

Viewports (Cargo Ships, Cargo Cranes and Mt Diablo)

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September 2005

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 Viewports (Cargo Ships, Cargo Cranes and Mt Diablo)

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PURPOSE

This evaluation looks at the second set of prototypes of Viewports (Figure 1). Each of these Viewports provides a small telescope to allow visitors to look more closely at objects in the East Bay from the Embarcadero, and explanatory text about what visitors could see. We looked at 3 different Viewports in this evaluation: Cargo Cranes, Cargo Ships and Mt Diablo.

The purpose of this evaluation is to gauge:

- How interesting did visitors find the Viewports?
- Did the Viewports help people look more closely at the subjects? How?
 - Did visitors see the subjects across the Bay?
 - With the telescopes? Without the telescopes?
 - Did seeing the subject with the telescopes add to the experience?
 - Did the photos and text help visitors interpret what they were seeing?
- What questions did visitors have about the subjects?

Figure 1. Viewports of Cargo Cranes, Cargo Ships, and Mt Diablo

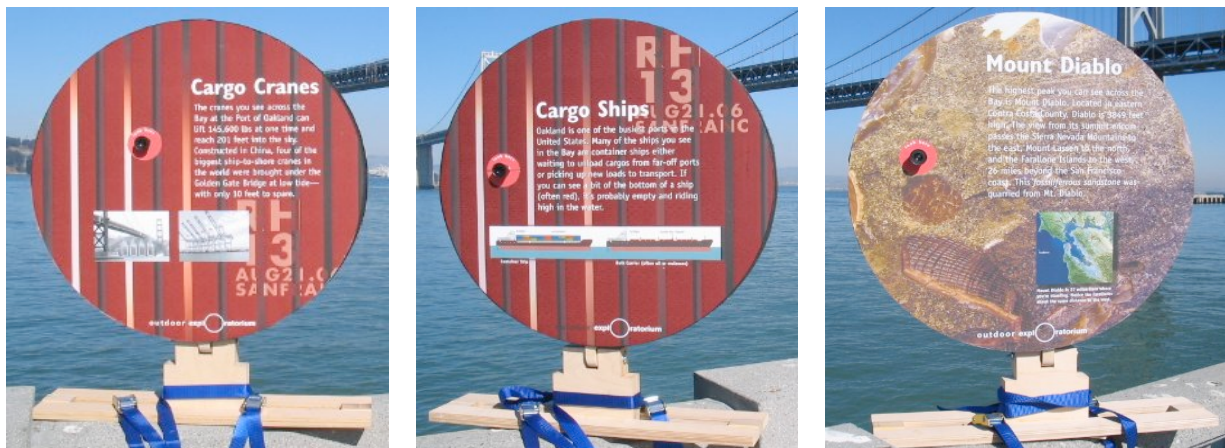
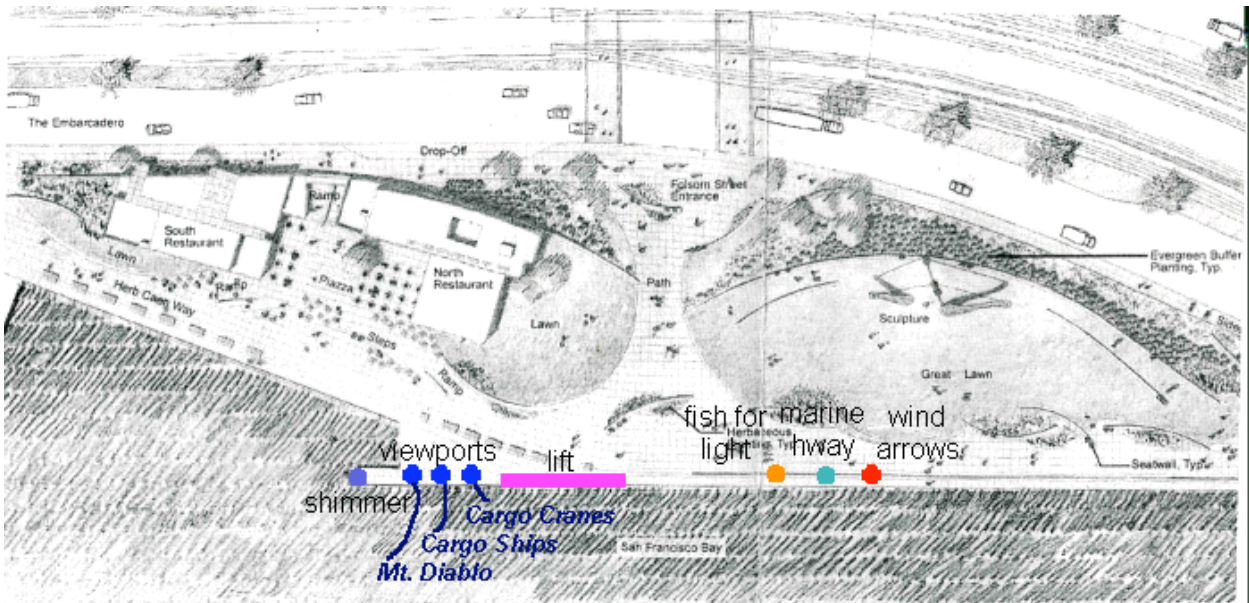


Figure 2. Viewports mounted on the railing



Figure 3. Exhibit Locations



METHOD

- The prototypes (Figure 1) were mounted along the railing next to the bay, as shown in Figure 2 and Figure 3.
- We observed and interviewed people during these times:

Cargo Cranes	Cargo Ships	Mt. Diablo
Thursday, Sept 22 11:30am – 1:30pm	Thursday, Sept 22 11:30am – 1:30pm	Thursday, Sept 22 1pm - 1:30pm
Friday, Sept 30 12pm – 1:30pm; 3pm - 5pm	Friday, Sept 30 12pm – 1:30pm; 3pm - 5pm	Friday, Sept 30 12pm – 1:30pm; 3pm - 5pm ¹
Saturday, Oct 1 12pm – 3pm	Saturday, Oct 1 12pm – 3pm	None

- An evaluator observed visitors who stopped in front of a Viewport for more than 3 seconds. She waited and noted which Viewport(s) visitors used and if they looked through the small scope on the Viewport.
- The evaluator approached the visitors she observed as they were leaving the exhibit(s) for a short interview. The interview questions focused on the visitors' experience at one of the Viewports they looked at. If the visitors looked at multiple Viewports, we asked about only one, rotating among the Viewports between interviews.
- The observation and interview instruments are in Appendix A.

DATA

- Observations

– N = 20

Group Type	Count
Adult - peer	8
Adult - individual	11
Multi-generational	1
Total	20

- Interviews

– N = 19

¹ Hazy conditions made it difficult to see Mt. Diablo.

– Demographics

Group Type	Cargo Cranes	Cargo Ships	Mt Diablo	Total
Adult - peer ²	3	3	1	7
Adult - singleton	5	2	4	11
Multi-generational	1	0	0	1
Total	9	5	5	20

RESULTS***Which Viewports did visitors look at?***

Visitor	Cargo Cranes	Cargo Ships	Mt Diablo
1	√	√	Not available
2	√		Not available
3	√	√	Not available
4	√		Not available
5	√		√
6	√	√	√
7	√	√	√
8 ³	√		Not available
9 ²	√		Not available
10	√	√	√
11			√
12	√	√	√
13	√	√	√
14	√	√	√
15	No info	√	Not available
16	√	√	√
17	√	√	√
18	No info	√	No info
19 ²	No info	√	Not available
20	√	√	Not available
Total	16/17	11/18	10/10

- A majority (11/17) of the visitors who stopped, looked at all the Viewports available at that time.

² One group did not speak English and was not interviewed.

³ The Mt. Diablo Viewport was not set up for this visitor.

Could visitors see the subject?

	Cargo Cranes	Cargo Ships	Mt Diablo	Total
Yes	8	5	2	15
No	1	0	2	3
Uncertain	0	0	1	1
Total	9	5	5	19

- A few visitors (4/19) could not see the subject because it was too hazy or they were not sure quite where to look.

Did they use the telescope?

- On the first day of evaluation, 3/8 of the people who stopped did *not* look through the telescope. During their interview, these visitors explained that they did not know there was a telescope mounted on the Viewport. Mark McGowan then changed the graphic to highlight the small eyepiece. Afterwards, we found that most (9/11) of the visitors who stopped knew there was an eyepiece and used the telescope
- The following shows which Viewport's scope visitors reported using:

Use Scope	Cargo Cranes	Cargo Ships	Mt Diablo	Total
Yes	6	5	4	15
No	3	0	1	4 ⁴
Total	9	5	5	14

Could visitors see the subject with the telescope?

- Everyone was able to see the ships and the cranes through the telescope.
- But, most (3/4) visitors had trouble seeing Mt Diablo. They thought that air was too hazy and that the telescope was not powerful enough.

Did using the telescope add to the experience?

	Cargo Cranes	Cargo Ships	Mt Diablo	Total
Yes	6	4	4	14
No	0	1	0	1
Made it worse	0	0	0	0
Total	6	5	4	15

⁴ Three out of the 4 visitors who did not use the scope did not notice it was there. These were visitors we interviewed on Thursday, before the graphics was changed to highlight the eyepiece. The other visitor chose not to look through the eyepiece because she felt:

Visitor4 (9/22/2005): because I can see them [cargo cranes] clearly without

- Most visitors found that the telescope made the exhibit better because
 - it allowed them to see the object better (4 visitors)
 - it focused and directed their attention (4 visitors)
- But, visitors also suggested that we improve the exhibit by:
 - Replacing the current scope with a more powerful telescope (4 visitors)
 - Allowing people to adjust the telescope (2 visitors)
 - Having better information on the label (1 visitor). That is:

Visitor10 (Mt Diablo): with plan explaining location of Mt Diablo, the telescope would not be needed.

Photos and text

- Most visitors read a portion of the text.

Read Text?	Cargo Cranes	Cargo Ships	Mt Diablo	Total
Yes	8	5	4	17
No	1	0	1	2
Uncertain	0	0	0	0
Total	9	5	5	19

- Most visitors glanced at the photos

Looked at Photo?	Cargo Cranes	Cargo Ships	Mt Diablo	Total
Yes	8	5	4	17
No	1	0	1	2
Uncertain	0	0	0	0
Total	9	5	5	19

- A few visitors had suggestions for improving the text and photos on the Viewports.

Visitor2 (Cranes): I wish they'd done the picture of it going under the Bay Bridge. The clearance was even closer than GGB. We all came out of our offices to watch.

Visitor10 (Mt Diablo): Photo okay, but the photograph doesn't help in LOOKING for Mt Diablo. Seeing the LANDSCAPE would help.

Visitor18 (Ships): the description is excellent, exciting, but the picture is not as good.

How interesting did visitors find the exhibit?

	Cargo Cranes	Cargo Ships	Mt Diablo	Total
Interesting	4	2	2	8
Somewhat Interesting	4	2	1	7
Neutral	0	1	2	3
Somewhat Uninteresting	1	0	0	1
Uninteresting	0	0	0	0

- People found the Viewports interesting because
 - They found a fact from the text interesting (7 visitors)
 - Visitor4 (Cranes): the fact that there are just a few of those in the world- just interested in them- they look interesting- they look like dinosaurs to me
 - Visitor5 (Cranes): The part about going under the bridge with such little clearance, 4 of the largest cranes in the world.
 - Visitor7 (Cranes): Especially how they barely cleared the Golden Gate Bridge. Visitor's dad had to lower radar mast when his ship came under GGB after WWII. They ended up with enough room to clear it, but they thought it would hit.
 - Visitor8 (Cranes): I tried to watch some others coming in, and the story of them going under the bridge and how large they are.
 - Visitor12 (Mt Diablo): View, impossible, but info very interesting. I love geology and don't remember, so being reminded is great.
 - Visitor13 (Mt Diablo): I couldn't see it. Interesting information, but takes the punch out not being able to see it.
 - Visitor16 (Ships): I used to see ships a lot - I never knew if they were empty or full. The illustration seems like commonly known information.
 - They found a personal connection with what was described (5 visitors)
 - Visitor2 (Cranes): I saw them go under the bridge, but never saw them close up. Similar ones are the inspiration for Lucas' xxwalkers. I saw them waiting for the tide while surfing in Bolinas.
 - Visitor7 (Cranes): Especially how they barely cleared the Golden Gate Bridge. Visitor's dad had to lower radar mast when his ship came under GGB after WWII. They ended up with enough room to clear it, but they thought it would hit.
 - Visitor8 (Cranes): I tried to watch some others coming in, and the story of them going under the bridge and how large they are.
 - Visitor14 (Mt Diablo): I live in Concord, and hike Mt. Diablo, so it's most personal.
 - Visitor16 (Ships): I used to see ships a lot - I never knew if they were empty or full. The illustration seems like commonly known information.
 - The Viewport helped them see the subject in its larger context (4 visitors)
 - Visitor3 (Cranes): Putting the distant scene in perspective with the picture and info.

Visitor6 (Cranes): Saw the trading life here. It's like a strong harbor.

Visitor9 (Cranes): Man said info was 5, but actual experience is 3, so I put down 4 for him. Teen rated it a 2. Teen: Because the cranes are MEANT to lift that much. M: The scale is pretty big.

Visitor10 (Mt Diablo): It makes it easier to see Mount Diablo and the other side of the bay.

- They could see the object better (3 visitors)

Visitor17 (Ships): Because it makes you stop and actually look at them.

Visitor18 (Ships): We can't go there to see them. It's a simple technology, the exhibit.

Visitor19 (Ships): Female rated it a 4, Male rated it a 2. F: Neat to see the things closer. M: didn't learn anything.

- Visitors who found the Viewports not interesting explained:
 - There was nothing new or surprising about what they saw or read (4 visitors)
 - Visitor9 (Cranes):: Because the cranes are MEANT to lift that much.
 - Visitor11 (Mt Diablo): Because I'm from here, I already know bout Mt Diablo. It wasn't that much closer through that telescope.
 - Visitor15 (Ships): Doesn't really say much. The only factoid was how when it's riding high it's empty, which is really obvious info.
 - Visitor19 (Ships): didn't learn anything.
 - The objects were too far away (1 visitor)
 - Visitor1 (Cranes): It wasn't immediate, what I was looking at was so far away.

What did visitors see that they did not see before?

- Most (15/19) visitors said that they did not see anything new to them. ⁵
- The few who did, saw:
 - Visitor4 (Cranes): Those cranes are different than those (more to right) they appear to be different
 - Visitor11 (Mt Diablo): I could barely see it. I didn't know we could see it from here.
 - Visitor16 (Ships): Hadn't examined them close up before.
 - Visitor18 (Ships): The loading and unloading.

What did they learn at the exhibit?

When we asked more broadly for what they learned,

- Visitors mentioned facts they read in the exhibit text (12 visitors)
 - Cranes (6 visitors)
 - Visitor2 (Cranes): I hadn't recalled the Golden Gate Bridge clearance being so close.

⁵ Cranes: 8/9 visitors. Mt Diablo: 4/5 visitors. Ships: 3/5 visitors.

Visitor3 (Cranes): I didn't know how much of the crane was a solid structure.

Visitor4 (Cranes): Their weight- 12 hundred tons

Visitor5 (Cranes): I didn't realize that they were 4 of the largest, and from China, must have forgotten from when they came in, because I do remember that.

Visitor8 (Cranes): I knew they were big for HERE, but didn't know they were the largest in the world. I didn't know how heavy they were, but putting tons as well as pounds would be better.

Visitor9 (Cranes): M: How tall they were, how they barely got under the Golden Gate Bridge.

– Mt Diablo (3 visitors)

Visitor10 (Mt Diablo): That it existed.

Visitor11 (Mt Diablo): The sandstone. I didn't know that before. .

Visitor14 (Mt Diablo): the label may say something about the formation. I didn't realize you can see out to the Farralons from there.

– Ships (3 visitors)

Visitor15 (Ships): I learned factoid about it riding high when empty, but that's pretty obvious.

Visitor16 (Ships): About whether the ship is full or empty.

Visitor17 (Ships): Yes, I didn't realize that the containers ONLY sit on top of the ship. I thought they were below too.

• *Visitors made a connection to prior knowledge*

Visitor7 (Cranes): Reminded me of PBS special that talked about another big crane in LA.

Visitor11 (Mt Diablo): The other place you can see really far, aside from Mt Diablo (seeing far FROM Mt Diablo) is Mt Kilimanjaro.

Visitor13 (Mt Diablo): You can also still see the Oakland fire scar on the hill. People don't usually know that Oakland is to the right of the bridge.

What questions did visitors have about the subject?

We asked what questions visitors still had about what they saw or what they read. Their questions may reveal areas that next iterations of this prototype can help visitors explore.

• *Cranes*

Visitor2 (Cranes): Yes. More curious about operation of the Port of Oakland.

Visitor4 (Cranes): Just about the commerce. what comes in and out on a daily basis

Visitor6 (Cranes): yes. Curious how much weight they lift every day. How much area they move and the importance to the local economy.

Visitor7 (Cranes): No, just brings to mind the interconnectedness of global trade. Reaffirms my curiosity.

• *Ships*

Visitor17 (Ships): Not particularly. I'd like to see it in action, never seen the cranes working with the ships.

- *Mt Diablo*

Visitor12 (Mt Diablo): Want to go there, I have yet to get to the top of Mt Diablo

Visitor10 (Mt Diablo): Yes, curious about how SF looks from the East Bay.

Would visitors stop again?

	Cargo Cranes	Cargo Ships	Mt Diablo	Total
Yes	7	3	3	12
No	2	2	2	7
Total	9	5	5	19

- A majority (12/19) of the visitors would stop again to look at a Viewport. This is because:
 - They expect to see something different under other viewing conditions (6 visitors)
 - Visitor3 (Cranes): Looking for a cleaner view - because it's a little hazy today.
 - Visitor6 (Cranes): what it looked like in fog.
 - Visitor7 (Cranes): I'd like to look through the telescope, hopefully on a clearer day.
 - Visitor10 (Mt. Diablo): If the view were clearer, maybe not with the same kind of weather.
 - Visitor15 (Ships): Especially if it were clear - to see if the ship's full or empty.
 - Visitor18 (Ships): I'd like to see if it's more clear.
 - They expect to see something different about the subject (4 visitors)
 - Visitor5 (Cranes): Maybe a barge there, and I'd always take a look, because it's always interesting to find out and see things, especially of any information about San Francisco.
 - Visitor6 (Cranes): To see if it could be adjusted. Or maybe a different view would be there on a different day. Or what it looked like in fog.
 - Visitor8 (Cranes): It's always going to change, what they're doing, unloading will always be different.
 - Visitor17 (Ship): Maybe there's something else, or able to see it moving.
 - They expect to see something different about the exhibitry (2 visitors)
 - Visitor6 (Cranes): To see if it could be adjusted.
 - Visitor12 (Mt. Diablo): Depends on how crowded it is. If no one's there, if I don't have to wait at all, I'm much more likely to stop. But then I'm running, so I don't want to take a lot of time.
 - They would like to show others (1 visitor)
 - Visitor16: I might tell a friend to stop even if it were the same.

- More than one third (7/19) of the visitors said that they would not stop. Some of them explained:
 - There would be nothing new to see (4 visitors)
 - Visitor11(Mt Diablo): Because I've already checked it out.
 - Visitor13(Mt Diablo): It's kind of a seen it once, seen it a 1000 times.
 - Visitor16(Ships): If it were something new I'd stay. But I might tell a friend to stop even if it were the same.
 - Visitor19(Ships): If there were something new.
 - They wouldn't get to see what they were really interested in seeing
 - Visitor1(Crane): If the crane were right near it - but that would be impossible.

SUMMARY

- Most of the visitors who stopped and looked at a Viewport were able to see the subject, the cargo ships, the cranes or Mt. Diablo. Of the 3 Viewports, visitors had the most difficulty seeing Mt Diablo because of hazy viewing conditions and because they were not sure where to look.
- A majority (11/17) of the visitors who stopped looked at all the Viewports that were mounted on the railing.
- On the first day of the evaluation, 5/8 (63%) of the visitors looked through the telescope on a Viewport. Afterwards, the graphics was changed to highlight the eyepiece, and more visitors, 9/11 (82%), used the telescope. Most (14/15) visitors thought the telescope added to their exhibit experience. However, a few visitors thought the experience could be made even better with a more powerful scope.
- On average, visitors found the exhibit *somewhat interesting* because: they found the facts they read interesting (7/19, 37%), they had a personal connection or memory of the subject, especially the cranes (5/19, 26%), the Viewports helped them see the subject in its larger context (4/19, 22%), and the Viewports helped them see something close up (3/19, 16%).
- However, when we asked if they saw anything new at the exhibit, many (15/19) visitors claimed they did not; what were new were facts that they read in the text. With the current prototype, visitors seem to be more focused on the information content as opposed to noticing something new or in a new way.
- This may be the reason why more than one-third of the visitors claimed that they would not stop again at the exhibit and why close to another third, who said they would stop, also said they would do so to get a look under different , improved viewing conditions. That is, many people did not necessarily think they would see anything new about the subjects, the cargo ships, the cranes, and Mt Diablo, themselves.
- Future iterations can experiment with ways to bring what can be noticed to the fore and better integrate the information content with what people can see when they look at the cranes, the ships and Mt. Diablo with the exhibit. Highlighting the subjects and how them

may change may also encourage more people to stop again to look at the dynamic nature of the subjects in view.

ACKNOWLEDGEMENTS

The author would like to thank Mary Kidwell for collecting and entering the data for this formative evaluation study.

This material is based upon work supported by the National Science Foundation under Grant number 0104478. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.



APPENDIX A**Observations**

Observe and interview every 3rd person. Do not observe/interview anyone under 8. Only interview someone <18 if accompanied by guardian.

Note anything of interest. In particular, make note of the following:

1. Which viewport did they look at (stand in front of disk and look for > 3 sec)?
CARGO SHIPS CARGO CRANES MT DIABLO
2. Did they use the telescope?
CARGO SHIPS CARGO CRANES MT DIABLO
3. Did they look in the general direction of object?
CARGO SHIPS CARGO CRANES MT DIABLO
4. Other observations...

Interview

- ❖ Have you been to the Exploratorium before? YES NO
- ❖ [If NO] Have you heard of the Exploratorium before today? YES NO

0. Which one of those did you get a chance to look at?
CARGO SHIPS CARGO CRANES MT DIABLO

[if they indicated only one, ask about that one. If they looked at more than one, pick the viewport different from the last interview. (Cycle through the 3 viewports.)]

May I ask you a few questions about that exhibit in particular [point and describe position and appearance]? So, we're just talking about just that one [point]

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. Did you see (cargo ships/ cargo cranes / Mt Diablo)? YES NO
 [If NO] Was there anything that made it difficult to see (ships/ cranes / Mt Diablo)?
 [If YES] Did you have any difficulties seeing (ships/ cranes / Mt Diablo)?
4. Did you use the little telescope that was on the exhibit to look at (cargo ships/ cargo cranes / Mt Diablo)? YES NO
 [If YES]
 a. Were you able to see the (ships/ cranes / Mt Diablo) through the scope? YES NO
 b. Did you have any difficulties using the little telescope? If so, what?
 c. In your opinion, does having the telescope make the exhibit better or worse? Or did it not make any difference?
 Better *Same* *Worse*
- [If NO – did not use scope]
 a. Was there any particular reason why you decided not to look through the telescope?
5. [If they saw the object] Was there anything you **saw** or noticed about (cargo ships/ cargo cranes / Mt Diablo) that you did not see before? [if they used the scope] So, this is either with or without the little telescope. [For each response, ask if they noticed it only with the scope or with their naked eye]. [Get description of what they noticed.]
6. Was there anything you learned about (cargo ships/ cargo cranes / Mt Diablo) that you did not know before? [So, this is not necessarily something you saw.]
7. Did you get a chance to read the text or look at the photos on each disk?
 Read text *Looked at photo*
 a. [If either read or looked] Was there anything confusing about the text or the photographs?
8. Did the exhibit make you curious about anything? Anything you would like to know more about? In particular, about (cargo ships/ cargo cranes / Mt Diablo).
9. If you were to see this exhibit again another day when you're walking by the Bay, do you think you would stop? YES NO
 a. [if YES] Why would you stop again? What would you hope to see?
 b. [if NO] What would encourage you to stop again at this exhibit?
10. The Exploratorium is interested in putting permanent exhibits by the bay in this area. Can you tell me how often you walk along the Embarcadero/ the Bay in this area?