Talking Trash
Designing an Recycling Activity for the Pittsburgh Children’s Museum

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Marti Louw
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Jodi Forlizzi
Project Advisor
Project Goals

To design an interactive activity for the museum that …

- Encourages recycling behavior in young children
- Supports discussion in families about recycling
- Builds awareness about what is and is not garbage
- Teaches children to recognize material qualities
- Delights parents and children in a memorable experience

Secondary Goals:

- Explore the use of interactive technologies
- Increase capture rates of recyclable materials
- Reduce contamination mistakes
Design Process

Discovery | Fall
- Site Research
- Audience Research
- Recycling Research

Invention | Winter
- Ideation
- Initial Concept

Realization | Spring
- Prototyping & Evaluation
Discovery Phase

Site Research
- Museum Demographics
- Exhibits Staff Interview
- Custodian Interview
- Café Manager Interview

Audience Research
- Interviews with Children
- Pecaboo Café Observations

Recycling Research
- Web Research
- Barbara Kviz, CMU’s Green Practices
- Cradle to Cradle by McDonough & Braungart
Invention Phase

Sketching

Platonic Solids

Existing Solutions

Form Studies

Cardboard Mock-ups

Kids Play

Sensors

Material Tests

Designing a Recycling Activity for the Pittsburgh Children’s Museum
Initial Concept | A Recycling Obelisk

- Construct a functional, freestanding three-sided receptacle
- Create a sorting activity for plastic, glass and metal recycling
- Use visual, aural and tactile cues to support interaction and learning
- Incorporate the material to be recycled into the design
- Support discussions about recycling in families with communication materials
- Explore the use of interactive technologies to enhance engagement and learning
Realization Phase | Overview

Rapid Prototyping
- Prototype 1 – Physical Design
- Prototype 2 – Interaction Design
- Prototype 3 – Communication Design
- Prototype 4 – Interactive Technologies

Evaluation Methods
- Video observation
- Data collection
- Capture analysis

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Prototype One

Purpose:
To evaluate the physical form and establish a baseline of use with a minimum graphic and communication elements.

Features to Test:
- Use of receptacle
- Placement in café
- Size, Shape, Scale
- Capacity
Prototype One | Video Clips

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Prototype One | Findings

Insights

- Parents tend to do most of the recycling
- Triangular form novel, suggests multiple facets of use
- Size, scale, capacity appropriate
- High contamination rates, esp. plastics
- People look into garbage to see what’s there
- Proximity of receptacle to table influences use

Next Steps

- Add activity to attract and involve kids
- Add features to support learning about recyclables
Prototype Two

Purpose:
To provide children an opportunity to learn about recycling by adding a sorting activity and a display window showing the different types of materials that can be recycled.

Features to Test:
- Glass sorting by color
- Plastic sorting by number
- Metal sorting by magnet
- Use of instructions
- Use of display window
Prototype Two | Video Clips

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Prototype Two | Findings

Insights

- Attracts children to come look and walk around
- Kids love the magnet
- Short conversations about materials
- Increases child participation in recycling
- Plastic sorting reduces contamination

Next Steps

- Find a way to increase conversations about recycling
- Add graphic and tactile elements
- Improve sorting activity for plastics
Prototype Three

Purpose:
Add visual and text communication elements to seed conversation about recycling and support recycling activity at the obelisk.

Features to Test:
- Table placards w/tips, factoids
- Graphics and tactile treatments
- Magnifying glass for plastics
Prototype Three | Findings

Insights

- Recycling Obelisk makes recycling fun
- Increases child participation in recycling
- Placard increases discussion about recycling
- Provides new information to share with children
- More people check for plastic symbol

Next Steps

- Add interactive technologies
- Audio cues
Prototype 4

Purpose:
To test and evaluate the use of light indicators and audio cues to understand how these elements enhance or detract from the interactive experience.

Features to Test:
- IR Detector
- LED signals
- Audio Cues

'----[ Main Code ]----------------------
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Main:
SERIN PC_in, N2400, [pcByte] ' get
SEROUT QV_RX, N2400,[_Record] THE
HIGH RecLED ' light LED if record
GOTO Main

CHECKEOF:
IF (pcByte <> 0) THEN CheckPlay 
files = files + 1 ' = yes, update
GOTO Main

CheckPlay:
IF (pcByte <> QV_Direct) THEN Main
IsDone:
' flash LED when done
FOR temp = 1 TO 10
TOGGLE RecLED
PAUSE 100
NEXT
LOW RecLED
Prototype Four | Video Clip

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Reflections

The Recycling Obelisk succeeded in:

- Increased child participation in recycling
- Increased conversations about recycling
- Promoted learning about recycling
- Improved accuracy in plastic recycling
- Made recycling a delightful activity

And perhaps …

- Created a memorable recycling experience
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Questions?
Discovery Phase | Audience Research

Pecaboo Café Observations

- Café is a rest stop, time for snacks, drinks, meals
- Visitors often purchase or bring recyclable items
- Kids finish meals first and go wandering …
- Parents take charge of clean-up and garbage disposal
- Very few items are recycled

Interviews with Children

- Pre-school age weak conception of trash and recycling
- Unclear about what materials are recyclable
- Vague notions of where trash goes
- Garbage is “icky”
Discovery Phase

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