

Musical Plant Bench: 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 analysis
 - brief reports

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

Purpose

- To determine whether additional graphitorial is needed for visitor usability
- To gauge how the plant fares after a full day of being handled by visitors
- To identify songs or types of music visitors would like to hear at the exhibit
- To gauge whether visitors feel connected to plants after using the exhibit

Exhibit description

- A wooden bench with metal plates on the armrests and a plant in the middle of the bench
- When both metal plates are touched, music plays over speakers
 - Additionally, if visitors touch each of the metal plates and the plant, music will also play
- Touching the plant's stem works best for conducting the electricity required to play music
 - Touching the leaves is not effective
- A few hours into the evaluation, cushions were added to help the bench feel more welcoming

Photos



Methods

- Exhibit was evaluated on Latinx Engineering Day 2022 (September 25, 2022)
- Visitors were asked to participate using cued recruitment
 - Visitor recruitment was un-cued at first, but after 1–2 hours no visitors had stopped to use the exhibit, so recruitment changed to cued

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- If they agreed to participate once approached by the evaluator, visitors were led to the exhibit, asked to use it as they wished and for as long as they liked, and then led through a short series of interview questions about their experience

Selection criteria

- Visitor had not been recruited for another evaluation earlier that day (i.e. not wearing a sticker)
- Only individuals or pairs were recruited
- All participants had to be at least 8 years old
- Every participant had to be fluent in English and/or Spanish

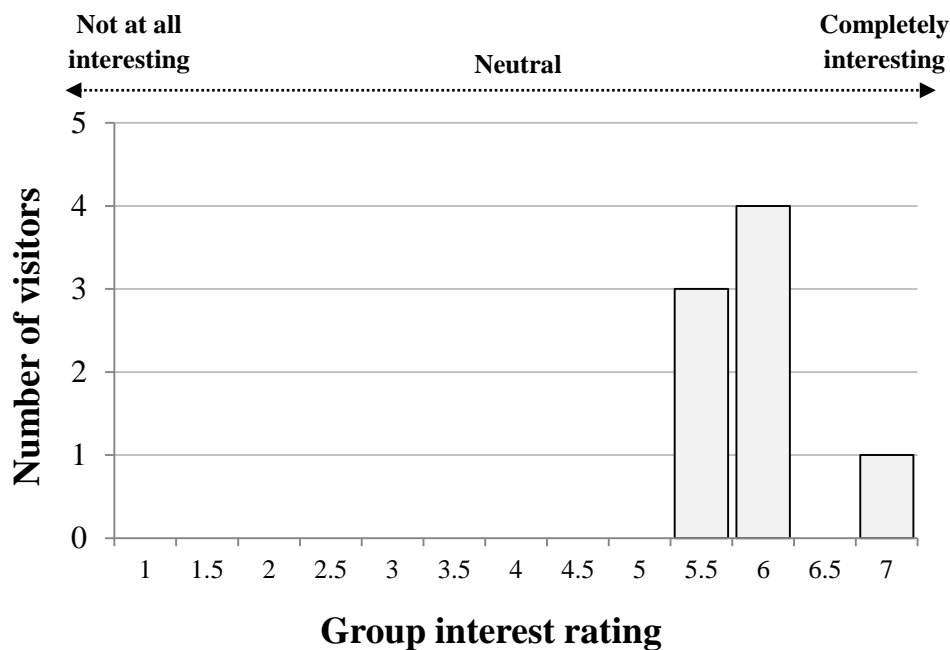
Results

Breakdown

- 8 visitor groups were interviewed
 - 1 of them came to the museum specifically for Latinx Engineering Day
- The median holding time was **1 minute and 49 seconds**

How interesting was it?

- Average visitor rating = **5.9**



What worked well

5 visitor groups said they liked or were surprised by the ability to conduct electricity through themselves and a plant

- V01_M: Pretty cool we can complete a circuit ourselves. Cool because you can grab the tree from the roots
- V02_F: I mean you know a combination of aesthetically pleasing and interesting because you never think of conducting electricity through a plant.
- V03_F1: Um I think that you can move your hand and you didn't know which stem would play music
- V07_F2: Kind of interesting what you can hold to play the music
- V09_F1: You can not hold the plant and it still work like if you touch the other person it still worked

2 visitor groups said they liked the environmental design (possibly referring to the Plant Patio)

- V04_F1: Just the concept and how it looks [*Eval: Anything else?*] Its fun. I like it
- V08_F1: Like music anything related to it. I was interesting and the way it looked with the plants

6 visitor groups liked that there was music

- V01_M: Probably that it works and produces sound
- V02_M: When the music started to connect like oh we are doing that. Moment of discovery
- V05_F1: The fact that it played music
- V06_F: Just the music
- V08_F2: Shock factor its good because I didn't know it would play music
V08_F: Having music when you touch it at the same time
- V10_F2: The music

Most visitor groups said they liked the current music choices

- V01_M: I think it kind of made sense with the forestry
- V03_F2: The music choice was surprising. I didn't expect Latin music
V03_F2: Honestly I was pleasantly surprised of the music it has now
V03_F1: I hope they only stick to Latin music
- V05_F: I like the music
- V06_M: That music was pretty funny
- V07_F2: [I liked that] It played different music
- V08_F2: I think the music it played right now is fine

When asked, other music options suggested by visitors included:

- V01_F: Tropical
- V02_M: Something from Zelda game, bongos
- V04_F1: I expected some lyrics not so much instrumental
V04_F1: Different variety of music like rock. Like switch it up for the different people
- V05_M: Top 100 billboard
- V06_F: Maybe relaxing music
- V07_F1: Tropical music
V07_F2: Beach sounds

- V08_F1: I think it would be fun if the music changed between people maybe some Taylor Swift

6 visitor groups expressed feeling a sense of familiarity with the exhibit

- V01_F: I feel like it can be at something at the rainforest cafe
- V03_F2: Specifically the bench I have a great aunt and every time we go we would sit on a bench surrounded by my uncles plants
V03_F1: Sitting outside my grandmas house in Mexico
- V04_F1: Maybe it make me think of going thorough community college or a amusement park exhibition like Great America
- V05_M: I have one of these plants in my house [pts at plant in between bench]
- V06_M: I'm an outdoorsy guy so it reminded me of that
- V08_F1: Music connects people

What needs improvement

6 visitor groups said the instructions could have been clearer

- V06_F: At first I wasn't able to figure it out but once I figured it out it was fun
V06_M: It caught me off guard based on the description I didn't, maybe a hint on it
V06_F: Maybe elaborate more
V06_M: Maybe the description
- V07_F1: I couldn't figure out how it worked

4 visitor groups were not sure where or how to grip the plant's stem

- V02_M: It took a minute to figure out maybe have a sign to grip the plant
V02_M: Just that lightly touching it doesn't work
V02_F: just how tightly you have to hold it
- V05_M: It was interesting in how weird it was. Maybe a sign that says grip me
V05_F: Clarifying the grip instead of try me, it should say grip me
V05M: The grabbing part
- V06_F: It was kind confusing about where to touch the plants so the music would work
- V08_F2: How hard to grip the plant because I didn't want to hurt it

1 visitor group was not sure where to touch the metal plate on the bench's armrests

- V03_F2: Um I think the exact placement of where to put your hand
V03_F1: How much of your hand has to be on the metal plate

3 visitor groups were curious about how the exhibit worked

- V03_F2: I think it was interesting in how it worked. And made me want to learn how it worked
- V05_F: I think the concept is really interesting but I would like to know how It works
- V07_M: Maybe a sign on what kind of plant it is or how it works. Something more intriguing

Takeaways

- Visitors enjoyed hearing music at the bench
- Visitors were surprised they could conduct electricity through themselves and through a plant
- Most visitors expressed feeling a sense of familiarity with the exhibit, which may have referred to the plant bench itself, or to the Plant Patio as a whole
- Visitors did not stop to use the exhibit or even sit on the bench unless prompted to or after seeing other visitors do so first

Future design considerations

- Emphasize the signage and labels to make it clear that:
 - Visitors are welcome to sit down and relax
 - The bench is an exhibit as well as a place to rest
 - Visitors can touch the plant
 - Visitors **should touch the plant's stem (instead of the leaves)**
- Consider adding cushioning to the bench to make it more welcoming
- Orient the bench so that it feels like a welcoming and obvious place to relax
 - Its location in the center of Gallery 4 may have deterred visitors from sitting to rest
- Consider adding overhead lighting
 - If backlit by the windows in Gallery 4, add lighting above the bench so it stands out
- Consider explaining how the phenomenon works of conducting electricity from the metal plates, through us, & through plant (i.e. what makes it possible, how does electricity move through)