Family Interpretations of Conservation Messaging at an Aquarium exhibit

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BACKGROUND

- Conservation, a socio-scientific issue, can be complex and controversial[1]
  - Such issues are often divisive, and messaging may be regulated[2]
- Aquaria offer scientific information in approachable, non-threatening formats, allowing for comfortable engagement[3]
- Understanding how families interact with and interpret aquarium messaging can document exhibit effectiveness
- Studies have examined family learning in informal settings but only focus on adults' perspectives,[e.g.,4-6] failing to consider how individuality influences understanding
  - Our qualitative study examined interpretations of experiences by both parents and children

METHODS

Hypotheses

Visitors will interpret messaging different than intended

Adults and children will have differing experiences

Data Sources/Goals

Staff Interview (n=1)
Identify Messaging Approach and Parameters
Select Target Exhibit and Document Intended Message

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Exhibit Observation
Document Target Exhibit Design Elements and Reading Level

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Photo Credit: TXSciencePEERS

Video Observations
Record Time on Design Elements
Capture Concurrent Biometric Trends by Visitor Type (Adult vs. Child)

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Visitor Interviews (n=14)
Identify Interpretations of Message

Data Analysis

- Inductive approach to analyze interviews
  - First Cycle: In Vivo Codes[7] → capture participant claims
  - Second Cycle: Pattern Coding[7] → identify emergent themes
- Maintained trustworthiness through inter-rater reliability (100% consensus) and member checking themes
- Deductive approach to categorize exhibit design elements into: Digital, Live Specimen, Physical Signage, or Manipulative
- Calculated focal points, duration and counts using Tobii Pro Lab Software to report frequencies (sec/%)

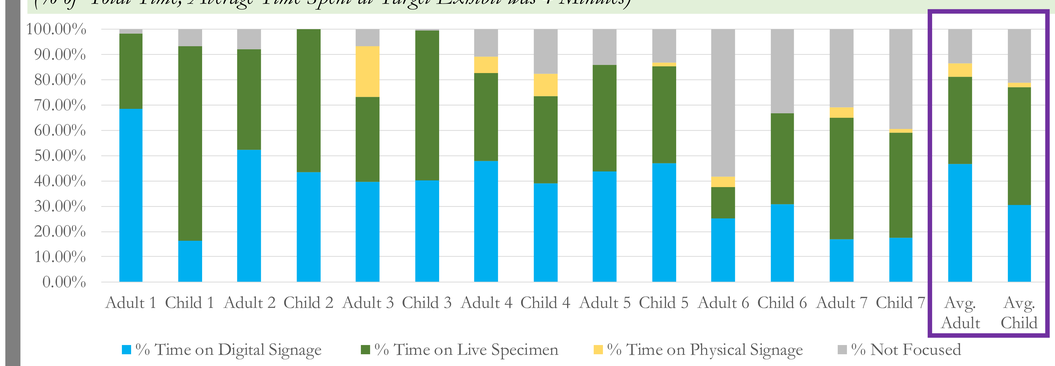
RESULTS


Photo Credit: Jenn Idema

- Primary Goal → provide accurate content about local species drawn from reputable sources
- Secondary Goal → avoid presenting controversial topics to prevent upsetting visitors
- All messaging must be approved by aquarium director & follow institutional policies
- Exhibit is a mix of digitized content, live example organisms, & physical signage about water conservation issues (3rd grade reading level)
  - Intent for mixed media approach → allow easy content updating and attract visitor attention

Biometric Trends based on Focal Points During Exhibit Visit

(% of Total Time, Average Time Spent at Target Exhibit was 4 Minutes)



Aquarium Intended Message

Conservation of water is important because the overuse of water and non-point pollution within the watershed can harm local endangered aquatic species.

Visitor Interpreted Message

Adult 1	Learning about the aquifer, the importance of preserving the environment and nature overall	
Child 1	Sea animals	*(Age 7)*
Adult 2	Salamander eye adaptations	
Child 2	Water and to help the environment	*(Age 10)*
Adult 3	Save the water	
Child 3	Preserve the aquatic environment and fish	*(Age 14)*
Adult 4	I clearly don't know everything	
Child 4	I don't know actually	*(Age 12)*
Adult 5	To learn about what lives in our waters	
Child 5	The kinds of fish	*(Age 7)*
Adult 6	We can learn from each other	
Child 6	Don't throw trash in the water	*(Age 9)*
Adult 7	Take care of nature	
Child 7	Protect endangered species	*(Age 15)*

DISCUSSION

- Adults spent more time on signage (46.83%)
  - Adults tend to use signage to make sense of exhibits and facilitate children's understanding[9,10]
- Children spent more time looking at live species (46.47%)
  - Children are more likely to engage with exhibits designed for a hands-on experience and include live species[9,10]
- Lack of manipulative design elements in exhibit may be one cause for limited time in exhibit
  - Manipulatives hold visitor attention longer and increase engagement opportunities[9]
- Most visitor interpretations of exhibit message were aligned with the intended message, but none reported the full message
  - Disconnection may be due to technical issues with digital displays or limited exhibit interaction

FUTURE DIRECTIONS

- Expand investigation to more aquaria and family participants
- Identify and compare trends from exhibits displaying varying content within and across aquaria
- Explore how personal interests and prior experiences with content influence interpretations of messages
- Explore how interpretations lead to related, future actions


Photo Credit: Ella Barwick

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