National Living Laboratory 2014-15 Cohort Stipend Final Report
The Connecticut Science Center & the Cognitive Development Labs at Wesleyan University

Who Are We?
The Connecticut Science Center is a science museum in Hartford, Connecticut; its mission is to inspire lifelong learning through interactive and innovative experiences that explore our changing world through science. The Cognitive Development Labs at Wesleyan University conduct research on children's thinking and learning about numbers, space, time, and other people. The Living Lab model was adopted (in March 2013) because it supports the core goals of both organizations. Former CDL researcher Jessica Taggart helped to set up a partnership between the Maryland Science Center and Johns Hopkins as an undergraduate, and facilitated the partnership between the CDL at Wesleyan and the CT Science Center.

Museum visitors interact with researchers in a steady stream during Living Lab sessions (3 hours on Saturday mornings). Parents particularly enjoy watching their children complete our activities, and often eagerly ask us, “How did they do?” This provides an opportunity for conversation about the scientific process, and why we collect data from many children before we draw conclusions.

Goals of the NLL Stipend Award
1) support museum staff training of student researchers (goal met)
2) support researcher travel to the Science Center (goal met)
3) support student coordinator of researcher visits (goal met)
4) support student development of a new research toy (extended into May, deliverable available soon)
5) support creation of new signage (goal met, deliverable submitted)
We also produced a brief Living Lab newsletter for museum staff and visitors (submitted)

Enhancing the Visitor Experience
After participating in Living Laboratory studies, children are excited to learn they’ve just taken part in a real science experiment. With older children or parents, CDL scientists explain the science behind the study, which provides a window onto the process of scientific research. Researchers also bring research toys (data are not collected) that can be modified in difficulty to accommodate children of all ages, so anyone who is interested can interact with the Living Lab just as they can with other experiences at the Science Center.

A CDL researcher and a child participant talk about “The Choices Game”:
Child: “Did you ever think that if someone has a favorite color bead, maybe they would just take more of that one?”
Researcher: “That’s a great point! That’s actually the reason we do something called ‘counterbalancing,’ where we make sure the different colors aren’t always in the same place. So for you, the green beads were in the third bowl, but for another kid, we might put them in the first bowl. Does that make sense?”
Child: “Oh, yeah, it does! That’s really cool.”

1 At our site, CDL researchers lead research toy interactions themselves.
Mutual Professional Development

CDL team: P.I. Hilary Barth, Lab Coordinator Ilona Bass, undergraduate research assistants Aime Arroyo-Ramirez, Zoe Feingold, Louise Lyu, Sheri Reichelson, Jillian Roberts, Anna Schwab, and Sarah Seo. Science Center team: Amy Sailor (Community & School Partnership Administrator; Girls & Women in STEM Program Coordinator), Megan Dempsey (Public Programs Coordinator), Visitor Services staff. In October of 2014, CDL research assistants were trained in effective museum-style education techniques.

Research Happenings at Our Site

In “The Choices Game,” CDL researchers are interested in how the presentation of options affects children’s choices. We displayed foam beads of four different colors in three bowls: Two bowls each held one color, and the third bowl contained two different colors. Children were then asked to choose five beads to make a necklace. So far, we’ve found that children tend to take more beads from the two bowls that contain one color than they do from the bowl with two colors. This means that presenting the beads in this way makes children see three categories (the number of bowls) instead of four (the number of colors), and the way in which options are presented does affect their choices. This study sparks a lot of interesting conversations with parents about methodological issues such as probabilities, preference effects, and counterbalancing.

“Sometimes in research I get tunnel vision: ‘Have to collect data, have to publish the paper, etc.’ But the Living Lab makes me remember that it’s even more important to be disseminating ideas about science to a broader community. So if one day we go to the Science Center and have a stimulating conversation about developmental psychology with an interested family, even if we didn’t collect any data our visit feels like a huge success.” – CDL Researcher

Outcomes and Future Goals

We are currently working to better integrate the Living Lab with Visitor Services at the Science Center in order to make the collaboration sustainable. This may support the growth of the Living Lab site into one in which labs from other institutions also participate. One unintended benefit has been the education of CDL undergraduate researchers in informal science communication to a lay audience. Our researchers’ presence at the Science Center has additionally enhanced the visibility of women and historically underrepresented minority groups in science; to date, all visiting researchers have been women, and the lab includes a diverse group of undergraduate researchers.