EDGE

Exhibit Design for Girls' Engagement
Developing STEM Exhibits That Engage Girls and Boys Equally

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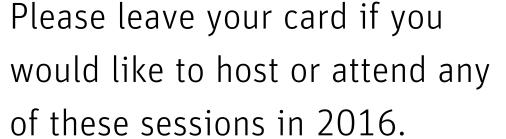
Our Audience

The EDGE study will provide museum professionals with tested design principles for creating STEM exhibits that equally engage boys and girls.

What We'll Deliver

➔ A freely available design document shared on listservs and elsewhere

➔ Professional development workshops and an ASTC Connect Webinar

➔ Findings presented at informal learning and game design conferences

➔ Publications in peer-reviewed journals

Please leave your card if you would like to host or attend any of these sessions in 2016.

Overview

After extensive review of psychology, education, museum studies, gaming, and web design literature, EDGE researchers identified broad patterns of learning females tend to use when successfully engaging with STEM.

EDGE is investigating quantifiable exhibit design principles—the Female-Responsive Design Principles—that can be used in developing STEM exhibits that more equally engage girls and boys.

Female-Responsive Design Principles

Collaboration and Social Interaction

Historically, girls have preferred, been more engaged in, and performed better in academic and everyday STEM situations that are social, cooperative, and support their active participation.

Two or More Required Roles

Exhibits can require two or more roles. Learners must work together to experience the exhibit.

Meaningful Connections

Research suggests girls have historically preferred and been more successful with STEM content when it was contextualized, or the nature of the content is made meaningful to humankind or their everyday lives.

Real-World Applications

Exhibits can highlight real-world applications, which helps make content meaningful and provides context.

Self-Representation

Research suggests girls have historically engaged more readily with STEM content when the topics, language, aesthetics, highlighted users, and imagery appear familiar or related to them and their interests.

Highlight Users

Including images of female users in graphics can help signal to adults and children that the exhibit is appropriate for girls.

Research Questions

- Are there additional Female-Responsive Design Principles that emerge when looking across a variety of exhibits?

- Which Female-Responsive Design Principles most strongly differentiate between equally engaging and male-favorably engaging exhibits?

- Does girls' learning differ at equally engaging and male-favorably engaging exhibits?

- When Design Principles are present, how do they work to better engage girls?

- In what ways do girls' responses to the Design Principles vary?

Our Approach

Time and track 1000+ boys and girls ages 8–13 across three institutions using over 300 physics, engineering, and math exhibits

WE ARE HERE

Identify exhibits that engage boys and girls equally and those that are unequally engaging

Design an Experts and Girl Advisory Committee to review the Female-Responsive Design Principles and the timing and tracking findings to expand the principles

Determine which design principles (and combinations of principles) are present when girls and boys are equally engaged, and which are absent when boys are much more engaged

Review results with the Girl Advisory Committee

Conduct focus groups and observations with girls to learn more about the Female-Responsive Design Principles and how they work

Challenges ➔ Potential Impacts

- Fewer exhibits visited per participant than expected
→ the exhibit sample may be less representative than ideal

- iPads used to track engagement are crashing often
→ the time needed to recruit participants increased and may reduce the number of participants in the study

- Piloting revealed that time spent at the exhibits is related to both gender and first-time/return visits, creating a confound in the data
→ decided to focus the study on first-time visitors, which is slowing down recruitment efforts and may lead to a smaller sample size

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