Startle Response

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THIS IS **NOT** A DEFINITIVE FINAL REPORT

FORMATIVE evaluation studies like this one often:

- **are conducted quickly**, which may mean
  - small sample sizes
  - expedited analyses
  - brief reports

- **look at an earlier version** of the exhibit/program, which may mean
  - a focus on problems and solutions, rather than successes
  - a change in form or title of the final exhibit/program

Mind – Formative Evaluation
Startle Response

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PURPOSE

This formative evaluation looks at the first prototype of Startle Response. This exhibit records and then plays visitors' individual reactions to being startled. The startle stimulus at the current prototype consists of a balloon that is quickly and noisily inflated in front of the visitor.

The purpose of this evaluation is to gauge:

- What did visitors do at the exhibit
- How did visitors react at the exhibit. In particular, were visitors startled?
- What did visitors think about the exhibit. More specifically, what did they find interesting/not interesting? Confusing? What did they think the exhibit was about?
- What did visitors noticed about their own and other peoples' responses

We also collected visitors' suggestions for improving the experience.

There is very little content information in the current prototype. Our focus at this point was mainly on visitors' reactions to the stimulus.

METHOD

An evaluator observed every third visitor who stopped in front of the exhibit and then approached that visitor for an interview as they were leaving the exhibit. When it was very slow on the floor, the evaluator selected every other visitor. In either case, the evaluator only observed and interviewed visitors 8-years old or older.

DATA COLLECTED

- Data were collected on Saturday, September 17, 2005 between noon and 4:00pm.
- N=14 observations, and N=13 interviews. One of 14 visitors we observed 'broke' the exhibit[1] and was not interviewed.

[1] He pulled the balloon off the prototype.

- Demographics

Gender	Count (out of 14)
Female	7
Male	7

Age	Count (out of 14)
Child (8-12)	3
Teen	2
Adult	9

Group Type	Count (out of 14)
Family	6
Adult Peer Group	5
Teen Peer Group	1
Single - Teen	1
Single - Adult	1

RESULTS

What did visitors do at the exhibit?

- A majority of the visitors who came up to the exhibit and used the prototype as intended. That is,
  - Every visitor sat down in front of the exhibit, in front of the camera.
  - Everyone pushed the button and got the startle stimulus. A majority (12 out of 14) saw the balloon inflate only once, while one visitor tried it twice and another visitor tried it several (6) times. The visitors who tried it more than once explained:

    Visitor3: I wanted to see if I'd jump if I still knew it was coming if I kept my eyes closed. I didn't want to see it coming.

    Visitor9: Cuz it looks funny. I kinda pressed it twice because like, I wanted to watch it. [Note that this visitor was more interested in how she looked on the live video rather than her startle response on captured video.]
  - A large majority (13 out of 14) of the visitors watched the video of themselves captured at the exhibit.
- Two visitors did *not* use the exhibit as intended. Both were children.
  - One spent approximately 10 minutes making faces while watching the live video. During her subsequent interview, she indicated that she did not know why the balloon was there.
  - The other visitor was so enamored by the balloon that he removed it and then tried to blow up the balloon. (This visitor group was not interviewed.)

- Although the exhibit was designed for one visitor to use at a time, it also worked well for groups. That is, we saw
  - people calling other members of their visiting group over to try the exhibit,
  - visitors waiting their turn while looking at the reactions of other members of their party,
  - and visitors laughing and commenting on each others' reactions.
- In addition, visitors (5 out of 14) watched people in other visiting groups use the exhibit before trying it themselves.

How did visitors react?

Were visitors startled?

- Most visitors were startled.

Startled?	Count (out of 13)
Yes	9
No	2
Yes, but mildly	2

What did visitors think?

Did visitors find the exhibit interesting? How so?

- On average, visitors found the exhibit *somewhat interesting*.

Interest Rating	Count (out of 13)
Interesting	6
Somewhat interesting	6
Neutral	0
Somewhat not interesting	1
Not interesting	0

- Visitors found it interesting because:
  - They were curious about what would happen (5 visitors)

    Visitor4: Just cuz I was watching them, how they got startled, just to try it out myself.

    Visitor5: I didn't know what to expect.

    Visitor6: It made me curious.

    Visitor7: Because you're not ready for the noise.

    Visitor13: You don't know what's going to happen. I thought it was camera only and take a picture.
  - They got to see a video of themselves (3 visitors)

Visitor2: I'm a videographer so I'm automatically interested in anything that captures images.

Visitor9: "really interesting". It's like clicking on a button as it videotapes you.

Visitor12: I guess to see your reaction when the balloon kinda blew.

- They liked balloons (2 visitors, both children)

Visitor3: It's fun and how the balloon blows up.

Visitor14: The balloon. I like balloons.

- However, 2 visitors felt that it wasn't surprising enough and therefore not as interesting as it could be.

Visitor1: Unfortunately, I sorta saw you do it so I knew the balloon was gonna go. But it was neat seeing my response.

Visitor8: I could see the balloon and looked at it before it went off.

What did visitors find confusing?

- A majority (8 out of 13) of the visitors did not find anything confusing about the exhibit.
- On the other hand, a few visitors weren't sure
  - What was the point of the exhibit (2 visitor)

Visitor9: Yeah. That it's…I didn't know what the balloon thing is for.

Visitor13: What it's trying to do…I'm not sure what it's trying to show

  - How to start the exhibit (1 visitor)

Visitor2: Yes. It wasn't clear how you start it. The first thing I did was sit and push the button but it didn't start right away. I thought that pushing the button would automatically start the cycle.

  - How to interpret the video (1 visitor)

Visitor11: You didn't know what it was doing. Maybe a brief indication in the video, like a freeze frame when the response happens would be a good idea.

What was the point of the exhibit?

- Most (11 out of 13) visitors thought that the exhibit shows how people react. Some of the visitors talked, in particular, about
  - how they react to being startled (4 visitors)

Visitor1: To show the universal startled response.

Visitor2: It's about the universal startle response. I assume it is supposed to show you how you react when you're startled.

Visitor5: It's to see what you look like when you get scared.

Visitor13: Try to see our reactions when something unexpected happens.

- Anticipation and how people react to the expected (3 visitors)

  Visitor4: I guess that even though you see it, you still get scared, you still want to try it.

  Visitor6: Well, it's meant to showcase the reaction of being startled and what it looks like. Especially with anticipation, it makes you more prone to being startled. Maybe it's about diverse tactics too and how that can change your reaction.

  Visitor11: No matter how much you try to not be startled, there is an involuntary response.

- The facial expressions in their reactions (1 visitor)

  Visitor8: Trying to find out how people get startled, your facial expressions.

- Two visitors did not think the exhibit was about their reactions. One of the 2 did not have any idea what the exhibit was about while the other thought it was about looking at videos of themselves, in this visitor's case, while making funny faces. Both visitors were children.

What did visitors notice?

<u>What visitors noticed about their own startle responses</u>

- Visitors noticed their physical reactions
  - In their eyes (6 visitors)

    Visitor2: I blinked.

    Visitor5: Uh…I think it was just…I closed my eyes.

    Visitor6: I don't startle particularly easy, so my reaction wasn't too big. I blinked, my attention diverted.

    Visitor3: … I looked at the balloon.

    Visitor8: Um, it's the eyes.

    Visitor11: No. Most people's seem to just be a flicker of the eyes. I would have expected more dilation of the eyes or something. For me, my eyes moved towards the balloon but that's about it.

  - A jump or a jerk (2 visitors)

    Visitor3: I jumped pretty badly…

    Visitor13: I jerked.

  - In their face, in general, with no further details (2 visitors)

    Visitor7: The expression on your face.

    Visitor12: I looked kinda scared.

- Visitors talked about their degree of reaction (2 visitors)

  Visitor1: That I didn't really react much.

  Visitor6: I don't startle particularly easy, so my reaction wasn't too big.

- Visitors talked about how they felt (2 visitors)

  Visitor4: I laughed after I got startled.

  Visitor14: I was kinda startled.

What visitors noticed that was new to them

- A large minority (6 out of 13) of visitors did not see or learn anything new through this exhibit experience.
- 5 visitors found out something about themselves

  Visitor3: Yeah, that I jump easily.

  Visitor4: I was just able to see how I react so that was interesting.

  Visitor5: Yeah, I guess I didn't realize that I make a face like that. I didn't know I startle so easy either.

  Visitor6: I've never experienced seeing my own reaction when I was startled.

  Visitor12: I'm not sure. If I'm scared, I don't look at myself in a mirror, so I guess I've never really seen it before.

Did visitors notice the balloon in the video?

- We were particularly interested in seeing if visitors noticed the balloon in the video because the exhibit developers thought it was important to provide a visual indicator of when the startle stimulus was administered. We found that a majority of the visitors did not see the balloon in the instant replay.

See balloon in video?	**Count** (out of 13)
Yes	4
No	9

- The visitors who looked for the balloon in the video explained why they did so

  Visitor1: Just to see the timing of my face and the balloon.

  Visitor2: I wanted to make sure that I reacted in time with the balloon.

  Visitor13: To see what was going on

What visitors noticed in other people's videos

- A large minority of visitors watched the video of another person's reaction that was already playing at the exhibit when they first came to it.

Watch video of other people?	Count (out of 13)
Yes	6
No	7

- These visitors
  - Noted other person's startle response (3 visitors)

    Visitor2: It was a child and the child had a larger reaction than me. Although I didn't realize that until after I watched my video.

    Visitor4: It just looks like we all react differently.

    Visitor11: Yeah, he had a slight startle reaction.
  - Looked but did not really notice anything of interest (2 visitors)
  - Noticed that the exhibit would record the response (1 visitor)

Did visitors know that others would see their video?

- A large majority (10 out of 13) of the visitors did *not* know that their video would continue to play and that other people may see them.
- However, all of the visitors we interviewed did not have any objections to other people seeing their captured startle response.

Visitors' suggestions for improving the exhibit

Visitors offered the following suggestions for improving this exhibit experience:

- Place the exhibit so that it is not as visible to other visitors. (2 visitors)

  Visitor1: Maybe just turning it so people at the next exhibit over can't see what's going to happen.

  Visitor2: I think that it shouldn't be where you can see everything that happens before you sit down.
- Make it more surprising. (2 visitors)

  Visitor6: If you're going to be showing the video, it might be better if you only show it a few times. I think I was so surprised because I didn't know what was going to happen. Maybe if I had already known about the balloon, I wouldn't have been as surprised.

  Visitor8: If there's any way to hide the balloon...or I don't know. Unless that's part of what's supposed to startle you.
- Add more types of stimuli to make it more startling. (2 visitors)

  Visitor2: There should also be more types of stimuli. Like maybe a bright light or different noises.

  Visitor11: Something more startling. Something in the video playback that is better that shows the balloon. For little guys, the camera isn't centered.
- Provide an explanation. (1 visitor)

Visitor11: Well, there's no explanation. I'm assuming that's because it's new and you guys are still developing it. Every other exhibit has an explanation.

- Refine the mechanics of the exhibit. (1 visitor)

  Visitor11: For little guys, the camera isn't centered.

SUMMARY

- We found that most (12/14) visitors used the exhibit as intended. They sat down, saw the balloon inflate, and watched the instant replay of themselves. One visitor had trouble starting the exhibit but eventually figured out what to do.
- Visitors found the exhibit engaging because they were curious about what would happen (how they might be startled), and they wanted to see the resulting video. A few of the children we interviewed just plain liked the balloon.
- Most (9/13) visitors reported being startled. But, a few visitors thought that the stimulus was not surprising enough. These visitors saw the stimulus beforehand while watching others, which diminished the surprise factor for them. Alternatively, we found visitors looking on and laughing at each other's reactions, making the exhibit an engaging social experience for visiting groups. The challenge, then, is to hinder visitors from casually observing and learning what's startling and yet allow social groups to cluster around and share the exhibit experience.
- All the visitors we interviewed looked at their instant replay and took note of their own startle response. They talked about how they reacted physically, how much they were startled, and how it made them felt. At the same time, 6/13 visitors did not think they found out anything new at the exhibit. This suggests that, though the experience of being startled was engaging, some visitors need additional help in looking for and interpreting the details of their responses.
- In contrast, only about half (6/13) of the visitors watched the video of the previous visitor and even fewer visitors looked carefully enough to notice and compare that response to their own. Currently, the exhibit prototype does not support easy comparison between visitors, though this could be improved in future iterations.
- Most (9/13) visitors did *not* see the balloon in the instant replay, nor did they indicate that they wanted such a visual cue in the video. The people, who did, looked for it because they wanted to know the timing of the stimulus; it was an important visual cue for understanding their own behavior. So, people who look for the balloon in the replay saw it and the people, who didn't see it, didn't miss it. If the exhibit developers feel that seeing the balloon in the playback is important to the overall experience, the balloon needs to be more prominent in the instant replay, and visitors need to be clued in to look for the balloon in the video.
- Most (10/13) visitors did *not* know that their video would be replayed for others to see. This raises privacy issues that the Mind team should address, especially if we are interested in supporting comparisons across different visitors' startle response.

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APPENDIX A

Observations

Participant Sat? *Yes* *No* *Partial (describe):*

Balloon inflated (startle stimulus)? *Yes* *No*

Visitor stayed to watch video? *Yes* *No*

How many times did the startle stimulus go off?

Other Observations:

Questions

1. How interesting would you say that was? Would you say that was …

Not interesting	Somewhat Not interesting	Neutral	Somewhat Interesting	Interesting

2. What made it _____ for you?
3. Can you tell me what you did at the exhibit?
4. Was there anything confusing about the exhibit? [Probe to exhaustion]
5. What do you think that exhibit was about? [Can you make a guess as to what the exhibit was trying to say or show people?]
6. [If they got the startle stimulus] So, were you surprised or startled? *YES* *NO*
7. Did you get a chance to watch the video of yourself on the monitor? *YES* *NO*

   [If YES]
   a. Can you describe anything in particular you noticed about your reaction in the video?
   b. Was that new? That is, did you find out anything that you didn't know before by watching the video?
   c. Did you see or look for the balloon in the video? *YES* *NO*
      i. [If yes] Was there any reason in particular why you looked for the balloon?

8. Did you watch the video that was already playing when you first came to the exhibit? *YES NO*
    a. [If YES] Can you describe anything in particular you noticed in that video?

9. Did you know that the exhibit will continue to play the last video that it captured? *YES NO*

    a. So, if the last video was of you, the next group of visitors will see you on videotape. Is that okay with you or would you prefer that other visitors NOT see your reactions at the exhibit?

    YES- OK NO - NOT OK

10. Did you try the exhibit more than once [did you try to startle yourself more than once]? What were you trying to see or figure out the second time you tried it?

11. Do you have any suggestions for improving the exhibit?