Meeting Overview

65 participants attended a "National Living Lab" Symposium, held over two days in November 2012. Participants included: museum staff and academic collaborators from each of the project's four "Hub" sites (in Boston, MA, Baltimore, MD, Madison, WI, and Portland, OR); museum staff and academic collaborators from advisor institutions (including Boston Children's Museum, Boston University, Providence Children's Museum, City University of New York, and University of British Columbia); pairs of museum-academic representatives from sixteen institutions who are engaged in or interested in initiating an on-site research program; and evaluators working with the project. A participant list is in Appendix A.

The goals of the "National Living Lab" Symposium were to bring together museum and academic professionals who were in the beginning, building, and established phases of collaborations for on-site research at museums, to discuss common challenges and solutions, and to develop future directions and opportunities for the Informal Science Education (ISE) and Child Development (CD) fields to expand their work together. This first symposium included two days of presentations and discussions. A full agenda is in Appendix B.

> *Symposium Day 1* was dedicated to learning about the *Living Lab* model- including "essential elements," previous work, and professional and public audience impacts.

> *Symposium Day 2* was dedicated to considering challenges in collaborating for on-site research programs, identifying known solutions and mediation strategies, and for determining "next steps" in disseminating the *Living Lab* model and resources developed by the project team.

Symposium Day 1

*Living Lab***: An Introduction**

Marta Biarnes (Professional Development Associate, National Living Lab) and Paul Harris, (Professor of Education, Harvard Graduate School of Education) presented an overview of the goals and educational philosophy of the *Living Lab*. Ms. Biarnes and Dr. Harris highlighted the variety of research topics under study in *Living Lab*, motivations for collaborating in the construct of the model, the staff and facility needs of a successful *Living Lab* program, and the benefits of the model to museum visitors, scientists and museum educators who engage in or facilitate on-site research activities.

Participant Presentations

Museum and academic representatives from each institution (including those in all stages of program development) gave short presentations that described their institutional goals, motivations for on-site research collaboration, and the status of their own collaborative process. These presentations showcased:

- Spaces in museums that have been, might be, or are currently utilized to host on-site research.
- Particular studies and/or line(s) of research conducted in the museums, or under consideration for inclusion in a new collaboration.
- How on-site research fits into the mission/goals of both institutions involved in the collaboration.
- Any challenges in the collaborative process thus far.

Dr. Andrew Baron, University of British Columbia, discusses the Living Lab at Science World in Vancouver

Participant presentations provided context for discussions throughout the Symposium. Presentations highlighted the benefits, flexibility, and desirability of different models for on-site research. While the sixteen museum-academic "dyads" represented institutions of varied in size, scope, and mission, each dyad was pursuing collaboration for on-site research for similar reasons. Benefits mentioned during presentations spanned all three of *Living Lab's* target audiences: museum professionals, academic professionals and the public.

For Museum Professionals

Benefits of engaging in on-site research collaborations included direct access for staff to the most current scientific research happening in their own community. Participants also noted expansion of their content knowledge via daily conversations with scientists, and an enhanced capacity to convey both the methods and findings of scientific research to their audiences.

For Academic Professionals

Benefits of engaging in on-site research collaborations included access to an easy and efficient way to recruit participants (in some cases resulting in a more representative sample of the population, as a whole, than the traditional lab setting). Academics noted that museums are a good venue for studies of children's general development, which might then be followed up by studies targeting particular populations of interest. Advantages of testing in a museum also include a simpler method to obtain parental consent (versus than going through schools), expanded testing possibilities (e.g. testing two children together, or a child with a parent), and enhanced training for students (via professional development with museum educators).

For the Public

Museums are interested in on-site child development research as a mechanism to better serve parents/caregivers who accompany young children to museums. For the public, benefits of participating in on-site research programs include access to research—allowing caregivers to learn about the latest science and scientific methods, observe their children's participation, and converse with the scientists directly. Familiarizing caregivers with psychology research (generally) and recognizing psychology as an experimental science were also mentioned. For children, participating in *Living Lab* is a fun activity, and scientists can collect data efficiently without disrupting children during their school day (testing at schools is a common model for scientists who study children).

Presentations also highlighted the "in practice" challenges that arise in on-site research collaborations, helping the project team prioritize to address in additional Toolkit resources that will help professionals support and sustain on-site research collaboration efforts. Challenges fell into five broad categories for discussion:

1. Space: Museums and traditional laboratory environments are intrinsically different, each bringing their own opportunities and challenges. In *Living Lab*, research is conducted in plain view and is free of physical barriers, which may require that study procedures be modified in some way for the new, more dynamic environment of a museum exhibition.
2. Scheduling: Museums, unlike traditional on-campus research labs, are not always conveniently located to the research institution and travel can be time-consuming. Museum and academic calendars are also different, which can complicate scheduling of research shifts during holidays and summer breaks when museums have their highest public visitation and researchers would get maximum access to participants.
3. Staffing: The staffing structures of museums and academic institutions differ greatly, requiring collaborators to develop a mutual understanding of each others organizations. Staff support - and level of awareness among staff outside of the team directly involved in the on-site research collaboration - may vary with the size and means of an institution. Some researchers mentioned they are more selective in the research assistants (RAs) they hire to work in the museum versus in their lab.

4. Communication: Challenges in communication can occur at the intersections of each of *Living Lab*'s three audiences. Such challenges include: the need to develop a shared working language among museum and academic collaborators; sharing information with the entire on-site research team with necessarily varying on-site schedules; sharing technical science information in an accessible way with guests and educators; learning to identify lay audiences' background knowledge quickly and discussing research at different comprehension levels; and learning to address visitors' questions about their own children's learning while refraining from "diagnostic" conversations. These challenges are often compounded by limitations in space, scheduling, and staffing.
5. Sustainability: Both museum and academic institutions are interested in identifying strategies to create permanent on-site research collaborations, as sustained collaborative efforts seem to be associated with improved/diversified outcomes for the three audiences of *Living Lab*. Challenges to sustainability include: varying budgeting and funding cycles between museum and academic institutions; a lack of identified mechanisms for financial sustainability of programs that are long-term and mutually beneficial; lack of understanding of collaborators' institutional constraints; and the "grassroots" nature of many collaborative efforts that results in a knowledge gap among institutional administrators.

Living Lab "In Action": Engaging Public Audiences

These sessions were in-depth explorations of merging research and education in the *Living Lab* model.

Participant takes part in a greeting

*   Greeting: Symposia participants observed a *Living Lab* "greeting" between Samuel Ronfard (Graduate Student, Harvard Graduate School of Education) and Liora Mendelsberg (Bergstrom Fellow, Museum of Science). "Greetings" are a core element of the mutual professional development program supported by the *Living Lab* model. Museum educators meet with researchers at the beginning of their shift to provide them with practice conversing with a lay audience, allowing educators to learn about research methods and preliminary findings, share feedback about researchers' content and delivery, and make connections between the research and their own work with children and families. Symposium participants observed and took part in a "greeting" to learn about the logistics, goals, and the benefits of these daily warm-up meetings.
*   Group Greeting: Symposia participants also engaged in a large-scale version of a "greeting" which modeled one method for sharing *Living Lab* studies with larger groups of staff at a museum. Craig Smith (Postdoctoral Fellow in Psychology, University of Michigan) and Peter Blake (Assistant Professor of Psychology, Boston University) introduced participants to the research they have conducted in museums, and fielded questions from fellow participants. The goals of this session were to: 1) expose participants to research studies that have been conducted in museums; 2) provide examples of caregivers' "frequently asked" and challenging questions; and 3) showcase mechanisms to improve communication and identify language that welcomes lay audiences into conversations about research.
*   Research Toys: Symposia participants were introduced to "research toys" - engaging, interactive table-top educational materials that are designed to showcase child development research to adult caregivers. Examples of "research toys" were presented by Miriam Krause (Outreach Educator, Maryland Science Center), and Victoria Fiordalis (Science Educator, OMSI). This session highlighted the value of "research toys," which allow museum educators the opportunity to talk with visitors about child development research in a fun, participatory way and allow museums to share ideas from completed research with caregivers even when scientists might not be on-site.
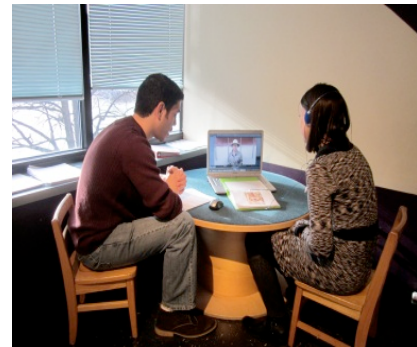
***Living Lab* Evaluation – an Introduction for Participants:**
Anna Lindgren-Streicher, Clara Cahill, and Catherine Lussenhop (Research & Evaluation, Museum of Science) presented data from formative evaluation of *Living Lab* across the four Hub sites in Year 1 of the project.   Participants learned about the overall goals of formative evaluation - a key aspect of *Living Lab* model, both at the Museum of Science and as it expands nationally – and the types of data collected in formative evaluation activities. Project evaluators aim to describe and document how the *Living Lab* is implemented across various sites in order to identify, develop, and synthesize solutions to common issues observed in the initial and building stages of collaboration at sites that vary in size, scope and mission. This evaluation examines the visitor experience as well as the mutual professional development model for educators and researchers. It focuses on identifying improvements to how research is interpreted for visitors, both by researchers themselves and by educators, as well as how training and support materials for both professional audiences can be improved.

Museum of Science evaluators also presented an analysis of how each site is implementing the "essential elements" of the *Living Lab* model (see Appendix C). Although the nature of the researcher-museum partnerships differ slightly at each of the hub sites, formative evaluation during the first year of implementation at additional sites suggests that each of the three new hub sites are integrating the model with a high degree of fidelity. For more information, contact Anna Lindgren-Streicher (alstreicher@mos.org).

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Symposium Day 2

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Regional Breakouts
In small groups, participants met with their regional Hub leaders to discuss ways to: 1) disseminate project resources and opportunities to a wider audience of interested professionals; and 2) leverage *Living Lab* to further integrate child development/psychology into ISE venues. Conversations included planning for regional museum and academic conferences, discussing the potential for *Living Lab* to go "on the road" to local science festivals, and organizing Year 3 symposium events in each Hub region. Discussion leaders and topics included:
- *Stacey Prinzing, Maryland Science Center (Mid-Atlantic & Southeast Hub)*
  The year 2 formative evaluation at Maryland Science Center will focus on training educators in effective use of research toys with visitors.   The project team is also planning a lunch-time event for professionals interested in learning about *Living Lab* at the American Association of Museums 2013 conference in Baltimore. A regional event is being organized for next winter (February 2014) with the target audience being professionals who have not been exposed to on-site research collaborations. Hub leaders plan to utilize existing relationships through other projects to reach these professionals and introduce them to the concept of on-site research for mutual benefit.
- *Annie Douglass, Oregon Museum of Science and Industry (West Coast & Southwest Hub)*
  The year 2 formative evaluation at OMSI will focus on development of research toy activities for Spanish-speaking visitors. A regional event is being planned for spring 2014 with the goal of reaching underserved public audiences with on-site research collaborations. The project team hopes this event might coincide with the Western Psychological Association conference, which will be in Portland (April 2014).
- *Cheryl Dewelt, Madison Children's Museum (Midwest & South-Central Hub)*
  The year 2 formative evaluation at Madison Children's Museum will focus on the addition of new collaborators from the University of Wisconsin –Madison. A workshop proposal has been submitted for the Association of Midwest Museums Conference (July 2013) to present on different models of on-site research collaborations, including the *Living Lab* model.
- *Marta Biarnes, Museum of Science (Northeast Hub)*
  The year 2 formative evaluation at Museum of Science will focus on changes in research assistants' communication with lay audiences over the course of a semester in the *Living Lab*

program. Planning for northeast regional event in the fall (September 2013) is underway. Other *Living Lab* dissemination venues will include the Cambridge Science Festival and several professional conferences.

"Big Ideas" and Creating Mutual Understanding in On-site Research Collaborations
In a combination of small group breakouts and large group conversations, participants discussed challenges in on-site research collaboration, and shared possible solutions. First, small groups worked to generate lists of concerns and questions for discussion (based on Day 1 presentations and their own experiences with collaboration). A list of all challenges generated in these breakouts is in Appendix D.

Project team members then grouped the items generated across six breakout groups into categories, and facilitated a full-group discussion to identify existing strategies to address participants "top challenges" (as identified via voting with sticker dots). Challenges discussed fell broadly into five categories:
1. Quality of Data:
   What strategies can help ensure quality of data in a museum environment?
   Participants discussed strategies for ensuring quality of data in a museum environment, including: considerations for testing in a distracting environment, techniques for gathering data in a short amount of time, and strategies for maximizing participant diversity. Strategies suggested during the discussion included: administering a short pre-test to see if the participant will be distracted during the study, using data composed of participants from both the museum and traditional schools or labs (and comparing these to ensure consistency), and suggestions for working with school groups (who cannot usually participate, but can learn about studies as a group to increase efficiency of "educational opportunities").
2. Melding Cultures:
   How can the Living Lab model be adapted to fit varying institutional and professional cultures?
   When considering the landscape of on-site research at museums as a whole, museum and academic cultures bring different challenges and opportunities when it comes to collaboration. Participants discussed the differences and similarities between children's museum and science center cultures, college and university cultures, and researcher and educator cultures. Participants brainstormed challenges that stem from adapting an on-site research model to fit the specific cultures of the institutions in a particular collaborative effort. Overall, participants felt *Living Lab* was adaptable to a wide variety of "cultural interfaces" if collaborators were willing to spend time collaboratively framing their efforts.
3. Professional Development Trainings for Staff:
   How can effective training, for both researchers and educators, be ensured?
   Participants discussed how to facilitate the development of professional relationships between museum educators and researchers in on-site research collaborations. Topics included how to adapt trainings to cater to a wide range of educational and professional backgrounds, as well as the optimal timing, frequency and location of professional development activities. Several training models were introduced, including educator trainings of various size, frequency and focus, research assistant training programs (some based in the lab, others in the museum, and some involving a combination of both), and undergraduate coursework carried out by participating in a museum program.
4. Maintainability/Sustainability:
   How can onsite research collaborators develop programs that will maintain and sustain?
   Participants engaged in conversation on how to maintain and sustain on-site research collaborations. Topics included strategies for broadly communicating research findings, and a discussion of challenges in funding on-going collaborative efforts. Participants considered different frameworks for new Toolkit items that could guide professionals interested in starting a conversation about funding their on-site research collaborations.
5. Collaboration/Diversity:

How can collaborators ensure mutual benefits, for both research institutions and museums? Participants discussed methods for engaging in collaborations that are mutually beneficial to both parties, including identifying common goals and problems between both parties and having regular communications to work toward these goals and solve day-to-day and long term problems. One example included the question of engaging a more diverse audience in on-site research activities, which included a conversation about potential programming that could be initiated jointly between the collaborating institutions.

Day 2 discussions focused on addressing "in practice" challenges, and identifying the "big picture" issues that have impacted participant's attempts at on-site research collaboration thus far. These discussions will inform the work of the project as we develop resources for the ISE and Child Development fields as a whole. While the conversations highlighted many individual strategies for resolving common issues, it was clear that: 1) there is no "one-size fits all" solution to challenges; and 2) sharing across professionals - via in-person venues like the symposium - is helpful to participants in generating solutions that will work for their own and their partners' institutions.

Mutually beneficial on-site research collaborations require flexibility and constant communication among collaborators to address obstacles that arise from differences in size, scope, and mission between institutions. The Symposium underscored the importance of communication between professionals; as the *Living Lab* "network" grows, mechanisms to increase access to personnel who have experience in various models of on-site research collaboration will be considered, and additional Toolkit items that address improving communication between partners will be developed and shared to meet the project team's growing understanding of professionals' needs (for a list of needed Toolkit items identified via the Symposia, see Appendix E).

Appendix A

National Living Lab Symposium Guest List

First Name	Last Name	Institution Name	City	State
Ann	Atwood	Museum of Science	Boston	MA
Andrew	Baron	University of British Columbia	Vancouver	British Columbia
Lorrie	Beaumont	Evergreene Research and Evaluation	Sugar Grove	IL
Marta	Biarnes	Museum of Science	Boston	MA
David	Bickham	Boston Children's Hospital	Boston	MA
Colleen	Blair	Fort Worth Museum of Science and History	Fort Worth	TX
Peter	Blake	Boston University	Boston	MA
Sarah	Brenkert	Children's Museum of Denver	Denver	CO
Clara	Cahill	Museum of Science	Boston	MA
Sharon	Carnahan	Rollins College	Winter Park	FL
Debbie	Cockerham	University of Texas at Arlington	Arlington	TX
Emily	Cogsdill	Harvard University	Cambridge	MA
Kathleen	Corriveau	Boston University	Boston	MA
Janet	Davidson	Lewis & Clark College	Portland	OR
Cheryl	Dewelt	Madison Children's Museum	Madison	WI
Annie	Douglass	Oregon Museum of Science and Industry	Portland	OR
Amy	Eisenmann	COSI	Columbus	OH
Christopher	Erb	Brown University	Providence	RI
Lisa	Feigenson	Johns Hopkins University	Baltimore	MD
Pauline	Finn	Science World	Vancouver	British Columbia
Victoria	Fiordalis	Oregon Museum of Science and Industry	Portland	OR
Kristin	Gagnier	Temple University	Philadelphia	PA
Chris	Gentry	Museum of Science	Boston	MA
Rene	Grimes	University of Texas at Arlington	Arlington	TX
Justin	Harris	Museum of Science	Boston	MA
Paul	Harris	Harvard University	Cambridge	MA
Ann	Hernandez	Ann Arbor Hands-On Museum	Ann Arbor	MI
Kacy	Hughes	Boston Children's Museum	Boston	MA
Brittany	Jeye	Museum of Science	Boston	MA
Kia	Karlen	Madison Children's Museum	Madison	WI
Melissa	Kibbe	Johns Hopkins University	Baltimore	MD
Becki	Kipling	Museum of Science	Boston	MA
Michelle	Kortenaar	Sciencenter	Ithaca	NY

Miriam	Krause	Maryland Science Center	Baltimore	MD
Tamar	Kushnir	Cornell University	Ithaca	NY
Kimberly	Kuta	Stepping Stones Museum for Children	Norwalk	CT
Jenny	LaBounty	Lewis & Clark College	Portland	OR
Maura	Leppo	New York Hall of Science	New York	NY
Suzy	Letourneau	City University of New York	New York	NY
Anna	Lindgren-Streicher	Museum of Science	Boston	MA
Kristi	Lockhart	Yale University	New Haven	CT
Catherine	Lussenhop	Museum of Science	Boston	MA
Trapeta	Mayson	Please Touch Museum	Philadelphia	PA
Robin	Meisner	Providence Children's Museum	Providence	RI
Liora	Mendelsberg	Museum of Science	Boston	MA
Tessa	Murray	Museum of Science	Boston	MA
Nora	Newcombe	Temple University	Philadelphia	PA
JoAnn	Newman	Orlando Science Center	Orlando	FL
Kellen	Nixon	Orlando Science Center	Orlando	FL
Heather	Norton	Orlando Science Center	Orlando	FL
Janice	O'Donnell	Providence Children's Museum	Providence	RI
Stacey	Prinzing	Maryland Science Center	Baltimore	MD
Maggie	Renno	University of Wisconsin-Madison	Madison	WI
Samuel	Ronfard	Harvard University	Cambridge	MA
Marc	Schwartz	University of Texas at Arlington	Arlington	TX
Kristin	Shutts	University of Wisconsin-Madison	Madison	WI
Craig	Smith	University of Michigan	Ann Arbor	MI
Jami	Spriggs	Maryland Science Center	Baltimore	MD
Julia	Stadele	University of Colorado at Boulder	Boulder	CO
Aimee	Stahl	Johns Hopkins University	Baltimore	MD
Stacy	Swigart	Please Touch Museum	Philadelphia	PA
Diane	Terorde	Rollins College	Winter Park	FL
Janine	Vlassakis	Northeastern University	Boston	MA
Laura	Wagner	Ohio State University	Columbus	OH
Janella	Watson	New York Hall of Science	New York	NY

NLL Symposium Agenda

Nov 28 (8am – 4pm)
Symposium Day One

8:00 - 9:00   Registration (Main Lobby)

Breakfast/ Meet & Greet (D'Arbeloff Suite, Red Wing, Level 3)

9:00 – 9:30   Living Lab - An Introduction
Marta Biarnes (co-PI, National Living Lab project) & Paul Harris (Harvard Graduate School of Education, Harvard University)
- A Brief History of Living Lab at the Museum of Science
- Museum Goals - Caregivers and Staff
- Example Research Projects- studies that work on the museum floor
- Melding Cultures via Mutual Professional Development
- Benefits to Museum Professionals, Scientists/Researchers, and the Public

9:30 – 9:45   Meeting Overview
Becki Kipling (PI, National Living Lab project)
- National Living Lab – a "pre-network"
- Goals for the next two days

9:45-10:25   Living Lab – in action
Sample "Greeting"
- Samuel Ronfard (Harvard Graduate School of Education, Harvard University) & Liora Mendelsberg (Museum of Science)

Tour of Living Lab areas in the children's exhibition
- Discovery Center & Living Lab staff, Museum of Science

10:30-11:15 "Getting to Know You" Presentations – Part I
- Annie Douglass (Oregon Museum of Science & Industry) & Janet Davidson (Lewis & Clark College)
- Kacy Hughes (Boston Children's Museum) & Emily Cogsdill (Harvard University)
- Sarah Brenkert (Children's Museum of Denver) & Julia Stadele (University of Colorado at Boulder)
- Michelle Kortenaar (Sciencenter) & Tamar Kushnir (Cornell University)
- Kim Kuta (Stepping Stones Museum for Children) & Kristi Lockhart (Yale University)
- Ann Hernandez (Ann Arbor Hands-On Museum) & Craig Smith (University of Michigan)
- Janella Watson (New York Hall of Science) & Susan Letourneau (City University of New York)

11:15 – 11:30 Break

11:30-12:30   Living Lab – engaging public audiences
Split into two groups *(30 minutes each)*

1. Mutual Professional Development – a "Group Greeting": *merging research and education in daily conversations, two examples of current studies* (presenters: Peter Blake, Boston University & Craig Smith, University of Michigan; facilitators: Ann Atwood & Chris Gentry, Museum of Science)
2. Research Toys: *engaging, museum-style activities that communicate emerging research in child development* (presenters: Miriam Krause, Maryland Science Center; Victoria Fiordalis, Oregon Museum of Science & Industry)

12:30-2:00   Lunch/ Explore MOS
Optional Lunch Discussion (1:00- 2:00pm) - Developing Research Toys

2:00-3:30   Evaluation of Living Lab - Formative Data
- "Essential Elements" of the model
  - Public Impacts
  - Professional Impacts
- Challenges identified through formative evaluation across four sites
  - Startup/Implementation
  - Logistics
  - Professional Development & Training

3:30 - 3:45   The Living Lab Tool Kit – an Introduction
  - navigating www.livinglab.org
  - introduction to existing resources

3:45 – 4:00   Day One Reflection Activity & Day Two Preview
  - Learning from the project
  - Contributing back to the project

6:00 pm   Dinner (optional) at *The Similans*

Nov 29 (8am – 4pm)
Symposium Day Two

8:00-8:30   <u>Registration</u> (Main Lobby)

            <u>Breakfast</u> (Skyline Room, Green Wing, 6th floor)

8:30-9:00   <u>Introduce New Arrivals</u>

9:00-10:00   <u>Getting to Know You Presentations – Part II</u>
            - Pauline Finn (Science World) & Andrew Baron (University of British Columbia)
            - Stacey Prinzing (Maryland Science Center) & Melissa Kibbe and Aimee Stahl (Johns Hopkins University)
            - Cheryl Dewelt (Madison Children's Museum) & Kristin Shutts (University of Wisconsin-Madison)
            - Amy Eisenmann (Center of Science & Industry) & Laura Wagner (Ohio State University)
            - Robin Meisner (Providence Children's Museum) & Christopher Erb (Brown University)
            - Colleen Blair (Fort Worth Museum of Science & History) & Marc Schwartz (University of Texas at Arlington)
            - Stacey Swigart (Please Touch Museum) & Nora Newcombe (Temple University)
            - TBD (Orlando Science Center) & TBD (Rollins College)

10:00-12:00   <u>Breakout One – Challenges in On-site Research Collaborations</u>
            • Small group discussions (30 min)
              Generate Challenges/Perceived Challenges
              - Challenges for Museum Educators?
              - Challenges for Scientists/Researchers?

            • 10 minute break to combine/organize challenges generated by groups

            • "Sticky-dots" activity - participants move around (20 min)

            • Re-Mix groups for cross-professional discussions (30 min)
              o Discuss common challenges
              o Identify/Discuss solutions/resources already developed

            • Full group share-out (30 min)

12:00-1:30   <u>Lunch/Explore MOS</u>
            Optional Discussion (12:30-1:30) - Digging in:"Mutual Professional Development"

1:30-2:45   <u>Breakout Two – The Living Lab Toolkit</u>
            • Goals of the Toolkit
            • Explore livinglab.org areas
            • Review existing resources
            • Identify additional resources the project team should develop

2:45-3:00   Break

3:00-3:45   Regional Breakouts
- Current Regional Plans
- Next Steps for Regional Collaboration, Support and Further Dissemination

3:45 – 4:00   Day Two Reflections & Wrap Up

Appendix C

Essential Elements - the *Living Lab* Model

Goals for Public Audiences/Visitor Experience
Breaking Down Barriers Between Scientists and the Public
- Visitors contribute to the process of scientific discovery through participation in active studies
- Visitors engage in one-on-few educational interactions with scientists conducting the research
- Visitor education focuses on the process of science, increasing interest in and understanding of research "questions and methods" as well as "results"
- Studies occur in plain-view of the public, on the exhibit floor (not behind closed doors)
- Non-participant visitors talk with researchers and learn about on-going studies in ways similar to study participants
- On-site research is an expected and predictable part of the visitor experience

Goals for Professional Audiences
Mutual Professional Development
- Researchers receive training from museum staff in effective museum-style education techniques, improving researchers' communication skills with public audiences
- Museum educators gain direct access to current science that is relevant to their work with the public, improving educators' understanding of science and its potential application to their practice
- Museum educators and researchers communicate regularly, collaboratively monitoring the program to ensure scientific and educational goals are met, and that programmatic needs (e.g. logistical, financial) are fulfilled.

Appendix D

Challenges Generated During the "Big Ideas" and Creating Mutual Understanding in On-site Research Collaborations Session

Topic	All Challenges Generated
Getting Started	– How can we create institutional buy-in (from both staff at museums and at colleges/universities)? – How can initiators (researchers or museums) effectively frame collaboration to get everyone on board? – As a researcher, how/who do you initially contact at museums?
	– Why big or small onsite research programs? What are the decision factors? How do museums make these decisions? – What is the best order to begin collaboration – with a single institution or many? – Why do museums want the partnership to be bigger? Smaller? What are the scale considerations?
	– How are studies selected and vetted between researchers and museums? – How do researchers choose studies for a museum space? Do you have to alter questions/experiment? Does working in a museum space influence the content of the research?
	– What is the quality of data that comes out of a museum? How is it different from a lab?
	– What does the consent process look like?
	– What are the sound/space considerations in a museum?
	– How can we invite/allow others to post/share materials that helped them in their collaboration?
	– How can we define a partnership agreement for an ongoing collaboration model?
Melding Cultures	– What are similarities and difference for children's museums and science centers and where is there common ground? – What are the different considerations at children's museums vs. science centers? – What is the children's museums spin-off –what are the differences and how different are museums that have the "play" message?
	– How can there be better integration within science center culture for researchers?
Training and Professional Development	– What kinds of initial training/monitoring/feedback are there for researchers? – What is the best way to train researchers?
	– How does the Living Lab model change communication for researchers? – How do we balance providing equal opportunities for students with the need to have effective communicators on museum floor? – How can we connect research to natural settings (and applications)?
	– How do we train youth volunteers?
	– How can we adapt our mutual professional development model to fit many facets? – Can we combine museum staff trainings and researcher trainings? – Are there other models of trainings that work well?

Overall Topic	All Challenges Generated
Maintaining and Sustaining Collaborations	– How does the collaboration work during incubation and how do you transition to sustainability?
	– What are effective ways of encouraging researchers to share their research findings? – What is the best way to communicate the data? – How do you communicate results (etc.) from research to visitors, staff etc.
	– How can we make the most of the museum/researcher collaboration (both locally and network wide)? – What are the branding/promotion to broader community?
	– What works in evaluating a program and what doesn't work? Is it possible to capture the different audience types?
Funding	– What do museum-university funding collaborations look like? – How do we initiate and sustain funding?
Collaboration/ Diversity	– What can an educational outreach model look like (programs, models, examples, events)?
	– How can we, together, increase diversity of visitors and research participants? – How do you increase diversity within the participant group?
	– What is the future of the museum-university collaborations?

Appendix E

Toolkit Resources

Status	Resource Title
Toolkit Resources Currently on livinglab.org	Living Lab Info Sheet
	Handouts for Caregivers
	Tips for Initiating a Collaboration
	Tips for Introducing Studies to a Museum Environment
	"Blickets" Research Toy Activity
	"Infant Pillow" Research Toy Activity
	"Novel Toy" Research Toy Activity
	"Puzzles" Research Toy Activity
	"Stickers" Research Toy Activity
	Tips for Developing Research Toy Activities
	Living Lab Impact Form
	Living Lab Orientation Form
	Insert Development Guidelines
	Insert Samples
	Greeting Resources
	Professional Development and Training – Research Assistants
	Living Lab Log Template
Toolkit Resources in Progress *(Identified at the Symposium)*	Pros and Cons of Recruiting in a Museum
	Living Lab vs. Traditional Lab Comparison Sheet
	Tips for Setup in a Museum Space
	Researcher Orientation Guide
	Educational Opportunity Tips
	Resource Assessment Guide
	Benefits of On-site Research Collaborations
	Professional Development and Training – Museum Educators