

Distorted Mirrors: Hopscotch

Geometry Playground

Formative Evaluation

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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

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Distorted Mirrors: Hopscotch

Hido

2009



U-shaped Hopscotch (curved)



I-shaped Hopscotch (straight)

Background

Distorted Mirrors: Hopscotch is an exhibit in the Geometry Playground exhibition. A fun whole-body exhibit which allows visitors to experience and observe how a large cylindrical mirror changes shapes in the reflection. The exhibit gives visitors the opportunity to experience the same geometric concepts with their bodies as they experienced with their hands at a partner exhibit called, Distorted Drawing.

Goals

The goal of this evaluation is to:

- Observe how visitors use the two hopscotch designs
- Observe visitor interaction and try to assess the need (or not) for a label
- Observe any confusion or frustration and try to identify the cause
- Identify whether there is a strong visitor preference for one hopscotch layout over the other

Methods

Informal observations and interviews with visitors, Sunday Dec, 6 2009. The paper prototypes were set-up in the skylight area of the museum. The museum was quiet for a Sunday, it is typically more busy. The exhibits were available to visitors to use unmediated. Observations were made from a nearby bench and a few informal interviews were conducted. The exhibit didn't have a label for this round of evaluation.

Findings

Informal Interview Responses

Some visitors were cued and asked the following questions. Here is a sampling of the responses.

1.) How much did you enjoy using this exhibit? (1 = not at all / 5 = a lot)

5 --- I was surprised at how lousy I was (laughs). The perspective...I was always behind. I was looking in the mirror, thinking I would land somewhere (that) I wasn't.

5 --- I like looking in the mirror.

5 --- When you look in the mirror you are using your mind.

4 --- It is interesting to see how the cylinder in the center is reflected so that it deceives you. If you just look at that one, it gets smaller and smaller [I]. But this one [U] a curved turned to straight.

3 --- Just like a normal hopscotch.

2.) Anything frustrating or confusing?

It was frustrating, I would land wrong. But also fun. Good frustrating.

I didn't know why, I was guessing that the cylinder was making it straight or circular. We would want a label telling us why.

No. Well, it looks the same as a regular (hopscotch)

When your back was to the mirror, you couldn't see, you could just look at the ground, not in the mirror.

3.) If you were going to tell a friend about this exhibit, what might you tell him or her?

It was interesting, difficult to find out what was happening. "WOW, cool!", at first, no clue, then "OH, oh look."

I would say that it is kinda fun.

It is OK hard.

4.) We might only be able to make one of these hopscotch on the floor, if we could only make one, which one would you pick? Can you say a bit about why?

U --- It is more interesting, how it is straight on the cylinder. Well, you shouldn't pick, one brings you out to the other. It is nice to compare and contrast.

U --- The arch one. More interesting, more fun. The straight is just straight.

U --- More challenging, seeing in the mirror, my body was different.

U --- The things (squares) are bigger, harder to do.

U --- Because it is more hard.

General Observations



- In previous iterations, it was hard to get visitors to look in the mirror. Having the mirror ‘sandwiched’ between the two versions of the hopscotch successfully brings attention and focus to the mirror.
- Many repeat visitors used the exhibit. Visitors used one hopscotch and then fed into the next and kept circling round.
- The exhibit was a draw for girls, young kids, as well as some adults.
- It was observed that the exhibit kept families together since it could accommodate many people at once.
- Unlike a previous iteration of the exhibit (a large kitten), visitors used the exhibit multiple times before moving on.
- There was observed pointing at the mirror indicating that visitors were potentially noticing a transformation.
- Some visitors walking by passed up the exhibit, saw the reflect in the mirror, reversed back and gave it a try.

U-Shaped Hopscotch Observations

- When the casual visitor is walking by, the u-shaped has a more dramatic anamorphosis in the mirror.

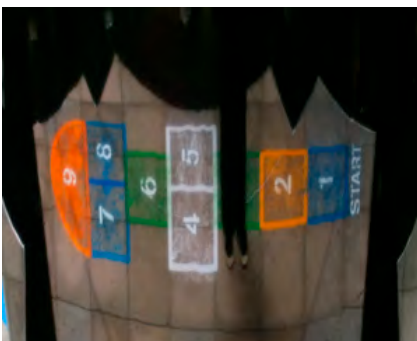
- Often visitors would start and then re-start when they “messed -up” (that is they mis-judged how to jump due to the transformation in the mirror). This hopscotch shape seems to really push spatial reasoning skills -- your legs don’t quite go as expected. Observed many starts and re-starts...visitors really trying to figure out how to jump.
- The hopscotch squares are a large size, nicely accommodating the feet of adults and kids. (The squares on the I-shaped hopscotch are smaller.)
- The shape allows you to use the hopscotch from both directions, allowing visitors to look in the mirror the whole time (your back is turned for half of the I-shaped hopscotch).

I-Shaped Hopscotch Observations

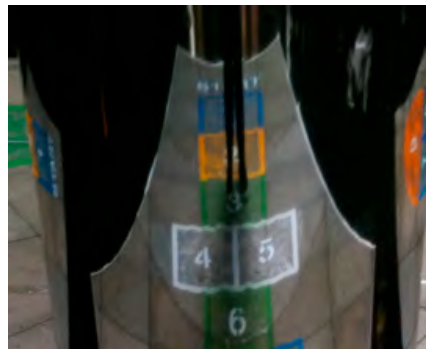
- Not clear if visitors are noticing what has changed with this version of the hopscotch. If you are walking by, it corrects, but nothing else really surprising happens.
- Visitors only see in the mirror half of the time. Your back is turned for half. This limits the experience somewhat.
- The comment, “It is backwards” (referring to the numbers) was overheard. Not clear if the visitors were also getting the cylindrical transformation.
- The hopscotch squares bring the visitor very close to the mirror. If we had visitors drop something (a rock) like in real hopscotch, they couldn’t lean forward to get it.

Recommendations

To Consider



unclean trim



clean trim

How the final graphic is trimmed is important to consider. The edges get transformed in the mirror and can potentially create a visually noisy result.

A few visitors asked about a label, but it seems that the hopscotch is intuitive (and nostalgic) and we may not need one. The project team should discuss whether or not to create a formal label.

If we can only produce one shape of the hopscotch, visitors seemed to prefer the U-shaped hopscotch.

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