



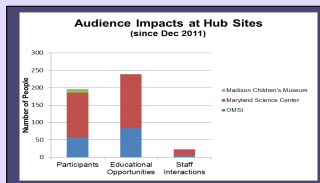
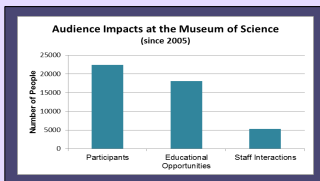
Broad Implementation: Creating Communities of Learners for Informal Cognitive Science Education (Becki Kipling, PI)



The Living Lab Model

Parents, teachers and other adult caregivers are interested in the science of child development, but this topic is rarely presented in museums and the methods used to study child behavior remain largely a mystery to both public and professional ISE audiences.

Through participation in active research studies, families can learn about current topics and methods in child development research. By hosting on-site research activities, museums can gain access to current research that can inform their daily work. Scientists who work with informal educators improve their communication skills with the lay public and gain access to a wide a diverse pool of participants.



Engaging Public Audiences

Study Participation & Conversations

Research takes place within museum exhibits in full view of passing visitors, who can observe on-going studies in action, participate in ongoing research, and/or talk with scientists one-on-one. Living Lab offers museum visitors and staff a direct window into "the process of science" as it is happening. Evaluation has demonstrated that observing or participating in research studies and conversations with scientists increases both visitor and staff understanding of the questions, methods and results of child development research.

Research Topics

- Math Cognition
- Spatial Reasoning
- Causal Learning
- Emotion Recognition
- Language Acquisition
- Social Reasoning

Educational Materials & Activities

Museum educators work with research collaborators to develop educational materials for the public, including:

Study flyers describe the research questions, methods and hypotheses of each research project in lay language, as well as activities parents can try with children at home and elsewhere in the museum. These materials are also available on-line through museum and lab websites.

"Research toy" activities (educational demonstrations of completed studies) and **exhibits** illustrate the methods of developmental research, and encourage parents to engage in activities where they observe their own children in play activities or mock experiments.



Engaging Professional Audiences

On-going **mutual professional development** includes a variety of interactions between educators & researchers:



Educators and researchers meet regularly to develop new educational materials, discuss new study proposals and address other program needs.

Research assistants complete an **orientation** with museum staff before conducting studies at the museum, to prepare them to work with the public in an informal learning environment

Daily **"warm up" meetings** with a museum educator allow research assistants to practice talking to non-scientists. Museum educators' daily interactions with researchers inform educational practices and exhibit design.



Each semester, **professional development events** are organized – this allows museum staff from across the institution to learn about studies, and offers researchers additional experience in communicating their science with lay audiences.

National Living Lab Initiative

Hub Sites

On-site research programs in the Living Lab's educational model have been established at sites across the US:

- Maryland Science Center, with Johns Hopkins University** (Baltimore, MD)
- Madison Children's Museum, with University of Wisconsin** (Madison, WI)
- OMSI, with Lewis & Clark College** (Portland, OR)

Professional Development

A **Virtual Hub** connects professionals to colleagues, potential collaborators, and resources across Hub sites.

Symposia events at each Hub site will expose professionals in both fields to Living Lab and other models of collaboration, providing free resources and networking opportunities that will catalyze new collaborative efforts and work to improve existing collaborations.

Impacts & Indicators

Increase the ability of **scientists & museum educators** to establish and maintain effective educational partnerships.

*Hub museums and academic partners establish collaborative relationships where researchers conduct studies on the museum floors 2-3 days per week, and/or develop plans to continue their collaborations post-project
*Symposium participants make contact with potential partners/initiate and/or expand collaborative efforts based on the Living Lab model

Improve **research scientists'** interest in and ability to communicate their research to lay audiences

*Research scientists see public education as interesting and relevant to their work, and/or articulate their appreciation of informal science education techniques
*Scientists' use of lay vocabulary and explanations (and/or ability to write for a lay audience) increases over the course of a semester or year in the project
*Visitors are better able to understand scientists' descriptions of research studies following the scientists' participation in the program

Increase **museum educators'** interest in and ability to integrate child development science into their educational offerings for adults

*Museum educators see child development science as interesting and relevant to their work, create activities for visitors that showcase child development science (and activities reflect an understanding of child development)

Increase **adult visitors'** awareness and understanding of cognitive research

*Visitors asked to participate in a research study agree to participate, ask questions of researchers, and/or recognize connections between the research and their own lives
*Visitors whose children participate in studies can accurately describe the study's topic, research question and methods and/or can discuss potential implications in their daily lives

Challenges

Communicating unique features and benefits of the *Living Lab* model compared to other models of museum-academic collaboration.

Balancing Implementation of Living Lab at specific sites with "network" for the larger ISE community around child development and on-site research

