Group **I**nquiry by **V**isitors at **E**xhibits

THE EXPLORATORIUM **GIVE** PROJECT

Josh Gutwill, Acting Director of Visitor Research, Exploratorium

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ABSTRACT

This project developed and tested programs to deepen families' inquiry practices in the informal learning setting of a science museum. Using a randomized experimental design, two versions of the programs, called *Inquiry Games*, were compared to two control conditions. Results indicated that visitors who learned the inquiry games improved their inquiry process more than those who did not. Visitors who learned the more collaborative inquiry game showed even more improvement than those who learned the individualized game, spending more time investigating the post-test exhibit, making more frequent and more sophisticated interpretations of their experiments, building more collaborative explanations, and engaging in more coherent inquiry investigations. Preliminary analysis from a second phase of the project, which focuses on field-trip groups, indicate similar results.

PARTICIPANTS

Family Groups: multigenerational groups that have at least one child between the ages of 8 and 13.
School Groups: Field-trip groups in grades 4–7.

INQUIRY SKILLS

After much formative work, we chose two inquiry skills as powerful for advancing inquiry at exhibits, especially by groups:

Proposing an Action
(e.g., asking a question or proposing a plan)

Interpreting Results
(e.g., interpreting, explaining, summarizing)

INQUIRY TREATMENTS

We developed two different approaches to teaching and using these two skills. One approach is overtly collaborative, while the other supports more individual discovery.

"Juicy Question" game: (collaborative, sequential)

The group explores the exhibit; brainstorms ideas for questions ("I wonder…"); chooses a 'juicy question' that nobody knows the answer to, but that can be answered at the exhibit; investigates that question; and reflects on what happened ("We discovered…")

"Hands Off" game: (individualistic, spontaneous)

The group explores the exhibit. At any point anybody in the group can call "Hands Off" and the rest of the group must take their hands off the exhibit and listen to them. Participants can call Hands Off in order to Propose a Plan ("I want to try…") or share a Discovery ("I figured out…").

Each game has a card to remind visitors of the rules.

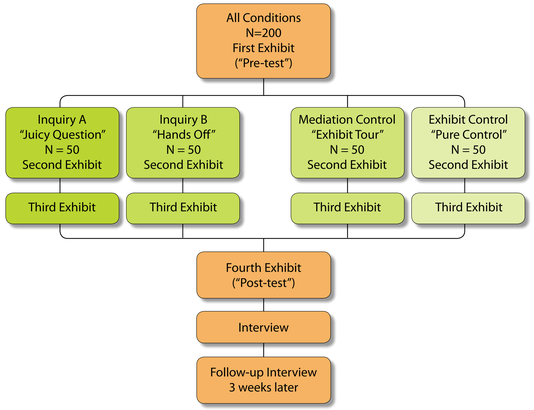
EXPERIMENTAL DESIGN

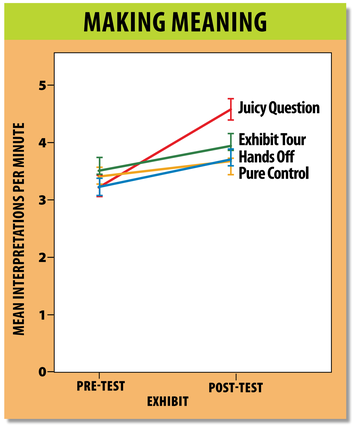
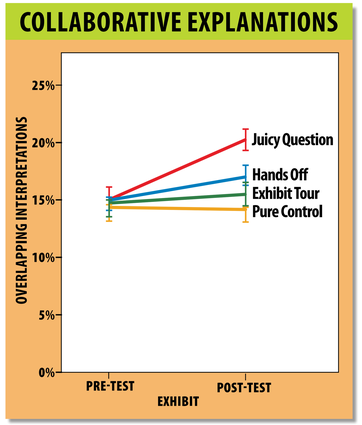
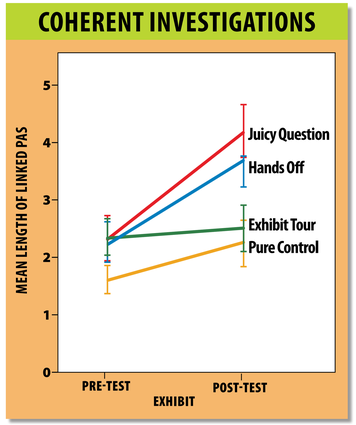
All groups use the same pre-test exhibit for as long as they like.

Then each group is randomly assigned to one of four conditions: some groups work with an educator to learn variations of an Inquiry Game. Other groups receive a non-inquiry based Exhibit Tour or simply use the exhibits on their own.

Finally, all groups use the fourth exhibit on their own for as long as they like.

This is an RCT design (randomized controlled trial) with 2 treatments and 2 control groups.



RESULTS FOR FAMILY GROUPS

1) **Time:** Families who'd learned the Juicy Question inquiry game spent longer at the final exhibit than control group families.
2) **Making Meaning:** Families who'd learned the Juicy Question inquiry game made meaning from the results of their investigations more often; this was one of the targeted skills.
3) **Collaborative Explanations:** Family members who'd learned Juicy Question built on each other's interpretations more.
4) **Coherent Investigations:** Families who'd learned an inquiry game did more linked investigations, even though we never taught them this.