

Distorted Room Explainer

Post-Redesign Evaluation

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THIS IS A POST-REDESIGN EVALUATION REPORT

After an exhibit has been renovated, redesigned, or refurbished in preparation for the Exploratorium's move from the Palace of Fine Arts to Pier 15, an interview and observation study is conducted. The purpose of the study is to identify any major issues that would require immediate attention prior to the move. This collection of redesign evaluations will serve as a baseline of information for the Exploratorium's new exhibit set at Pier 15.

Post-redesign studies like this one **are conducted quickly**, which may mean:

- small sample sizes
- expedited analyses
- brief reports

Distorted Room Explainer

Post-Redesign Evaluation

Study Goals

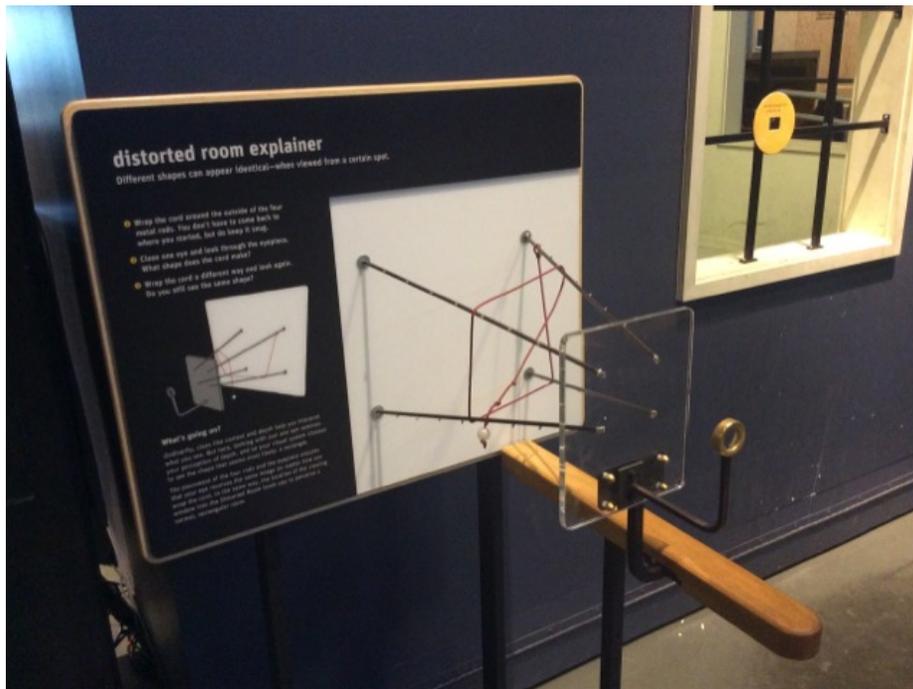
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General goals:

- To confirm that visitors are able to access and use the exhibit
- To confirm that visitors can build a basic understanding of the exhibit's content
- To uncover visitors' frustrations and confusions
- To understand whether visitors move on from an exhibit for intrinsic or extrinsic reasons

Exhibit Description

When different shapes make the same image in the eye, the brain usually uses context, shading and color to help decide what it is looking at. DISTORTED ROOM EXPLAINER removes these visual clues to help visitors make sense of the Distorted Room exhibit.



Methods

Uncued observations and interviews were conducted. A researcher randomly selected visitors who crossed an imaginary line on the floor that stopped facing the exhibit with two feet planted and either looked at or touched the exhibit for approximately 15 or more seconds.

Uncued visitors do not know they are part of the study until after they finish using the exhibit so their behavior can be considered representative of normal use patterns. This means that some of the visitors in this study may have used the exhibit only briefly.

Visitors were approached after they left the exhibit and asked if they would be willing to participate in a 7-question interview about their experience at the exhibit.

Demographics

Gender	Count (N=12)
M	4
F	8

English as a Second Language?	Count (N=12)
N	12
Y	0

Estimated Age	Count (N=12)
8-12	2
13-17	2
18-29	2
30s	3
40s	1
50s	1
60+	1

Visitor Group Composition	Count (N=12)
Adults-only	5
Adults with children	4
Adults w/ teens	2
Adults w/ teens and children	1

Findings

Holding Time

This is the time the visitor spent using or otherwise engaged with this exhibit. The amount of time a visitor spends at an exhibit is influenced by many factors and can indicate level of engagement or interest, but not as a measure on its own.

Time at exhibit	mm:ss (N=12)
Mean	0:43
Median	0:40
Minimum	0:24
Maximum	1:30

Visitor Behaviors

Visitors were observed as they used various parts of the exhibit.

Start state	Count (N=12)
Unwrapped	2
Wrapped	10

Wraps cord?	Count (N=12)
Yes	12
No	0

Views wrapped cord?	Count (N=12)
Yes	12
No	0

Wraps a second time and views?	Count (N=12)
Yes	5
No	7

Looks into distorted room through window?	Count (N=12)
No	3
Before	2
After	4
Both	3

Visitor Interest

Visitors were asked about their interest in the exhibit and why they rated from “not interesting” to “very interesting” (1 – 7).

Interest Level	Count (N=12)
High Interest (6-7)	2
Moderate Interest (4-5)	7
Low Interest (1-3)	3

Visitor responses:

H	You wouldn't expect that it would be that shape, wouldn't think it would just look like a square.
H	The concept of geometry and angles, I teach math so I love a way to present math with a challenge, with creative thinking.
M	Cool but...wrapping the cord wasn't that interesting.
M	Put it more in perspective (talking about the big room).
M	Just compared to some of the other exhibits...the Eames chair is also about perception.
M	It was not really that big of an experience for me.
M	You could tell by the way you wrapped it that it would become a square...unless you crisscross it on the inside like this, maybe this would have captivated my interest more (walks about to exhibit and sees how someone left it with cord wrapped through inside). The outside will always make a square because it is a square outline. There other things here that have to do with distortion, this didn't explain why the room was distorted. It's not a problem with the concept, problem with the explanation.
M	I had tried it before, but still interesting to see that it's always the same shape.
M	The fact that it's all explained. I would be aware of it anyway, but its nice that its explained - a more grown up reason I guess.
L	Knew what was going to happen already.
L	It wasn't as interactive as other things I've seen.
L	Really basic, ok for average child, but I'm an adult.

Visitor Frustration or Confusion

Visitors were asked to tell us if there was anything confusing or frustrating, what the source of the frustration was, and whether or not it made them want to leave the exhibit and move on to another one.

Source of visitor frustration or confusion*	Count	# that wanted to move on
Concept of the string staying the same shape when wrapped in different ways was confusing	1	0
Explanation unclear and too long	1	1
Nothing frustrating	10	--

*Totals may add up to more than N = 12 because visitors gave more than one response.

Visitor Understanding

Visitors were asked what they think the exhibit was about with the goal to determine whether or not they have a basic understanding of the concepts presented and to identify possible areas of misunderstanding. We acknowledge that this study has a small sample size and that these findings illustrate trends and may not be representative.

It appears that visitors DO have a basic understanding of concepts presented.	X
It appears that visitors DO NOT have a basic understanding of concepts presented.	

Visitor responses:

- Perspective, depth perception.
- The way that your eyes perceive visual information.
- Way our brain perceives shapes, backgrounds, how our brain makes sense of things. Depth.
- Perspective, trying to throw you off a little bit (I think she means that it's a surprising phenomenon).
- How a room is made, how room is designed (didn't clarify if he means the distorted room, or any room).
- How light goes into the eye and how the brain processes it.
- Depth perception.
- No...don't know.
- Explains since only one eye, hard to see depth.
- That even though the cord was different, still makes a square.
- What shape it makes even though the cords are at different angles.
- Hmm, how do I say this? Square is a square no matter how it is designed. I didn't read though, I just played with it.

Visitor Reasoning for Leaving the Exhibit

The goal of this question is to explore how open or closed-ended the exhibit seems to be for the visitor. Visitors tend to leave exhibits for intrinsic reasons, such as feeling bored, or finished with the experience, or for extrinsic reasons, like having to go to lunch or being distracted by another exhibit. Leaving for intrinsic reasons could suggest a more close-ended exhibit experience.

Reasons for moving on to the next exhibit	Count (N=12)
Intrinsic	5
Extrinsic	7

Visitor responses:

Intrinsic	It was kind of boring, and the metal part was hurting my eye.
Intrinsic	I was just done with it.
Intrinsic	Would have taken too long to process the info of the explanation, to get it [To understand why the room looks distorted?] Yes.
Intrinsic	Tried it twice.
Intrinsic	Finished seeing it.
Extrinsic	My mom asked me to take a picture over here (near 3 chairs).
Extrinsic	6 year old. His attention span.
Extrinsic	Curiosity for other exhibits.
Extrinsic	So many other exhibits. [Anything else?] My parents.
Extrinsic	Want to learn more while I'm here.
Extrinsic	Saw that the room was more interesting.
Extrinsic	Anticipation of the tinkering studio.

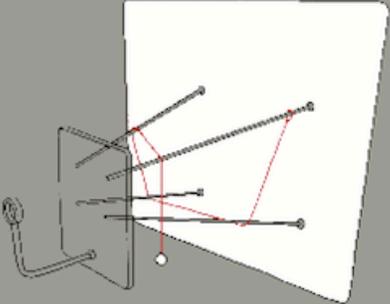
Conclusions

Based on this small sample, we conclude that the redesigned exhibit does not require immediate remediation. This evaluation did not identify sufficient impediments to visitor use, engagement or basic understanding.

APPENDIX: Graphic Panel

distorted room explainer
Different shapes can appear identical—when viewed from a certain spot.

- 1 Wrap the cord around the outside of the four metal rods. You don't have to come back to where you started, but do keep it snug.
- 2 Close one eye and look through the eyepiece. What shape does the cord make?
- 3 Wrap the cord a different way and look again. Do you still see the same shape?



What's going on?

Ordinarily, clues like context and depth help you interpret what you see. But here, looking with just one eye removes your perception of depth, and so your visual system chooses to see the shape that seems most likely: a rectangle.

The placement of the four rods and the eyepiece ensures that your eye receives the same image no matter how you wrap the cord. In the same way, the location of the viewing window into the Distorted Room leads you to perceive a normal, rectangular room.

Acknowledgements

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