How can we expand the way we design for emotion in informal learning?

Developing Guidelines for Designing Challenging and Rewarding Interactive Science Exhibits (DRL-1612577) is using design-based research to extend our understanding of how negative emotions can support learning by exploring how to design for productive struggle in museums.

An example:

Sneak

Can you get by the bird to see other animals?

Overall Design Principle: Managing Struggle Budget

The whole experience applies clear design so the visitor doesn’t spend too much of her physiological “struggle budget” figuring out how to use the exhibit.

Emotional Disequilibrium

Definition: The visitor experiences a shift from her or his emotional home base.

Associated emotions: Difficulty, surprise, confusion, frustration

Example design strategy: Provide an experience that encourages deep emotional processing

Case example: “It’s not like you just push a button and it does something. You have to work to complete it.”

Persistence

Definition: The visitor chooses to persist towards a goal.

Associated emotions: Focus, motivation, determination

Example design strategy: Provide feedback about progress and make it clear when and why failure and success occur.

Design example: A “sneak-o-meter” visualizes visitors’ speed, a bird’s body language adjusts as visitors move, and bird alarm calls indicate progress.

Case example: “If you watch the meter you could see if you’re doing a good job or a bad job.”

Productivity

Definition: The visitor’s emotional disequilibrium is reduced or resolved.

Associated emotions: Pride, accomplishment, satisfaction, realization

Example design strategy: Elicit satisfaction through new learning or completing an exciting or meaningful task.

Design example: Visitors learn that some mammals run away when they hear birds’ alarm calls. If visitors succeed they see a doe and a fawn.

Case example: “[It was satisfying] because you finally made it, you put effort in and get to find out what the animal is.”

RESEARCH METHODS

- Galvanic skin response sensors measure subjects’ real-time physiological activation
- Video recordings and observations allow researchers to track behavior
- Eye tracking glasses measure cognitive and behavioral engagement
- Self-report surveys evaluate emotional experience and mindset factors
- Stimulated recall interviews have visitors reflect on what they did, and how they felt, and how design features impacted their experience

Biometric data shows visitor reactions to exhibit design.

Eye-tracking data illustrates what visitors attend to.

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CREDITS

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