

Listening Tube

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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

Outdoor Exploratorium: Formative Evaluation Listening Tube

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PURPOSE

To determine

- what, if any sounds, did people hear at the exhibit,
- what visitors found interesting / not interesting about the exhibit,
- what people thought was the point of the exhibit
- did the exhibit experience make visitors curious about anything, and
- what visitors try to listen for when they're by the Bay.

METHOD

- The prototype was mounted along the railing next to the bay, as shown in Figure 1 and Figure 2.
- An evaluator sat and observed visitors as they used the exhibit and approached them for interviews as they were leaving the exhibit. The interview can be found in Appendix A.

Figure 1. Prototype Location

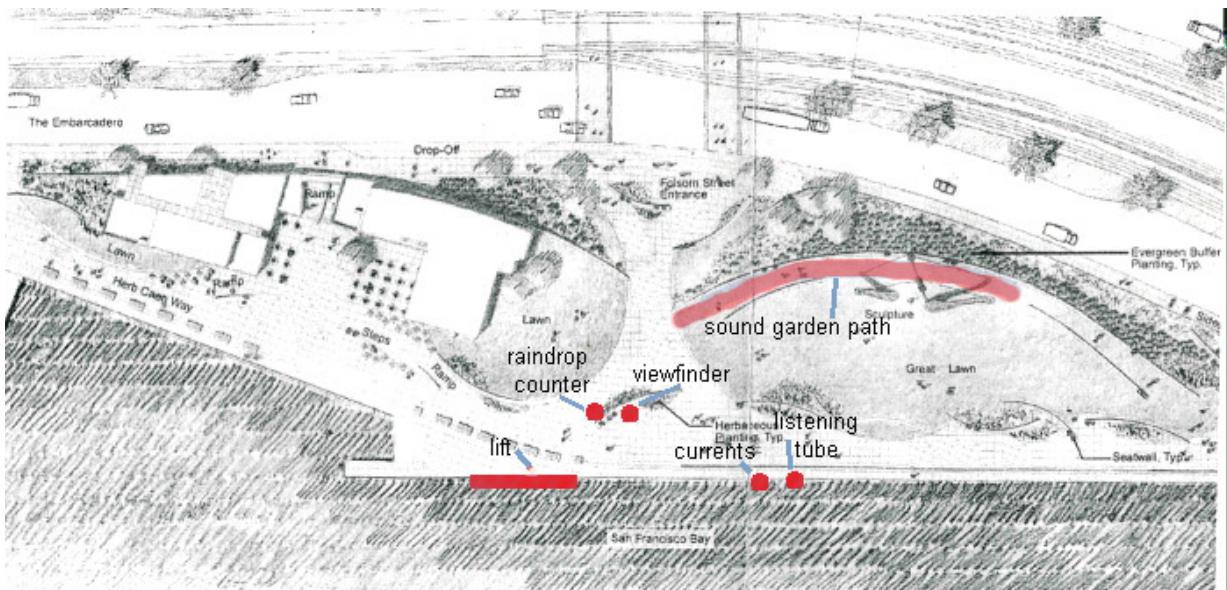


Figure 2. Prototype Setup



DATA CORPUS

- We collected data from 3:30 pm – 4:30 pm on Thursday, June 9 and from 1:30 pm – 4:30 pm on Sunday, June 12.
- We observed and interviewed 17 visitor groups

Group Type	Count (out of 17)
Individual adults	2
Multigenerational group	6
Adult peer group	9

RESULTS

Did visitors hear sounds in the listening tube?

- A majority (82%) of the people who stopped heard sounds in the listening tube.

Heard sounds	Count (out of 17)
Yes	14
No	1
Split (some individuals in the group heard a sound and others didn't)	2

- What sounds did they hear? (14 groups)
 - People heard sounds of the water
 - Visitor1: Trickling and wave water sounds.
 - Visitor2: The water moving
 - Visitor3: (1) A little bit: I couldn't tell if the water was lapping or gurgling; hard to get close enough.
 - Visitor4: (1) Just water. (2) I hear the water splash.
 - Visitor5: Water sloshing and gurgling
 - Visitor6: Gurgle; Water moving back and forth in the tube.
 - Visitor7: The water hitting the wall
 - Visitor9: I heard the water splashing. [Q: "was it loud?"] No.
 - Visitor11: Yes, you can hear the water under the ocean.
 - Visitor12: It was like a little splash.
 - Visitor13: (1) Splashing.
 - Visitor14: (1) Waves. (2) sound of waves
 - Visitor16: Water splashing
 - Visitor17: (2) It sounded like toilet water.
 - Visitors heard the sounds of the exhibit
 - Visitor4: the wood creaking.
 - Visitor17: (3) Squeaks
 - People heard marine life
 - Visitor8: I heard some sea lions and some other things. [Q: "Sea Lions! Really?"] Yeah.
 - People heard sounds not related to the Bay
 - Visitor10: (2) Uh, Harley Davidson.
 - Visitor15: Heard something, not much.

How interesting did people find the experience?

Interest Rating	Count (out of 17)
Interesting	2
Somewhat Interesting	9
Neutral	3
Somewhat Not Interesting	1
Not Interesting	0

- What was interesting about the experience
 - Listening to the Bay (9 groups)
 - Visitor2: Just listening to the water
 - Visitor4: (1) I didn't expect out here good expos. (2) I didn't know what type of sound to expect. Maybe like when you put a seashell up to hear the roar.
 - Visitor5: I'm a surfer and sailor, so this is a different way to experience something important to me.
 - Visitor6: You don't often get to hear the bay unless you live down here.
 - Visitor8: (1) Because you can hear the sounds of the bay, and some are nice and... It's not a perfect "5" because if you live near the bay it might wake you up, some of those sounds.
 - Visitor9: Because it's pretty clever to hear the sounds of the bay. It's like a seashell (that you hold up to your ear) when you're a kid
 - Visitor11: I don't know... 'cause you can hear it.
 - Visitor16: You can hear what the ocean sounds like.
 - Visitor17: (1) the sounds (2) Sounds like a bathroom. (3) It does.
 - The sign was intriguing (1 group)
 - Visitor1: It caught my eye, intrigued me: "Sounds of the Bay."
- What was **not** interesting about the experience
 - It's difficult to hear very much (5 groups)
 - Visitor1: If we had a speaker so it was louder, it would be better. .
 - Visitor3: (2) I didn't hear anything, there was too much peripheral noise.
 - Visitor7: It says the "sounds," but there's nothing--just little waves. It's interesting but I can't hear nothing.
 - Visitor10: (2) All the background noise makes it hard to hear anything.
 - Visitor13: (2) Couldn't hear water

- It doesn't feel like a complete experience. Visitors wanted more (3 groups)
 - Visitor13: (2) Maybe if you put a speaker under the water so you could hear the animals.
 - Visitor14: (1) What kinds of sounds
 - (2) Extend to further see how current was, maybe get interesting info.
 - Visitor15: Just blobs
- No explanation (1 group)
 - Visitor12: It was OK

What was the point of the exhibit?

- It's about hearing the sounds of the bay (12 groups)
 - Visitor1: Sound.
 - Visitor2: Listening to the water, experiencing it; You can't hear that over there (pointer to water) when listening to that (open water). To hear.
 - Visitor4: (2) Design a hearing exhibit: the rhythm of the waves. (1) Same, maybe the bay system
 - Visitor5: Different ways to experience the bay; value of different facets; and the physics/chemistry of the ocean.
 - Visitor6: Hear things you don't normally hear. I mean, you can usually hear the waves, but when it's calm like now, you don't hear that the water is still moving.
 - Visitor8: To see what the sounds of the bay are like. [Q: "is that important?"] Yeah, because I live in the city and I want to see the bay and the mammals.
 - Visitor9: Trying to capture the sounds of the bay. [Q: "Is that important to you?"] Well, if you don't appreciate these little things, you don't have fun going through life.
 - Visitor11: Probably that water is not quiet; that there's actually noises under there.
 - Visitor12: To hear the sounds of the bay. [Q: "Is that important?"] Yes. [Q: "Why?"] Don't know.
 - Visitor15: All the different noises of the ocean.
 - Visitor17: (1) Sounds of the Bay. (2) Trying to let you know what's going on down there without having to stick your head in. (3) Hearing water sounds like without head
 - Visitor16: Feel what it feels like here under water.
- It's about the Bay (not necessarily its sounds) (4 groups)
 - Visitor3: (1) Bring the Bay closer. (2) Currents in water in the Bay.
 - Visitor10: (2) Power in nature, connections to the bay.
 - Visitor13: (2) Maybe to focus attention on water more.
 - (1) Tides? Wave motion; back and forth.

Visitor14: (1) Yeah

(2) Probably related to science; how rough the sea is, the current.

- It's about amplifying sounds (2 groups)

Visitor7: Maybe that it's easy to hear the sounds from that box; and it doesn't cost too much.

Visitor10: (1) If you had a hearing problem, maybe you could hear better.

What did visitors become curious about at the exhibit?

- Nothing (8 groups)

- The Exploratorium, its outdoor exhibits and their development (6 groups)

Visitor1: What if you had microphones under the water, or what if you had different length tubes? They'd make different noises.

Visitor5: A permanent exhibit? My first reaction was cool--it's great to see something like this here.

Visitor9: Just how it was created; how all of these things (exhibits) were created.

Visitor14: (2) Fact that instrument there

Visitor15: Yeah, how it gets into the ocean.

Visitor16: Yeah, if you had to look through it to see the water.

- Marine life (2 groups)

Visitor11: I've never been here (Embarcadero) before; maybe the animals in the sea?

Visitor17: (2) What's going on down there. (1) Animals. (3) I thought I would hear fish even though they don't make noise.

- What sounds they can hear at the exhibit (1 group)

Visitor4: (Both 1 and 2) What the exhibit was about. (2) What I would hear.

- Science in general (1 group)

Visitor10: (1) It makes me more curious about science, all kinds.

What sounds do visitors try to listen for by the Bay?

Sounds of ...	Count (out of 17)
The water	8
Birds	4
Foghorn	2
Ships	2
Nature (in general)	1
Sea lions	1
Whales	1
Wind	1

- More specifically, the visitors who listen for sounds of the water, listen for:
 - Visitor1: (1) just the sounds of the water. (2) I love the sound of fountains, the beach...
 - Visitor4: (1) I wanted to hear splashing.
 - Visitor6: Always--the currents, waves against seawall; I used to live in (a/the) firehouse
 - Visitor7: Only the (makes a whooshing noise)...what's that, the pressure?
 - Visitor10: (2) I do like hearing the water slap up, the sound of waves.
 - Visitor9: No, but water splashing is a good thing.
 - Visitor11: The way the water moves, waves.
 - Visitor13: (2) water.

SUMMARY

- A majority of the people who stopped at the Listening Tube listened for and heard a sound. 82% of the groups described hearing sounds of the water.
- On average, visitors found the exhibit *somewhat interesting*; about half of the people reported being interested in listening to the sounds of the Bay, specifically.
- However, visitors also complained about not being able to hear the sounds very well with the exhibit, and a few (3/17) wanted more from the experience, either in interpreting the sounds or in hearing more interesting sounds. This suggests that we should:
 - *improve the sound amplification and*
 - *provide more interpretative support (e.g., what do the sounds you hear indicate about the Bay?)*
- The current prototype does not encourage inquiry about the Bay and its sounds beyond: *what sounds can I hear at the exhibit?* Instead, visitors are curious about the exhibit mechanics and its and the Exploratorium's presence at the park. Supporting deeper inquiry about the Bay at this exhibit will involve *additional work in identifying visitors questions and lines of inquiry and prototyping ways of supporting their explorations of the Bay at the exhibit.*
- As a first step in identifying visitors questions and interests about what they hear at this exhibit, we have included in this report a list of the sounds, particularly water sounds, visitors try to listen for at the Bay.

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APPENDIX A**Questions**

1. How interesting did you find that experience? Would you say that was ...

Uninteresting	Somewhat Uninteresting	Neutral	Somewhat Interesting	Interesting
1	2	3	4	5

2. What made it _____ for you?

3. Can you tell me what you tried to do at the exhibit?

4. Did you try to listen for sounds with the exhibit? *YES NO*

a. Did you hear anything?

b. Can you describe what you heard?

5. Are there any sounds you try to listen for while you're walking near the bay?

6. Did the exhibit make you curious about anything? Anything in particular about the sounds of the bay? Anything you would like to know more about?

7. Does this exhibit remind you of anything else you've experienced or seen before?

8. I know that there's very little information about the exhibit, but can you make a guess as to what this exhibit is about? What do you think the exhibit designer is trying to show or tell you with this exhibit?