

Translating Research for Museum Audiences - Developing “Research Toy” Activities

Introduction

This document offers suggestions for drawing on the combined expertise of museum educators and scientists to translate jargon-filled research articles into activities that can be used with public audiences in museum environments. Development of the *Infant Area* (an exhibit for children ages 0-12 months and their caregivers at the Museum of Science, Boston) provides an example of activities created by educators based on research in visual development and causal learning.

The following questions can help guide the development process:

What is the goal for presenting research in the museum?

Your goals will help to define what types of studies are relevant, and what aspects of those studies are most important. You might choose to focus on:

- The results of the studies –what scientists know about child development (providing take-home messages to visitors). In this case, you will search for research articles based on the topic of the study, or the age groups or other demographics involved in the study (compared to your audience).
- The methods in the studies – how scientists study child development (encouraging visitors to observe children’s learning). In this case, you will want to find studies that used materials that you can replicate, and where scientists were observing things that your visitors might also be able to observe.
- Your goals might include both aspects described above. You might set broad limits on topics of research to be presented, but attempt to find studies that can be replicated in a museum context.

What kind of studies should you look for?

- Old, well-established studies* might be less controversial and have results that are no longer in dispute.
- Recent studies* show the “cutting edge” of developmental research and help educate visitors about science as an ongoing process. There are often a greater variety of research methods to choose from, if you want to find ways to encourage visitors to make similar observations or replicate studies.
- In the *Infant Area*, we used a little of both: Some well-established findings that gave visitors quick take-home messages (“How do infants see?” exhibit), and some research that gave insight into how scientists study infant development (e.g., Infant vision mobile, Interactive Aquarium).

How can educators translate research articles into museum activities/interpretations?

Educators need to identify the aspects of the research that are likely to interest and engage museum visitors. Questions to consider when translating research articles into museum interpretations include:

1. ***What was the question that scientists were trying to answer?***

Much of the introduction to a research article is useful background information for those developing the exhibit. Try to frame research not as a topic (e.g., visual development), but as a question that parents might wonder about themselves (e.g., What can babies see?).

- The introduction may contain too much detail for the actual exhibit materials, and may not contain an actual research *question*. Sometimes it is more of an argument or history of background research, and the reader must summarize the problem researchers were addressing.
- In the Infant Area, the Fantz studies contained a lot of theoretical information but often no research question. From a couple related articles, the research question we identified was: Can we observe what babies can see by looking at their preferences for some patterns over others?

2. ***What did scientists actually do? What did participants in the study do?***

The methods section of a research article contains a step-by-step procedure of how the study took place, usually including a script or exact descriptions of what participants saw or heard. This amounts to an activity that can possibly be replicated in a museum setting.

- Mobile activity: Fantz showed babies either one or two things at a time, with different patterns. We based museum materials on the pictures of the patterns included in the article.
- Research articles included information like: How big were the images? What kind of patterns did he show to babies? How far away were the images when babies looked at them?
- Some aspects of the methods were not feasible to replicate in a museum (e.g., having an enclosed, quiet “viewing chamber” that an infant is placed in), and were skipped in favor of simplicity.
- A search via Google scholar showed that this research method is still in use by infant researchers, meaning it is still relevant for current research findings, even though the study itself is quite old.

3. ***What were scientists looking for? What did scientists measure? What should visitors look for?***

The methods section should also include information about what specific answers or behaviors scientists made noted in order to answer their research question. Ideally, these are things that visitors will also be able to observe in the museum. You may need to adapt these to make it simpler for visitors to do.

- Fantz measured looking time in many studies. A prototype that asked visitors to time how long infants looked wasn't very successful because using the timer was too complicated.
- We switched to his visual preference method, with two images side by side, because it was easier for visitors to see a result more quickly, with no extra equipment.

4. **What did scientists discover?**

The results section will have a lot of statistical analyses that aren't relevant to a public audience, and may have a lot of control conditions or follow-up conditions that also may be information overload. What was the condition that has the most useful or relevant information to visitors? What was the "take home message"? Refer back to the research question and phrase the text as a direct answer to this question.

- The Fantz studies included a graph with some results for babies of different ages. They preferred certain types of patterns over solid colors.
- The study showed that you can use babies' preferences to find out what they can see. (This method is now the foundation of much infant development research.)

5. **What does it mean? Why should visitors care about this study?**

The discussion section often describes implications of the study for further research, but may not include a discussion of the relevance to everyday life. You may be on your own to come up with reasons why your audience should care. Why did you choose this study in the first place? What interested you about it?

- In the Infant Area, we wanted to convey that infants are actively learning about the world. The point of this study *for us* was that even newborns like to look at some things more than others, and that visitors can find out what their babies can see by watching what they do.
- We used the "What do babies see?" display to provide a conversation-starter that linked to the mobile activity. This display shows what the world looks like to infants at different ages, based on the results of the Fantz studies and other research. The images depict changes in acuity, color vision, and perception of forms/shapes, and helped guide conversations about infant visual development.

6. **Follow-up research and finding related studies:**

Individual studies might be quite specific and narrow, so you may want to find two or three that have related findings (perhaps with different age groups), or use similar methods.

- For older studies: You can find out what similar research has been done using "Cited By" in Google scholar. (We did this for the infant area to find more info about typical infant acuity and color vision.)
- For current research: Check out the article's references for more background info, visit the lab's website to find related work, or contact members of the lab that did the original research.
- Members of the lab may be able to provide feedback on your descriptions of the study. This helps to ensure that the museum adaptation still portrays the research accurately. However, you should have final say on the wording to be sure it will make sense to your audience.