CAREER: Supporting Families' Collective Agency as Learners in Science Centers and Museums through an Integrated Research and Practice Agenda | AWARD # *2046141*

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https://sites.google.com/nysci.org/changelab/

Project Description

This CAREER AISL project is exploring how families exercise agency during visits to science centers, and how STEM exhibits can be designed to support agency for the broadest possible audience.

Key Achievements

- A group of designers, educators, facilitators, and researchers *(the Change Lab at NYSCI)* co-created a framework and practical tools for understanding and supporting families' agency.
- Interviews with 120 family groups across 8 exhibits used Cultural Historical Activity Theory to find tensions in families' museum experiences.

Audience & Settings

Audiences: Museum/ISE professionals; Families

Disciplinary areas: General STEM, Family learning

Learning environments: Museum and Science Center Exhibits / Programs

Access and Inclusion

- This project is taking an intersectional approach to understanding how family members' individual and shared identities shape their experiences in science centers.
- Discussions with museum staff focus on questioning assumptions and reimagining museum practices to make exhibits more engaging for families with a wider range of identities and prior experiences.

This material is based upon work supported by the National Science Foundation under grant 2229061. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

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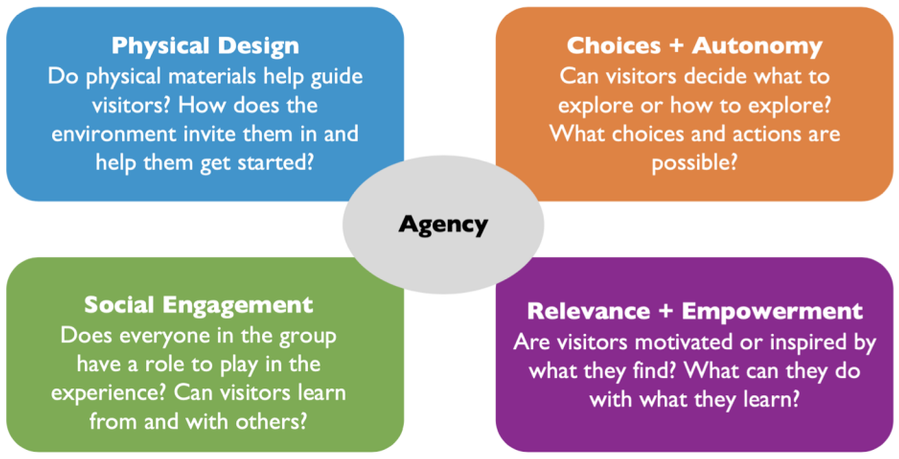
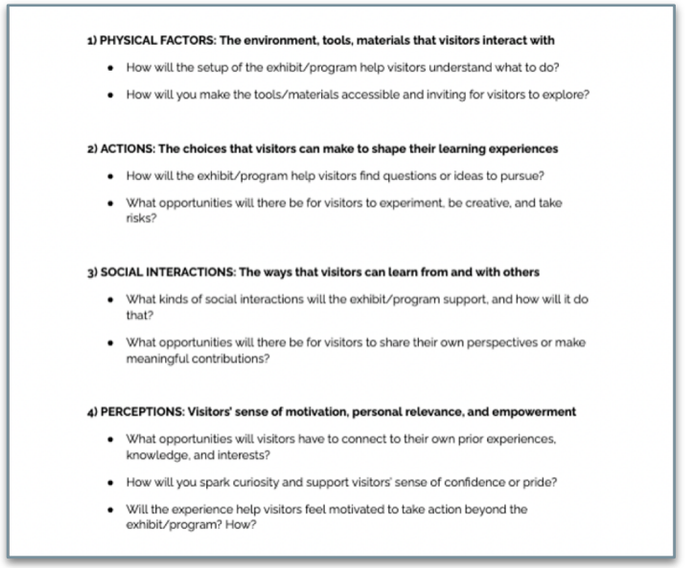
RE VISE

Agency Framework



Agency Tools



1) PHYSICAL FACTORS: The environment, tools, materials that visitors interact with

- How will the setup of the exhibit/program help visitors understand what to do?
- How will you make the tools/materials accessible and inviting for visitors to explore?

2) ACTIONS: The choices that visitors can make to shape their learning experiences

- How will the exhibit/program help visitors find questions or ideas to pursue?
- What opportunities will there be for visitors to experiment, be creative, and take risks?

3) SOCIAL INTERACTIONS: The ways that visitors can learn from and with others

- What kinds of social interactions will the exhibit/program support, and how will it do that?
- What opportunities will there be for visitors to share their own perspectives or make meaningful contributions?

4) PERCEPTIONS: Visitors' sense of motivation, personal relevance, and empowerment

- What opportunities will visitors have to connect to their own prior experiences, knowledge, and interests?
- How will you spark curiosity and support visitors' sense of confidence or pride?
- Will the experience help visitors feel motivated to take action beyond the exhibit/program? How?

Developed by the Change Lab at NYSCI

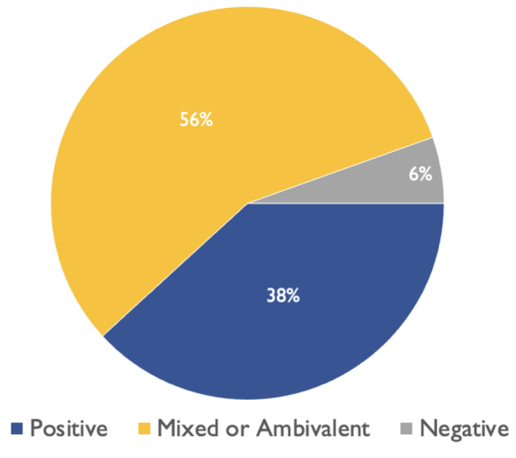
Includes a planning tool, rapid prototyping tool, and observation tool aligned with the Agency Framework.

Interview findings

Many families had mixed experiences with STEM.
Most often, children were more interested in STEM than their caregivers.

Families' objectives for their visits varied based on their prior museum experience.
First-time visitors were more likely to want to use the museum to support children's existing STEM interests or knowledge.

Families' Attitudes Toward STEM

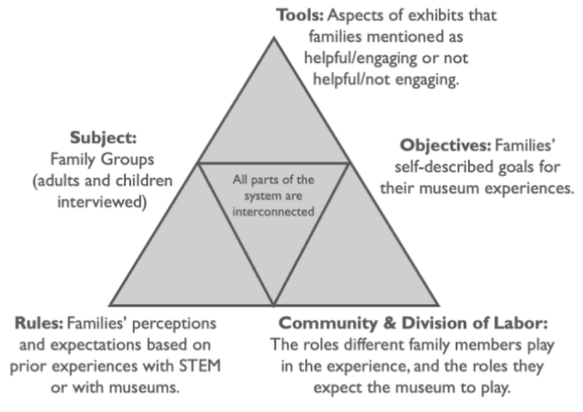


Mixed or ambivalent = some family members were interested in STEM and others were not, or were only interested in certain topics.

Families' Objectives for Their Museum Visits

Circle sizes indicate relative prevalence of themes in interviews. Both caregivers' and children's responses coded to identify themes. Categories not mutually exclusive.

CHAT Elements



Tensions in Families' Experiences