

# National Living Laboratory 2014 – 2015 Cohort Stipend Final Report

*Stepping Stones Museum for Children and Yale Cognition and Development Lab*

## Who Are We?

**Stepping Stones** Museum for Children is a non-profit children’s museum located in Norwalk, CT. Annually, the museum welcomes more than 260,000 visitors, primarily comprised of children 10 and under and their caregivers. Our mission is to broaden and enrich the educational opportunities for children and enhance their understanding of the world. By providing families with access to real scientists, adults can learn more about how their children learn, think and grow while children participate in science in action.

The Yale University’s Cognition and Development Lab Cognition and Development lab most broadly is concerned with questions of how children and adults construct causal interpretations of the world around them and how those interpretations compare to other ways of tracking information.

In 2010, Stepping Stones began a new partnership with Yale Cognition and Development Lab. Researchers from the Yale lab conducted a study on the ability of children to identify things that are dissimilar. Typically, Yale works with schools in the New Haven area to conduct similar studies with students. *Diversity of Knowledge* was the first time they used a museum as a study site. Since that first study in 2010, Yale has conducted multiple studies at Stepping Stones.



Our Living Laboratory space

“Living Labs is a great way for teens to learn about how young visitors make certain choices while playing. It was very eye-opening for them.”  
—Dod March, Youth Programs Manager

Onsite research takes place at the museum approximately 8 Saturdays each semester and more frequently throughout the summer months. Our Living Laboratory space is impermanent; it consists of 1 or 2 tables in the Light Gallery. Research Toys are facilitated approximately 1 hour per week at varied times. Visitors are informed about the programs through our daily event schedule posted at the entrance to the museum and through announcements.

## Goals of the NLL Stipend Award

- Offer training for current and new researchers
- Provide regular trainings and discussions to help staff connect the research to their practice
- Develop and implement Research Toys as a program offering facilitated by staff and/or youth volunteers – research and select 2 – 3 Research Toy activities, prepare materials, train staff and volunteers to facilitate

## Enhancing the Visitor Experience

Living Laboratory has afforded our visitors an opportunity to participate in real science and observe real science in action through our partnership with Yale. Being a children’s museum, science is not our only focus, but it is a large and important component of what we offer our visitors. Much of our exhibit

“I didn’t realize so much went into learning about how children play.”  
—Mom of a 4 year-old

content is science related and visitors can learn about topics such as energy, building structures and how their body functions through hands-on experiences. Unlike our exhibit interactions, Living Lab enhances our offerings by providing a dynamic interaction with authentic science. We have real researchers doing authentic data collection that will be published in a genuine scientific journal. Our visitors

can participate in an experience that extends beyond their own learning.

Additionally, Living Laboratory has given parents and caregivers a way to learn about specific areas of research through Research Toys. This is particularly important in today’s world where parents are inundated with information

Participation Numbers	
148	Study Participants
184	Educational Opportunities
42	Research Toy Interactions



about what their children should be doing developmentally. Research Toys give visitors an opportunity to learn about how data is collected that form the statistics they may encounter on the news or in a magazine. More importantly, parents and caregivers are free to draw their own conclusions based on the study results and their own observations of their child interacting with the research materials.

## Mutual Professional Development

The Team	
Stephanie Kadam – Family Programs Manager	Mariel Goddu – Lab Manager
Dod March – Youth Programs Manager	Dr. Kristi Lockhart – Senior Lecturer and Principal Investigator
Milen Bedon – Museum Educator	Dr. Frank Keil – Professor and Principal Investigator
Kimberly Kuta Dring – Director of Learning and Experience	Graduate Students
Youth Enrichment at Stepping Stones (YES <sup>2</sup> ) participants	

Museum staff is encouraged to stop at the Living Laboratory table and talk to the researchers about the study they are administering. This not only helps them to discuss the presence of the researchers at the museum with visitors, but also helps the individual staff members to learn more about what is involved in carrying out a research study and gives them an opportunity to learn more about the topics being investigated.

“I’ve been coming to Stepping Stones to collect data for more than two and a half years. I always look forward to saying hi to all my friends: the museum’s staff, the high school volunteers, the regular guests, even the security guards! While I’m excited to be moving on from the Yale Cognition & Development Lab to pursue my doctorate, I will certainly miss everyone at the museum very much. I’m looking forward to incorporating all of the positive energy from this collaboration into future ones!”

—Mariel Goddu, Lab Manager

Prior to arriving at the museum, Yale staff is instructed to explain to interested visitors who we are, what we study and why and how to participate if desired. The staff will know that our work is not just about collecting data; we aim to be ambassadors for developmental science and explain our research questions and process to any families who wish to learn more, including those who do not participate in our actual studies.

## Research Happenings at Stepping Stones

During the stipend period, we conducted three studies:

*Causal Supersession* investigated children’s judgments about characters that violate norms. Participants heard stories about children who were either assigned or not assigned to perform a chore on a given day (e.g., watering a flower), heard about the resultant outcomes (e.g., the bottom of the flower pot getting wet), and made judgments about which characters were more responsible for causing the outcome.

*Talking About the Self* investigated children’s judgments about people who engage in positive self-presentation (i.e., boasting). Participants heard stories about people who excelled at different skills, listened to what the characters said about themselves, and then answered questions about them.

In *Diverse Effects, Complex Causes*, participants heard about different types of machines and then matched those machines with either complex or simple-looking pictures of machines’ “insides.” Even four-and-five-year-olds matched two-function machines with complex “insides” and one-function machines with “simple” insides at rates greater than chance (Figure 1). However, only older children consistently matched machines performing diverse functions with complex “insides” (Figure 2). We believe structured interactions with complex machines may enable younger children to access the “functional diversity indicates complexity” concept; such interactions could be incorporated into museum exhibits.

Figure 1

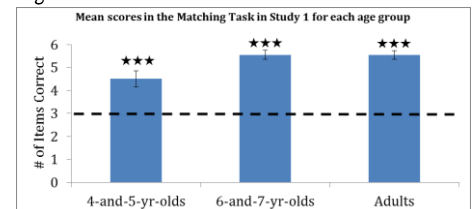
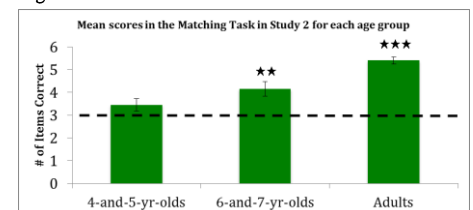


Figure 2



## Outcomes and Future Goals

### Next Steps

In recent discussion between team members, we discussed adding more collaboration between the Cognition and Development Lab and Stepping Stones. We would like to develop a Research Toy to be used at the museum based on Yale research, potentially their complexity study. We also noticed that the studies being implemented as part of Living Lab are facilitated using custom designed materials. We discussed possibly designing a research study that would utilize the museum exhibits and potentially allow this research to inform future exhibit design. Lastly, the museum is would like to create more of a presence in our museum marketing, particularly in our social media posts.

### Unintended benefits and Outcomes

Presenting Research Toys on the museum floor has offered our Educators, other staff members and volunteers a different perspective on offering educational opportunities to our visitors. Most of our programs are focused on the child's learning outcomes and not the caregiver's. Living Lab's Research Toys are different in that they focus more on the parents and caregivers than on the children. The Research Toys are an excellent starting point for us to broaden our program offerings.



YES<sup>2</sup> participants facilitating *Novel Toy* Research Toy

### Additional documents

Included with this report are the following documents:

- Living Lab Training Chart
- Research Toy Sign Out Log
- Research Toy Activity Plans
- Research Toy Caregiver Handouts
- Research Toy Kit Material Photographs

