us, a deeply ingrained belief that you react to.

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
A Sip of Conflict	I was at first, no way. I mean it was just water, but my first reaction was no because it is a toilet! It's filthy. I mean, I know it's clean, but still no way.	No, I didn't.	It makes me feel a little silly. I know it is pure water, but it just makes me not want to. I mean I know it is clean, I'll probably do it on a dare. Maybe, well, no, I know I'll drink out of it before I go, but my mind still says, "No, don't!"
A Sip of Conflict	That it was a toilet as a drinking fountain; my perception is that it is gross. Read the sign, realized my mind said it's clean, but still couldn't do it the boys had no problem.	Nothing new about myself but interesting to see how it contrasted with myself & others.	Didn't make me feel good or bad, just interesting, curious why I would react one way & others differently.
A Sip of Conflict	You don't normally drink out of a toilet.	Yeah, I'm not willing to drink out of a toilet.	[Feel it would be] interesting to have a toilet water fountain at school.
A Sip of Conflict	Just the fact of not wanting to drink from it because it was a toilet.	Yes, that the mind is very powerful. It can trick you sometimes. Sometimes if you think you can do something, you're mind can switch it around.	Curious
Sip of conflict.	The fact that it's a toilet, that's just weird and random. Think about drinking out of it and that's weird. Being like a dog. [I did drink out of it].	Just that I realize more things than I think I realize. That the way I feel about things and my emotions. That I judge things before I realize what they are.	Kind of bad that I just judge things.
Be Here Now	How many times my mind wandered.	Also, I was a little taken aback by Startle Response. I didn't have much reaction at all.	Concerned my mind wanders, yet I don't react. What's up with that?
Be Here Now	I haven't realized how many times my mind wanders, and it shows an interesting way to count them. I had never thought of that before.	About myself, I learned it is very difficult to focus my attention & breathing.	I have to work on my attention span & concentration. I don't know why [it makes me feel this way], I thought I could concentrate more and wander so much even though I tried my best not to.
Be here now	I didn't like it. It relies on you pressing the button, which feels less accurate.	No.	.
Bronze Hand	It was kind of freaky. Concentration psyched out into thinking that was your hand.	I'm pretty normal; same reaction as everyone else.	.
Cabinet of Cuteness	How the perception of cute is & how we're marketed for it. Also, there was the immediate, "Oh, I get it!" It was amusing listening to other people's reactions. The girls	Maybe. I probably had a stronger reaction than I thought. Opening the drawers, not only my reaction, but other people's as well. People of other ages.	.

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
	going "ooh, cute," that was fun. The cabinets that were filled with cute stuff. I kept waiting for a gruesome one, but it was all cute.		
Cabinet of Cuteness	Well, I'm thinking about both sides of it (points to young son). It's interactive, so he can pull out the drawers and see what's happening. [any thing else] No, just that it was interactive and interesting.	Yeah, I didn't know much about cuteness and how your mind creates those associations. (Points to son) he really liked it.	
Center of Attention	I was surprised at how I responded emotionally.	The habit patterns are there, even though the environment is not real.	It made me realize that i am vulnerable to the environment & people's responses to me.
Center of Attention	I liked attention. They ask you to say something, it's interesting if they boo you or applause.	Not really	
Center of Attention	It makes you feel happy & then it tears you down. Instead of getting a compliment, you get rejected. It was hard; it hurt.	Yeah, I'm very emotional.	Not strong, & I thought I was. I thought it was a good test. It got to me. It makes you feel really good in the beginning but cuts you down. It can still affect emotion, even a machine. I thought I was strong, & whatever, not let other people get to me. But even a machine.
Center of Attention	I give a lot of speeches, [so] very relevant.	How people's opinions, whether approval or disapproval, translate into physical feelings even though the[ir] approval is not real.	Made me feel it was real.
Center of Attention	It was very personal & individual [because] it's an interactive experience. You're isolated & you're responding to other people's reactions.	That people's vocal responses can affect emotion.	With different responses – some with joy, apprehension, disappointment. The point of the exhibit is to examine; I think it was successful.
Center of attention.	I felt like I was in front of a crowd. At the microphone with everyone laughing at you. How could I imagine I was in that situation even though I was in that little room with nobody. It felt like I was around millions of people.	That I wouldn't like to speak in front of people.	Very bad, uncomfortable because of the laughing.
Color Conflicts	How hard you have to concentrate to do it. It's hard. Sometimes you just read the words & don't see the colors.	You have perceptions. If you know the words, it's harder to do it. If you read a language you don't know, you could tell the color really fast.	

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
Color Conflicts	Made me aware of the conflict in my mind, two parts of brain arguing with each other.	Yeah, I must, thought I was right-brained. The text had as much impact as the color I was trying to name, so now I might be [equal] parts left- & right-brained.	
Color Your Judgment	The connection between what your eyes were seeing & what [your] nose was telling you.	Just how much of an influence the color had on what I was seeing.	It was frustrating at times but worse as a parent as when the color math.
Color Your Judgment	Marsha, the explainer.	That I'm very mathematical.	
Color Your Judgment	I just like smelling things.		
Color Your Judgment	It made me realize if smell something so strong & if smell other stuff, you are less sensitive to other smells		Surprised
Color Your Judgment	I'm good at smelling things. I could tell immediately what it was. All the smells; vinegar, pipe, I knew them immediately.	I have a good nose. I didn't [know] I was that good at smelling things.	It makes me feel good that I have a sharp nose. That I have another sense other than my eyes that I'm good at. When I smelled the vinegar, I knew right away because I smell salt & vinegar chips, but I had never smelled vinegar straight on, but I knew, it corresponded with that, the chips.
Communicate with Your Body	My daughter thought they [masks] were hysterical.		
Communicate with Your Body	I have a small group of friends. We understand each other really well & can read body language really well.	Not really. Let me explore it a little bit.	Kinda goofy.
Competent Candidates	The way you judged people who won based solely on looks. It was amazing how similar results were and [how] much it affected the election.	Yeah, how linked we are to the way we perceive people based on physical characteristics.	It makes me feel glad that we can make judgments beyond superficial things. But it makes me scared that we react so quickly to those things. What was hard, was the first race was white versus black, and that made me uncomfortable [as it was] one of those things you encounter everyday but a

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
			topic we sidestep. It is very relevant to Obama & the current presidential race.
Competent Candidates	Yes, we've known this; it's amazing how mercurial our elections area, based on looks & not substance.	How I'm equally susceptible to looks for smiles tap into my own personal bias.	Disappointing.
Count the Bounces	Because it was a surprising result; other exhibits; I had an idea about the result.	I discovered something about attention & focus. Things outside your focus are lost, even when some of those things are surprising or obvious.	.
Count the Bounces	Because I didn't see the gorilla at all the first time. I was just counting the bounces, not paying attention to the rest.	That if you focus on something, we can miss a lot of other things.	It's a strange feeling that you can miss something so easily.
Cute-ify	Different people's perceptions of what is cute differs.	I was there with my nephew & my friend. My nephew was playing with buttons. We were playing with the cat. I like my cats a little fat.	.
Cute-ify	I had never thought about, round stuff with big eyes as cute. Cuteness is an instinctive thing that relates to babies. Big head, big eyes, it is cuter than small head, small eyes. It reminds you of a baby.	I have discovered that [I] have the same cuteness instinctive feeling as other people.	I don't know. If I were a toy designer, I should make stuff more rounder. There are specifications for making toys for babies.
Dare to Compare	A little bit	Had to judge on each level. I thought I'd be more or less, but was in middle of a lot of them.	.
Dare to Compare	We found out we were opposites.	That's what makes the marriage fun; we already knew that.	.
Dare to Compare	You can look at what you do & how you are compared to what you think you are.	No, I thought about what I do but didn't discover anything new.	Good, I guess, because it's cool to know what you are.
Dare to compare	We did each other. I didn't expect it to be that close. You always see yourself differently than others do.	It was interesting that I, and another person did it as inclusive. One didn't cancel the other out.	Just the way we think. A left brain vs. right brain kind of thing. The way you reason.
Divided Attention	Again, surprising result. It was difficult to go above four balls.	Just how hard it was to multi-task, which is what they do daily. This would make for a good exhibit – hold a cell phone conversation while driving; it's surprising how	.

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
		poor people are at multi-tasking.	
Divided Attention	I didn't do it very well. Most people can do two or three; two is the maximum for me.	No	No, my goal in coming here to the museum was not to be introspective; I'm a tourist.
Easy search	Finding one thing different in a pattern. Cause I like visual puzzles. DK why. Pattern recognition I guess.	Not really.	No.
Emotion Tracer	How some questions can make you feel. They may be dull questions, but they make you feel excited, the screen shows you that.		I like attention.
Emotion Tracer	It was interesting to see the emotions. My line was going down, then when it said I had to sing, it went way up.	[and sweat] shows you how you sweat when you're embarrassed; you sweat more. It was interesting to see that.	
Emotion Tracer	It was really entertaining. You got to see how other person was feeling even if they weren't saying what they were feeling.	No.	Made me feel entertained.
Emotion Trace.	In terms of my students, I'm a teacher, it shows the science of how a lie detector test works, how it works and cool feedback so kids can see how it works. I like the interactive aspect of it.	I learned about how your thoughts can control the biology of your mind, and the mental aspect can control the physical aspect.	It's encouraging, I'm a biology person; so a lot of times they talk about mental aspects helping with physical sickness, like placebos. Mental perception may be a way to help people out medically.
Emotion Trace.	Weird how it actually worked. It could tell when I was sad or happy. It could tell what I was thinking I guess.	No.	n/a
Judging the Odds	Gut reactions like concept of gut reactions. They're generally true, had I stuck with my gut, I would have gotten the right door.	I discovered about minds ... [got distracted and didn't finish thought]	
Judging the Odds	Just that when you start off with four doors, chance is 75%; when you eliminate one door, the odds are better, changing your mind is logical. Everything influences the next step.	Yeah, really look at things systematically.	Curious, maybe.

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
Judging the Odds	The math for it, the odds while you play. The 25%, because you shouldn't stick to your decision. The odds, it's better if you change after the first door, but people think it's still so-so odds.	That your perceived idea isn't always right. People stick to a previous decision when they should change it.	That if I play that Monty Hall game again, I'll probably come out ahead.
Judging the odds	First I started as a guesser and then I went to the other side. It gave you better understanding of the game and how it works. You have a 50/50 chance to get it right, but it changes with your choice.	That choosing the 2 doors, it felt like I already lost. I kind of second guessed myself.	I already felt like they know what the answer is. It kind of gave it a way, the answer was written on my face. They already knew the door, because I gave it away.
Mind Cinema	They were funny. I was trying to figure out why they were playing them.	No, they were kid ones.	.
Mind Cinema	The humor	No	.
Mind Cinema	The audience was fun [as] they were teenagers & there was a lot of commentary, & it was funny. Especially about the triangle & the circle.	I'm a lot more restrained than a group of teenager[s]. In my manners. [for example] I don't comment out loud in a movie theater, well at least not now.	I feel like such an old foggy. I don't think I have any feelings about it.
Mind Cinema	Deadly sour candy made me laugh.	It was making my mouth water, salivate, just watching them. I started to experience that myself. It was funny.	.
Mind Cinema	Reminded me of my introductory to psychology class, so I walked out.	.	No
Mind Cinema [film about base jumper]	Curious about it and the guy is definitely an adrenaline junky. It's kind of crazy, not detached from reality. I've seen pictures in the paper, but curious.	I correlated it to some other explanations and spots [balls] in the left hand corner and brightened across the screen. Because it's unusual you tend to notice the red spot even though you see the black dot. It's like a fire or a car accident is in slow motion, it feels like it takes a long time when it's happening quickly. He said when he jumped in the suit, even when you're in the air for a few seconds it feels longer. Because it's an unusual event.	
Mirrorly a Window	It was eerie. The idea that you think you're looking at your hand, but it's messing with your mind. Your mind's saying something's wrong here.	I discovered that the mind and the body don't always work together. Each has a mind of its own.	DK.

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
Mirrorly a Window	It's how your brain tries to fill in; with how it thinks something should be there.	Sometimes you may expect to see things, you might swear you saw something in and old photograph or on TV, but really you mind just filled it in. For example, when you are driving, you are so focussed on something, that your mind fills in or doesn't see certain things.	
Mood Lighting	Didn't think it would have an effect on me, but it actually did. The lighter colors made me happier.		
Mood Lighting	Loved it. I want one. I don't know, direct cause & effect. I could see it being a product sold in a store, or I might make one for my house.	Nothing in particular	
Mood Lighting	Because it put me in a good mood. I was starting to get tired & it woke me up.	I had thought that blue would make me feel best because [it is] one of my favorite colors, but purple turned out to be the most calming.	
Mood Lighting	It was clear; could see it really [well].	No	Felt relaxed.
Mood Lighting	It has more to do with emotions. Cause I was interested in feelings. The jump from blue to green, it made it [the orb space] feel small in a good way. It was the strange response that I had.	Yes, that my surroundings affect me more than I realize. I want one for my house.	Like I'm going to go home and think about it because I seek to improve my life. My bedroom is painted yellow; green might be nice.
Perilous Portal	Because it stood out. Everyone says if you go under the ladder you have bad luck.	No	Interested
Poker Face	Because it was funny.	Difficult to say.	Couldn't say.
Poker Face	Because I got it right. [From] playing poker already, you look for tells and seeing it in a true test was interesting.	Not really.	DK.
Polite Smile, Delight Smile	It [comes] from experience; most people can determine if a person's expression is expressive of their emotions or feelings. The fact that you can determine a person's emotion just by observing. Most people can determine that by	I think I'm more of a practical person [who] need[s] to observe & try out before I believe.	The purpose was to determine which is real or fake. You know, according to the facial expression, musculature, & I could know what my fake smile would look like, the way I could determine those

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
	facial expressions.		people's.
Reading Eyes	It's interesting how language is less important than body expressions sometimes.	.	Surprised about how you can communicate; there are standardized ways of asking certain questions through the eyes [like] "Are you okay?", [while] others are harder.
reading eyes	You could tell what people were thinking or trying to say just by their eyes.	No.	n/a.
See Yourself Sweat	It was gross. Amazing how easily you sweat.	Sweat really easily.	Made me feel entertained.
See Yourself Sweat	You could tell when you're lying.	Yes, it is really hard to lie.	Felt annoyed that I couldn't lie.
See yourself sweat.	That I could think of something to see the bead [of sweat] even when I knew I was thinking of it to make myself sweat. I like seeing something under the magnifying lens.	That emotions of thoughts can cause a physical response more than I thought it would. You know you're doing it just to do it. You think it would negate the effect but you can still produce the effect, even knowing.	Interesting. I thought, I guess I can't fool a lie detector after all.
Startle Response	I was surprised by how much I [was] startled.	I startle easier than I thought.	.
Startle Response	It was funny. A lot of them were more participatory but I wasn't doing much of that.	.	.
Startle Response	Cause I was focused so much on what was coming out.	Well, I noticed when a person is worried or stressed, nothing really gets to them. I scare easily.	If somebody knows, it scares me; it is like snitching on myself. It's like that I'm worrying about something & I'm not lying, if then someone sees I'm worried or scared, then they know, they caught me.

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
Startle Response	It was unexpected. It was such a random thing. I was expecting something to happen on the screen. My aunt sends emails of a snow cap[ped] mountain & all of a sudden a Sasquatch with a Yeti jump out at you; I was expecting visual startle, not an audio one.	I know how to get scared.	.
startle response	The starte response was disconcerting. Just the visual [of startle response]. Your expression...it was funny.	I didn't learn about myself. DK.	It was funny.
Startle Response	It can show how scary something is.	You can laugh and be scared at the same time.	Funny and scared. It was funny to see yourself scared.
Stretching your attention	Because you have to multi-task, pay attention to two things at once, pay attention to what letter it was & find the bird.	I'm bad at multi-tasking, but the exhibit was cool.	Embarrassed
Stretching Your Attention	The perception of what you thought it was. You tried to concentrate on the letters less than the bird, but if you concentrated more on the one or the other you'd lose it.	Not really. Don't know, don't think about it. Really.	I was feeling dumb because it seemed so simple but if I concentrated on one, I lost the other.
Stretch your attention	It made me realize how difficult it is to keep track of many things. And you could compare your memory capacity and visual capacity with other people.	Only the fact, that feedback of whether I'd be able to be at the same level as other people. That was pretty straightforward.	It was a good challenge. One of those activities that forces you to focus on that activity when you're at it.
Stretch Attention	I spent the most time on that one. I wanted to get better at it.	I'm slow, I need to play "brain age" to get better.	I could only remember one thing at a time. It made me feel stupid. I wanted to get better, make my mind stronger. Work out my mind.
Stretch Your Attention	The chance to coordinate and concentrate. Because concentration is a nice feeling.	I'm not sure if it's from the game. The concentration game shows that your mind is able to learn.	Good, my mind is able to learn, an interesting experience. Can think they [minds] could be different.

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
Talk to Daisy	It's so random, but a lot of conversations we have are random; the act of talking is more important than the conversation.	I guess, I gotta think, you get validation with someone saying something back to you. I was thinking of computer as person; context – if I'm talking to you in this context they'd make sense & be relevant to you that computer is picking up from anywhere & it's making connections to previous conversations it's heard before; it's more relevant than I would have predicted; maybe people don't say anything important; you could associate it to anything. It is a girl daisy or really anything.	
Talk to Daisy	I was really interested in the computer program [Daisy], how life-like it could be. I think I got off to the wrong start with the first word, but missing a space. Not as good as I anticipated because I thought the machine would be more advanced. The man ahead of me was really into it.	No. Nothing I already didn't know.	Through the whole thing I felt I knew how I would react. I didn't go under the ladder. I don't need any push in one direction besides a good one. [indicated ladder bad luck].
Talk to daisy.	Because it was so smart. If you can call it smart. I would say things and it would start making things out of my sentences.	Not really. Just interesting how it was talking back to me.	Like I was talking to a real person. Like nervous about what I would say next, not knowing what it would say back to me.
Talk to Daisy	Most of the time I didn't understand. Sometimes it had an intelligent answer.	Well, that there was something giving it ideas.	
The Eyes Have It	Shocked that my 6-year-old son could get almost all of them right.	Just that it re-emphasized the perceptions; the clues that you perceive are not always reality, they can trick you. We're more of an animal, less rational; we don't like to be tricked as it makes us feel less than we are.	
The Eyes Have It	Everyday activities [that] you do daily.	I can interpret just using eyes how someone is feeling.	I must be perceptive.

The Mind Collection Exploratorium Summative Evaluation



Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
the eyes have it	The one with the eyes where you identify the feelings. The implication that your brain is doing more than you consciously realize. Maybe untapped potential. You should trust gut feelings more. It's not logical, you may be reading things you don't consciously realize.	Not really. I don't think I gave it a chance, I was too busy. [see Q4]	DK.
Time to Think (Reaction Time)	I did a reaction time when I was about 10 years [old]; it's significantly slower now.	When I was confused about what to do, I failed miserably.	
Time to Think (Reaction Time)	Just tricked your mind when it flashed. You were expecting to see "go" (when it said "Don't go.")	Not really	
Time to think.	Because it was fun. I was racing myself.	That I'm slow. It does not make me look good.	competitive
Time to think.	Weird how you would just react instantly without thinking about it. It says don't go, but you do.	It surprises you because you're not expecting anything. Yeah, I found out I can be a lot less attentive, a lot, than when I'm thinking really hard than when I'm not thinking hardly at all.	Made me feel dumb about myself. Makes you want to slack off more.
Trading Places	Surprised. Didn't know the game; couldn't sort female & career as fast as male & career.	Thought that such differences were exaggerated.	Surprised I was caught up in them (exaggeration of differences).
Trading Places	Because it was really more difficult when you match male with family & female with career. Female & family are more closely related than female & career in our society. When you mix them up, it's a lot harder.	Just discovered that [I] hadn't realized how strongly I had associated those words.	It makes you feel like you're stereotyping certain words: male, female, career. It was frustrating on the second side, trying to associate the new categories.
Trading places.	That the light on the different sides confuses your mind. One side white and one side dark on the other, makes you think differently. DK. One side of the exhibit is dark with the same exact thing, same cards.	That I work better when it's dark. Maybe we should have school in the dark. I was faster.	Cool, like I'm nocturnal.
Trading places	Even though I'm an educated woman with my own career, how much easier it was to associate "man" with career. I went to college, I'm going to be a doctor, but for whatever reason, "man with career" was just easier to do.	Just the way that culture affects you, that society affects the subconscious of the mind.	

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
True Mirrors	Had always known that was the case but interesting to see.	Made me wonder whether people see me different[ly] than I see myself.	.
True Mirrors	Hard to explain; it's strange to see how you perceive yourself & how others see you.	Not really	Entertaining
True Mirrors	I guess looking at myself the way I do everything is slightly more comforting than seeing how others see you.	I guess, it put thoughts into my head, made me think a little, made me change my perspective on myself.	No, not really.
Who Lives Here?	Because i got them all right	That I can pick up on certain things.	.
Who Lives Here?	It was a well-done exhibit.	I'm very observant.	.
Who Lives Here?	Just [that] it showed we tend to stereo-type people by what they have in their house or what they wear.	I, too, tend to stereo-type people & sometimes [am] judgmental.	I think I need to be less judgmental about people.
Who Lives Here?	It's one of those things that are not okay, kind of re-enforcing stereotyping. The thing that you're not supposed to do, everyone does do.	That I also have the same stereotypes.	Not so great, but it may be okay to have those stereotypes. That sometimes stereotyping is correct & not negative.
Who Lives Here?	Because it makes me find out something about myself that I didn't expect.	That I can have prejudice. I was surprised to find this out.	Good that we're aware this can happen to you.
Who Lives Here?	Interested. [I] like to decorate [&] had some strong reactions to messy, cluttered or had a good feeling about some rooms. Some felt more comfortable.	Houses, in some ways, I can get set in my opinions; this one is stereotype, I got to look at, but assumptions should be more open minded.	.
Who Lives Here?	I thought I had it down as one of the guys, but I didn't notice the pills on the dresser; she had it down (points to companion).	I need to be more observant about what I'm looking at.	That I need to be more observant than I am.
Who lives here.	I was wrong on everyone of them. In who I picked to be the person living there.	Yes. We have very preconceived ideas about things. I don't know what I see, I felt sure it was a guys place and it was a lady's. From looking at certain things I thought that's a guy...that's a girl; but I was wrong on all of them.	I think I'm a smart person, but I was wrong. It's not bad...enlightening.

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Exhibit Name	Q4. Why did it stand out for you?	Q5. Discover anything about yourself?	Q5b. How does/did that make you feel?
Master Mind machine and Daisy	Not unusual that machines are reacting on people because they are programmed to. I disliked it.	No.	If the machines could do what the concentration games do it would be great. Make you work/think harder.
stretch attention	Bouncing balls/divided attention: It's hard to do and I think as you get older you can't do as many things at the same time. I wonder if I could have done it better at a different time [age]. It captured my imagination...fun to look at and made me think about my life.	I confronted what I knew: that I can't track that many things at one time.	Resigned. Sometimes you can sometimes you can't do certain things. It was amusing...fun to participate in.
The eyes have it and polite/delight smile.	The faces and emotions, eyes and smiles. What correlates and what doesn't with the photograph, like the fake smile is a better smile. [looks nicer]	[talks about mirrors now: true mirror 47.] It's always interesting to see your reverse image. You see yourself in the mirror the way you show yourself to the world. I like the way I appear to others. DK why. Most people aren't perfectly symmetrical. Models are the closest to symmetrical and they aren't even perfect.	



APPENDIX E – Visitor Responses to Exit Question 2a

What would you say is the main purpose of the exhibits in the Mind Collection?
To Show...

- How the mind works, how it interacts with & interprets its surroundings
- How your brain works & how you perceive things
- The complexity of the mind
- You how your mind works
- People how their minds really work
- How the mind works
- How the mind works
- How different aspects of the mind work
- Experience of mind working
- How the mind works
- The workings of the mind & emotional experience
- How the mind works
- To reveal lesser known aspects of how the mind works
- How the mind works
- How the mind works
- How the mind works
- How the mind functions mentally/emotionally
- To show & offer other ideals [sic] about how our minds work & process information.
- How mind works & how it can be tricked
- Brain functions
- How the mind works
- How your brain processes things
- To test yourself mentally
- Behavior & how the mind works
- How your mind works
- Different things your mind absorbs when it sees, smells, glances at stuff
- How interesting the mind is. What we know & still are learning about the mind, emotions, perception
- Examples of interaction between mind/space & perception of it
- How we perceive people
- How perception influences our outlook on things
- How perception & cognition work
- How the mind affects the way we perceive the world
- How you perceive things
- People that their initial perceptions shape the choices they make & that thoughts & actions may not be based on actual present events but memories of past occurrences
- How the mind perceives problems, emotions, etc.
- Interesting tidbits on perception & thinking that we aren't usually aware of
- People's perceptions & how they process information
- How the human mind works & how people perceive things differently
- How visual sensory directly correlated to how your mind perceives things
- People's reactions based on past experiences
- Trends of human reaction we may not be very consciously aware of
- How the mind reacts to different situations
- How mind reacts to different stimuli
- How your past experiences & expectations heavily influence your reactions to present experiences
- Different ways the body reacts to light
- Different reactions of individuals
- How the responds [?]



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- How people react to various stimuli
- How our minds work in reaction to everyday occurrences & impressions from people around us
- How the mind responds
- How people can react or be misled by their knowledge. Mind can play tricks on you.
- Our perceptions versus our true brain processes
- How people's thoughts are different from reality
- How the mind can be tricked or pick up things we wouldn't think it could
- How our brain can play tricks on us
- How our perceptions can vary from how things really work
- The manner in which the mind affects our perception of reality
- How unreliable our senses can be about the "true" reality
- The mind doesn't perceive everything
- How your emotions influence your actions
- Brain processes & interaction of motor skills
- How objects make you feel
- A different way to see/understand things
- Vernacularity [sic] of position & environment
- How subjective our thinking is
- Conditioning
- How minds are trained to think a certain way
- People the way they naturally think is because of their culture
- That there's a lot more going on with human consciousness than many people think about most of the time
- The complexities of the mind. A lot of things are just in your mind.
- People how complex mind is
- That the mind is intricate & responsive
- How our mind processes our sensory output
- How different senses affect experience
- What you have trained your mind to think can alter future decisions
- Psycho-biological traits
- Some of the facts your mind interact with your body
- How the human body processes information
- To show us how the mind & body work & the intricate processes that go on without us thinking about it ... every day.
- The mind is more complex than many people realize
- Our minds are more powerful than we realize
- The mind is an amazing thing!
- Youth science/engineering
- In a fundamental way the mechanics of some of the mind's receptors
- Science & experimentation of the world
- If it really is all in our head
- How easily society stereotypes
- How our minds do not always operate in the way we may expect or presume



APPENDIX F – Visitor Responses to Exit Question 2b

What would you say is the main purpose of the exhibits in the Mind Collection?
To make people...

- Aware at above/start thinking more deeply about the mind/perception
- Understand how our minds work better?
- Consider the chemical/neurological process of the brain & how they affect our reactions & feelings
- Aware of our differences
- Aware of how the brain affects our body
- More aware on how our minds work & understand the things we see
- Better aware of themselves
- More aware of how we perceive things that we encounter
- Aware of their natural instincts
- Aware of how others see us
- Think, evaluate how they think
- Aware of how we think
- Better understand how our minds work.
- Realize your mind works with you
- Understand more about their inner selves
- Aware how the mind controls reactions, emotions, perceptions
- Know how their mind [s] work
- More aware of what can influence & signal certain emotions
- Aware of the workings of the mind
- Challenge assumptions, deeper awareness & collect new information
- Interested in how the mind works
- Perhaps more observant
- Understand more about the mind
- Understand in an easy, hands-on way
- More aware of our feelings
- Understand why
- Understand better
- Understand why/how other people may see things differently
- Aware of the amount of data their brain[s] can hold
- Understand how ...
- Aware that they can tell a lot about someone just from certain cues
- Aware of such connection between your senses & the brain interpretation
- Think, feel, understand
- Re-evaluate their reasons for responding to things the way that they do
- More aware of their senses, perceptions, different ways of focusing
- Realize what the brain can do
- More aware of how the brain functions
- More aware of their thoughts, assumptions, etc.
- More aware of illusions
- Understand the mind/body connection
- More understanding of other people
- Understand their reactions to stimuli
- Think I realize how complex our brains are
- More aware of the power of the mind
- Understand
- Realize it's all in the mind
- See the bigger picture
- More aware of their subconscious thoughts/impressions when interfacing with their world



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- Think about whether bias or preconceived expectations are affecting their judgments
- Think about the reasons behind what they think & why
- Think about their own minds, how they work
- Think about the everyday things with do [?] - & use our body & mind for – & about how amazing it is.
- Think about the way our brains process input; challenge our assumptions.
- Think about how they work
- Think about what the[y] see & what is perceived is truth
- Think about how other people think & perceive things
- Think about how their mind works
- Think about how the mind operates in very surprising ways
- Think about how they perceive the world around them
- Think about their interactions with others
- Think about reactions
- Think about their perceptions
- Think about how mind works
- Think about their perception of the world around them
- Think about how perceptions are wrong
- Think more about how their thoughts are formed
- Think about the world they didn't realize is around them all the time
- Think around the way their perceptions work instead of merely gathering information from the perceptions themselves
- Aware of how our body works [&] how emotion can affect reasoning
- Experience different aspects of their mind that they don't normally focus on
- Think (4)
- Think differently
- Think fast!
- Think outside the box
- Think, pay attention
- Question what they see
- See different ways light can be used to affect things
- Look at things in a new way
- Reconsider initial impressions
- Ask questions
- Feel in awe of the mind
- Things aren't always as they seem
- React
- Appreciate socio-biology/power of mind
- Enjoy science/interaction



APPENDIX G – Visitor Responses to Exit Question 3a

What is one new idea that you are taking away with you?

I Didn't Know, Or I Never Realized That...

- Focus/concentration causes you to miss simple things.
- How much you can label people without knowing them
- It's hard to look at yourself in a mirror in reverse! You move differently.
- Mood change; Light has such an effect
- I strongly dislike toilets.
- Color can affect us & our moods
- You could detect from muscles around your eyes that a smile was fake
- Eyes had a lot to do with expressing emotion
- Humans can also drink out of a toilet
- The percentage of gut feeling is less than if you changed your mind
- Round objects are cuter
- "cuteness" is universal
- Cuteness s a simple [?] thing
- Light & colors can have an impact on your emotions
- Smell perception can be influenced by color
- You sweat on your fingertips
- There [are] certain clues to spot lies (Face Game)
- You can tell someone's emotions/thoughts from their eyes
- How things that are made smaller like tools look cute & that images of creature[s] with small bodies & big eyes made me & my friends go "aww"
- scientists/observers can tell through a photo - "a forced smile" versus "a natural smile"
- Eyes tell it all
- My kid's attention span is still really] short
- Concentration
- Mirror image is not what people see
- hand/foot coordination is natural & hard to separate
- The mind is a complex thing- can play tricks. Fingertips sweat a lot.
- Facial recognition of emotion could be taught
- I didn't realize that my attention span could be improved just by relaxing
- Mind over matter counts
- There are more cues in the world than I had anticipated
- Saying the color of the word was so difficult
- Color memory [Note: After he completed the survey, he came up to me & told me the exhibit made him realize he is partly colorblind.]
- It feels weird to have "phantom" sensations
- How easily the mind can be tricked & how weird one can feel after your mind's beliefs have been challenged
- My nose was so crooked. Weird.
- The reaction from an audience would make or brake me
- I would become frightened or experience "stage fright" in a simple exhibit like the one shown in the Mind Collection
- Standing on the "stage" with audience sounds really affected my feelings despite nobody was there.
- I was so sensitive to audience approval
- I could do so well at the Monty Hall game (Vegas, here I come!)
- How much aversion I would have to the toilet water fountain
- Drinking out of a toilet carries a strong emotional repellent factor
- I was so bad at lying or bluffing
- I was good at knowing when people were lying



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- I really want to jump off a cliff in a wing suit.
- How different I look to other people than to myself (in the mirror)
- I can not track more than three objects at once
- Subjective, non-rational & arbitrary desires
- Tips to tell lies
- Different people see different colors
- Perception of my feelings
- Your mind does most of your physical reactions
- People can see me differently than what I see in myself.
- The chance concept that it's better to switch when given the chance
- The sense of touch can tell you so much about the world around you
- I can only pay attention to two dots at a time.
- Smell fades as you keep smelling the same thing
- How small of a scale sweating occurred
- I have not thought enough to evaluate yet
- How we are affected by environment
- Seeing & understanding in different ways
- How much outside influences control your behavior
- I haven't really spent enough time
- The mind can function the way it does
- The mind is complex
- Powers of focus
- I like playing child-oriented games/activities as much as I do.



APPENDIX H – Visitor Responses to Exit Question 3b

What is one new idea that you are taking away with you?
It reminded me that...

- Cuteness is determined by smallness & large eyes, etc.
- Conditioning – how we get used to things – is part of our evolutionary process (I think).
- You should not come to prejudged conclusions
- My brain process[ed] both the color of the word & the color & since both were a color, it didn't automatically throw out the word I read
- Males are often color insensitive
- Colors can really affect one's mood
- Reflexes slow with age
- I knew it already, but the toilet exhibit was a powerful reminder of the impact of emotions on our actions
- You miss a lot when you are focused
- People often miss things that are right in front of them when they are told to concentrate on something else, like the fear tactics used by the government
- Objectivity is relative
- People can be programmed & manipulated. Scary.
- What you perceive & feel is influenced by more factors than you normally think about
- We are always influenced by outside stimuli
- Your brain affects & controls how you “experience” something.
- Our emotions are a product of our experiences, I guess
- Every thought or emotion we have is both very simple & extremely complex.
- Body language is a major form of communication
- Many movie stars have fake smiles
- That I should be nicer
- I should still go with my gut answer rather than keep changing my answer because that is what they teach us in school
- Driving jobs are hell on wheels ...
- I need to meditate more often
- You[re] never to[o] old to learn something new
- We've only scratched the surface of the mind's potential
- It is always good to continue learning
- We believe we know a lot about human mind & function but we are still learning
- *You can always learn more. There is so much to learn & understand*
- The mind isn't as complicated as it sounds
- The mind is a powerful thing
- I need to bring him here more often
- I am not as focused as I think I am
- I'm a sharp focus person
- My mind makes the choices
- I don't know everything about myself.
- Gut reactions, while often helpful, should not preclude approaching new situations with an open mind/thinking about things objectively
- How to interact with others
- Speech & visual clues create varying understanding of words
- Perceptions are not always reliable as absolute arbiters of what we experience
- Everyone lies
- The way you take in information sensually affects your thoughts & perceptions
- I should tune negative out
- I hold biased reactions within me based on past associations

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- I am not smarter than a fifth grader
- I need to do more mind teasers
- Not everything is a[s] it appears
- What you sense is not always real



APPENDIX I – Exhibit List (from Exploratorium Web Site)

More About MIND Exhibits

The exhibits in MIND will give you new ways of experimenting with your thoughts and feelings and new insights into your decisions, perceptions, and emotional reactions. The project team worked with a diverse advisory group of scientists and artists to research the cognitive sciences and create experiences highlighting the workings of the human mind—often in unexpected and thought-provoking ways. Here are a few of the experiences you'll have when you visit this provocative new addition to the museum's collection:

A Sip of Conflict

Play with the tension between reason and emotion as you drink from a water fountain fashioned from an actual (but unused!) toilet.

Center of Attention

This exhibit simulates the experience of standing in front of a lively crowd. The crowd's changing responses allow you to examine your own emotional and cognitive reactions to being in the limelight.

Be Here Now

This meditative spot challenges you to empty your mind and observe the gentle flow and direction of your own uncontrolled thoughts.

Mood Lighting

This exhibit bathes you in colored light, initiating a surprisingly powerful emotional experience and suggesting the importance of visual stimuli in provoking feelings.

Piano Drop

What does "risk" mean to you? Stand under this piano and find out.

The Eyes Have It

Here, you'll infer the emotional states of others from their eyes alone, illuminating the way we decode faces to interpret their owners' inner states.

Masks

In a counterpoint to The Eyes Have It, Masks challenges you to communicate feelings without facial expressions—instead, you must use your body to send emotional messages to others.

Startle Response

Startle Response offers you a chance to see the subtle movements and changes that play out across your own face in a moment of extreme surprise.

See Yourself Sweat

This exhibit magnifies a small patch of your skin as you think about emotionally arousing ideas or images. Your thoughts trigger immediate secretion of sweat, and the sudden appearance of these glistening globules shows a concrete physiological reaction to an amorphous cognitive event.



True Mirrors

Normal and reversed mirrors let you see yourself as you normally do and compare that image with something you rarely encounter—your own face as others see it. The unsettling result illustrates what happens when expectations are subtly violated.

Dare to Compare

Mix and match descriptions to create an individual personality portrait of yourself or a friend, and bring to light your theories of how traits and behaviors fit together—or don't.

Animal Camera

These film loops from artist Sam Easterson were created by temporarily fixing tiny cameras to animals, including a wolf, bison, scorpion, tarantula, and others. The resulting mini-movies vividly illustrate how perspective affects our perceptions—and raise questions of the consciousness of nonhuman creatures.

Divided Attention

Forcing you to pay attention to numerous stimuli at once highlights the limits of the human mind's attentional capacity.

Theater of the Mind

This area provides a venue for films highlighting a range of perspectives on thoughts, feelings, and the human condition.

Poker Face

At Poker Face, you'll lie to a friend about the contents of a poker hand—or try to detect your friend's lie. This two-person exhibit lets you experiment with trying to conceal your thoughts and with using facial cues to interpret hidden motivations.

Talk to Daisy

A computer program designed to mimic human verbal communication lets you have a "conversation" with a machine and explore your ideas about consciousness, meaning, and intelligence.

Color Your Judgment

An exhibit highlighting the power of expectations, Color Your Judgment pairs familiar scents with liquids of various colors, showing how knowledge of what something "should" look like can affect our perceptions.

Stretching Your Attention

Experiment with identifying simultaneous events and see how practice may improve your attentional abilities.

The Cute Room

These exhibits let you manipulate familiar objects and experiment with the things that make them seem cute... or not. Is cuteness in the eye of the beholder?

Fast Faces

You probably recognize most of these people, but waiting for a specific image may impede your ability to name them.

Polite Smile, Delight Smile

Can you tell the difference between the posed and spontaneous smiles at this exhibit? These happy faces test the limits of your innate face-reading capabilities.



AHA Moment

Insight often comes in a flash... with the right hint.

Time To Think

Modeled on a fundamental experimental technique for studying cognitive activity, this exhibit illustrates how increasingly complex mental tasks dramatically affect your reaction time.