the living lab

Researcher Manual

The contents of the researcher manual are current as of Fall 2015.

UM Living Lab Website

Please check the UM Living Lab website for information and updates (http://sites.lsa.umich.edu/livinglab/researcher-resources/). Researchers needing materials (tracking forms, study submission checklists, example Living Lab application materials, etc.) can visit the “Researcher Resources” area of the site (and the access code is 5510). This page will be updated periodically with new information for PIs and RAs.

Contact Information

If you have questions about the Living Lab, please feel free to contact the following people:

- Craig Smith (coordinator of the Living Lab): craigsm@umich.edu, 617-875-9469
- Margaret Echelbarger (Living Lab staff): echelbar@umich.edu, 734-646-7095
- Kimberly Brink (Living Lab staff): kabrink@umich.edu, 704-516-9957
- Nichole Wright (Public Programs and Volunteer Manager at AAHOM): nwright@aahom.org
Introduction

Living Laboratory is a model that brings researchers from the University of Michigan into public spaces where interested families can participate in short, enjoyable studies. Many of the studies explore questions about the development of behavior and cognition in children.

The first Living Laboratory was started at the Boston Museum of Science. There are now Living Labs in museums across the United States, and in cities outside the US like Vancouver and London. The Living Lab at the Ann Arbor Hands-On Museum (AAHOM) is part of this network of museum-based lab sites, most of which fall under the umbrella of the National Living Lab Initiative (livinglab.org).

Importantly, the Living Lab at the AAHOM is part of a network of University of Michigan Living Lab sites in Ann Arbor that also includes sites at the Museum of Natural History and the Ann Arbor District Library. Visit the website for the UM Living Lab Program here: http://sites.lsa.umich.edu/livinglab/

The Living Lab Research Manual from the Boston Museum of Science describes the goal of the Living Lab model very nicely:

The Living Laboratory brings the public and researchers together in a comfortable environment that promotes conversation, in order to show that science is not scary and that scientists are committed to making their research understandable to anyone without jargon or dense concepts. While you conduct your research with the diverse Museum of Science population, our visitors gain insight into the process of science and benefit from up-to-date information on current research topics.

The exciting part of the Living Lab for museums is that we bring a form of science into their spaces that is not often represented in other exhibits. And of course the exciting part for developmental researchers is that there are lots of kids and parents walking around who can take part in studies. The key goal of the Living Lab is to make sure everyone benefits from this collaboration.

- Researchers benefit by getting lots of participants and by learning new ways to translate their research for diverse audiences.
- The museum benefits by having the researchers there as committed educators staffing a unique type of exhibit.
- The public benefits by getting hands-on exposure to psychological science, and a chance to talk to researchers about the way this form of science works.
Educational Mission

*The mission of the Ann Arbor Hands-On Museum is: "To inspire people to discover the wonder of science, technology, math, art, and engineering. Our Vision is to be the leader in imaginative and interactive learning experiences."

How does your work in the Living Lab fit into this mission?

As a researcher in the Living Lab, you can help adults and older children make connections between research and everyday life, just as many of the other exhibits in the museum do. This means having conversations with visitors about a study or scientific concept. It is not a lecture or monologue, but a way to build on a visitor's prior knowledge.

In order to teach visitors about an unfamiliar concept, try to connect the unknown to the known. Relate scientific concepts or your specific study to something familiar that the visitor already understands. This is often easy to do, as many of the adults you'll speak with have children, and they are often eager to chat about how their own ideas about children fit with what your study is exploring.

We hope that visitors who interact with Living Lab researchers will:

- Realize that the methods used by scientists are not scary or difficult to understand. Scientists take measurements, ask people questions, watch people behave in everyday situations, and observe people's reactions to toys, stories, pictures, or other stimuli.

- Understand that they can act as scientists in some ways, by making their own observations about themselves and those around them.

- Recognize that behavioral sciences are true sciences, in which researchers ask questions, design studies, collect and interpret data, draw conclusions, and ask further questions based on their results.

- Understand how the questions asked by researchers relate to everyday experiences and to their own lives.

By adhering to these educational goals, the Living Lab will lower the barrier between scientists and the public, and visitors may be able to relate what they learn to their daily lives.

With these goals in mind, your role in the Living Lab is to make your research accessible for visitors who have little to no knowledge of your field. By engaging families in conversation about your research, you make scientific research accessible and understandable. By allowing parents to observe their children participating in your studies, you give them new insight into ways that children learn and grow.

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1 The ideas here and in other sections of the manual are adapted, with gratitude and permission, from the Living Lab Researcher Manual provided to the National Living Lab Initiative by the Boston Museum of Science
Below are tips on how to get prepared to present your study in the Living Lab. The most important point here is just to have conversations with visitors about who you are and what you do. Interacting with a researcher is an educational experience in itself.

Preparation to Speak with the Public

Before bringing your study to the Living Lab, please make sure you and your entire study team are able to talk to a total stranger about the following topics:

- **The Living Lab**: What is the Living Lab? How does it work?
- **The purpose of your study**: What are you trying to find out? Why is this question important? What do we already know about this topic? What don't we know?
- **The hypotheses of your study**: Given what we already know about this topic, what do you expect to happen? How do you think children will respond to your questions?
- **The design of the study**: What are you measuring in order to answer your research question? What age groups are you studying, and is there a particular reason why you are looking at these ages? Is there anything special you had to do to adapt this study for young children?
- **Your results so far, or results of previous work that led up to your study**: Do your results support your predictions? Did you find something unexpected that led you to refine your study or move in a different direction? If you don't know your results, how can a person learn more once they become available?
- **The implications of the study**: How does the topic of the study relate to everyday life? How does it relate to what’s going on in the museum (among visitors, within families, at exhibits)?

As preparation for working in the Living Lab, have a conversation about your work with someone who is NOT a researcher and is NOT familiar with your work.

Working a Shift

**Arrival, Set-up, and End-of-Shift**

- Please be on time for your shift. This really means coming about 5-10 minutes before your shift is scheduled to start so you can have everything set up by the time your shift is scheduled to start.

- When you arrive at the AAHOM, you may need to let the staff at the front desk that you are there to volunteer in the Living Lab exhibit. They will wave you through.

- Go to the Education Office in the 2nd floor office area. Grab a volunteer badge and the information binder (the badges may be in the binder). Sign out the storage room key, and get the banner and tablecloth if they are in the Ed Office (they may also be in the storage room).
• When on the 2nd floor, you can hang up coats, store bags, etc.

• Grab the supply bin for your study from the storage room on the 4th floor (if you leave supplies at the museum), along with the Living Lab banner and a tablecloth for the table.

• When you get back downstairs, grab a few stools from the snack area (3–4) and the table (table is stored right near the bathrooms on the ground level by the big field-trip coat bins).

• Set up the table in the Living Lab space, hang the banner, put on the tablecloth, and lay out some of the flyers about the current study on the table. Be ready to chat with staff and visitors as you set up.

• Set up your study materials, get consent forms onto clipboard, etc.

• Turn on the monitor in the Living Lab area if it is off. Write the "Research Question of the Day" in simple language on the Living Lab whiteboard.

• Head on out to recruit children and parents, and have a great shift!

• If things are very slow, your PI can have research-related things for you to do, like reading background articles.

• When you are done with your shift, log your hours in the Ed Office using Volgistics (you can also do this using a personal device, but it must be done the day of your shift). Also fill out the Living Lab stats log.

• IMPORTANT: If no one is coming after you on the same day or on the very next day, please put everything away. This means the stools, table, tablecloth, and banner. (If you don’t know where these things go, please ask your lab group leader.) If there is a shift after yours, or on the next day, you can leave the table, tablecloth, stools, and banner out (but put all of your materials away). You will need to have access to the Living Lab calendar to know more about upcoming shifts. If you do leave the Living Lab set up, please push the table back against the wall and push the stools under the table.

**Missing a Shift**

Ideally, if you can't make it to your shift, you should contact the head of your lab group well in advance so that the shift can be filled by another researcher. Please provide as much notice as possible when you need to miss a shift. When a day or more notice is possible, the Living Lab Google calendar should be changed to show that the shift is open, and the other Living Lab researchers should be emailed so they know that an extra shift is available.

In the case of a last-minute illness or emergency, please call the Museum’s main office (734-995-5439) as soon as possible and let the office, or on weekends, the staff in charge know that you are unable to be there. If you are scheduled to be there with another Living Lab researcher, let the office or staff in charge know that you have a partner. You can try to contact your research partner to inform them of your absence, and you can also ask the staff in charge to pass the word to him or her.
**Dress Code**

While working in the Living Lab you are representing the Museum and the University of Michigan, and as such your appearance is very important. Please wear clean, tasteful, and presentable clothing. No ripped or revealing clothing and no clothing with explicit graphics or language or clothing advertising controlled substances such as alcohol or tobacco is allowed. Shoes must be worn at all times. Please use good judgment when choosing the clothes you wear to the Museum.

Sneakers and jeans are fine as long as they are clean and not torn or frayed. Plain t-shirts or t-shirts with the university logo are encouraged to identify you to the visitor. Shirts with other logos are discouraged. The volunteer orientation provided by the museum will give you additional information about the museum's volunteer dress code. Please abide by this on every shift. While you are working, you must wear the museum badge at all times.

**Phones and Electronics**

Phones and personal electronics should not be out on the table or in use during your shift. Please keep your phone on silent/vibrate mode, and refrain from checking voicemail, texting, or talking on the phone while working. You can take short breaks during your shift if you need to use the phone or are expecting an important call (this should be done outside of exhibit areas). Repeated issues with cell phone use will result in researchers being asked to no longer use the Living Lab.

**Living Laboratory Exhibit Sign**

Please update the whiteboard in the Living Lab area with information about your study, the time you will be there that day, etc. Please do this at the beginning of your shift. Please do not use the whiteboard to recruit for certain age groups, genders, etc., as everyone should feel welcome to approach the Living Lab.

**Interacting with Visitors**

- The visitors' needs should always take top priority, above any other work you have to do.
- Be courteous when approaching a visitor to participate.
- Be just as courteous if they decline your offer to participate, and please allow them to enjoy the exhibits freely.
- Speak to all visitors in a respectful manner.
- Look ready to chat and welcome questions if they look interested.
- Be ready to demo parts of study for people without kids (you may consider creating separate demo versions of tasks, especially Qualtrics surveys).
- Research equipment left in the lab space may be approached and played with by visitors. Remember that this is a hands-on museum. If visitors try to play with your equipment in an inappropriate way, gently redirect their attention. If you're worried about people touching your supplies, it's best if you can leave one person at the table while someone else goes to recruit.
- After a child participates in or demos a study, make sure you give them a thank-you gift.

**Activities for Children Waiting**

The Museum can become quite busy, especially during weekend shifts. Having activities available for children to complete as they wait will not only keep them entertained, but also prevent them from watching another child complete your task. Possible activities include: puzzles, books, games (e.g., tic-tac-toe). These activities should be distinct from your thank-you gifts.
Gifts for Children
After a child finishes a study, make sure you give them a thank-you gift. Examples include unsharpened pencils, bracelets, foam balls, etc. Do not give out gifts that could end up damaging the Museum (e.g., stickers, pens, etc.). Other guidelines for giving gifts:

- **DO** give a gift to a participant's sibling (or friend) if they are there and want one
- **DO** give a gift to child if you simply demo the study for them
- **DO** give gift to a child if they decide to end participation early
- **DON’T** give gifts to kids from camp/school groups. We simply don't have enough gifts for this. You can explain this, if the situation arises, and you can express your regret that you don't have enough gifts.

Tracking Interactions in the Living Lab
Please fill out the researcher stats sheet at the end of each shift. Every lead researcher on a museum-based study should have these sheets. Include the names of all researchers who were at the museum, the name of the study you were running, the number of participants, educational opportunities, and staff/volunteer interactions.

Recruiting Participants and Talking with Visitors about your Study
Talking with visitors on the museum floor about your study (and using recruiting flyers) is a great way to get people interested in the Living Lab. Here are some DOs and DON’Ts for recruiting:

**DO:**
- Be ready with a short blurb about your study. Practice describing your study in a jargon-free way with just a few sentences.
- Be ready with a longer blurb. After giving a quick description, some people might want more information. Be ready to provide it.
- Use recruiting flyers. These are very quick and easy tools that describe your study, your target age range, and your location in the Museum.
- Let people know how long you’re there. You don't want to drag people away from what they're doing. Let them know how long you'll be in the Museum, so they can come find you when they're ready.
- Look for kids in your target age range (but welcome everyone to participate).

**DON’T:**
- Interrupt parent/child interactions when recruiting. Wait for a lull before approaching.
- Recruit parents who seem overloaded. You want parents to be able to stay in the lab area. Don't recruit parents who are chasing after a big group of other kids.
- Be offended if people don’t engage.
- Recruit children. Instead of asking children first if they want to participate, focus your recruiting efforts on the parents.
- Grab people right as they start exploring.

Visitors to the museum come from all backgrounds; many of them have little scientific background. Even if someone cannot or chooses not to participate in your study, they may be interested in talking
with you in order to learn more about what you do and how your studies are conducted. Here are some guidelines for approaching and interacting with visitors in the Museum:

- **Introduce yourself to visitors throughout the museum.** The Living Lab is part of the museum, and parents are generally very interested in the research being done there. If visitors are deeply involved in another activity, you shouldn't interrupt. If a parent is watching a big group of children, it's best not to distract him or her. Wait until parents are taking a break or moving between activities. This is a good time to jump in and let them know who you are and what your study is about, and let them decide if they would like more information. For example, “Hello, my name is Caitlin, and I'm researcher from the University of Michigan. I just wanted to let you know that we're doing a fun psychology study with kids in the Museum today. [Hand flyer to parent.] Feel free to stop by if you're interested. We'll be here until 4:30.” Parents and other adults are often more interested when they hear about what activity they or their children will do in the study: “I'm running a study where kids get to play a computer game.” Or “I'm reading kids some stories about sharing and then asking them questions about what's fair and what's not.”

- **Introduce yourself to museum staff/volunteers and briefly explain your study.** Staff/volunteers can be incredibly helpful in the recruitment process as they can direct families to the study and are also generally interested in the studies running in the museum.

- **Use flyers.** You should have a flyer for each study you're running that contains a quick summary of your study. Hand these out as you recruit to give visitors more information about what you are doing. The AAHOM Living Lab flyer template also has a map showing the location of the Living Lab. Thus, you can say something like: "Here's more information about the study. Feel free to stop by any time between 1-4pm."

- **Obtain signed consent forms and child assent before recording any information.** This is, of course, required by the IRB. (Since the Living Lab is also an exhibit, you should allow all interested visitors to try out the study if they want to see it; but it should be made clear when you are simply doing a demo and not collecting data). Children also need to agree to participate. Only legal guardians can sign consent forms to allow you to record data, but any visitor can try out a demo version of your study for fun, or speak with you about your work. If you are demoing a part of your study, make it clear that you are not running the full study and that you are not collecting data. **IF YOU HAVE QUESTIONS ABOUT CONSENT ISSUES, PLEASE SPEAK WITH YOUR PI OR WITH CRAIG SMITH (craigsm@umich.edu).**

- **Keep things moving along and be sensitive.** Your procedure (from consent to debrief) should be 10-12 minutes, tops. **This time limit is not a suggestion** – if your study consistently runs longer than this, then it is not appropriate for the Living Lab. Be kid-friendly with your voice and conversation. Adjust to the child’s personality. Be tuned in to whether a child wants to stop, is distracted, etc. Be encouraging, but watch out for “that’s right,” “good job,” etc. Be ready to handle curveballs.

- **After data collection, share more information.** Hand a debrief form to the parents, and ask if they have any questions. As you talk, be sure to use layperson terms, not research jargon, in your explanations. Use comparisons with everyday experiences, objects, or behaviors, so visitors have a clearer picture of what you are trying to find out. Pause and allow time for
visitors to ask questions, and make sure that what you are saying makes sense before continuing to the next idea. (NOTE: Many parents will not have time to talk. They may be watching many children or they may have somewhere to go. This is common, so don't take it personally.)

**Common Questions from Visitors**

Answer questions thoughtfully whenever you can, and direct visitors to where they can find more information if you don't know the answer to their question. Here are some commonly asked questions:

*How did my child do? (Did he “pass?”)*
Sample Answers: We're interested in finding out how children react to the pictures/situations in our study, so children really can't pass or fail. We're not assessing the results for individual people in this study -- we're looking at many people and seeing if there are patterns in their responses. Your child helped out with this.

*What is the point of this research? What is the practical use of this research?*
The answer to this question will vary with different research topics. While it is not necessary to come up with a direct practical application of your work if that is not your goal, it IS necessary to be able to articulate why it is an important topic to study. For example: *"We are trying to understand how children think about fairness when resources are being allocated. Knowing more about this may help parents and teachers as we try to help children find success in social situations."* You can also discuss the research focus of your lab more generally, in order to help visitors understand how your research question contributes to a larger line of research.

**Other Questions You May Encounter**
- Are there gender effects in your study?
- How many children do you need for this study?
- Do kids with siblings differ on this compared to only children?
- (Be ready to answer questions like these; practice in your lab meetings.)

Always remember that it is okay to answer a visitor's question with “I don't know,” and it is never appropriate to make something up. It is more important to be able to tell a visitor where to find the information they are looking for (perhaps your research advisor, their pediatrician, or other laboratories at your institution) than it is to concentrate on the impossible task of trying to know everything.

You may be familiar with studies on the topic the visitor is interested in. If so, explain what you know in the same types of layperson terms as you would for your own study, but emphasize that it is not work you've done yourself. You may be able to describe how, as a scientist, you might design a study to answer the research question the visitor had in mind, even if you don't know the answer to the question itself.

You may also get questions about the museum, such as: Where is the ambulance? Where is the bathroom? What time is the Professor Ray show? If you happen to know the answer, feel free to offer that information to visitors. Nichole Wright has provided Living Lab researchers with a binder of answers to these kinds of frequently asked non-Living Lab related questions. If the answer to a visitor’s question is not included in that binder, direct them to a museum staff person or volunteer.
Living Laboratory Scheduling

Shifts are currently coordinated by Craig Smith (craigsm@umich.edu) and Margaret Echelbarger (echelbar@umich.edu). The shift schedule is maintained on a shared Living Lab Google Calendar. Using this will require having a Google account. All participating researchers will have access to the calendar to document any schedule changes as needed. All PIs should make sure their RAs know how to use the calendar.

If you know your shift will not be filled on a particular week, please email the list of active researchers in the Living Lab to see if anyone else wants the shift. If someone else takes the shift, the Google Calendar should be updated to reflect this change.

**When requesting shifts**, keep in mind that you are expected to commit to that/those particular shift(s) for the entire semester. For this reason, it’s recommended that you submit new studies for approval well in advance of each semester.
Before You Start in the Museum

The information in this section is organized around the different roles of Living Lab researchers (PIs and RAs).

For PIs: Steps for Getting a Study into the Living Lab

1. The first step is to contact the Living Lab coordinator, Craig Smith (craigs湿地@umich.edu), Margaret Echelbarger (echelbar湿地@umich.edu), or Kimberly Brink (kabrink湿地@umich.edu) to ascertain whether your study is a good fit for the Living Lab setting. Ideal studies are those that have procedures that are relatively short (10-12 minutes at most), can be explained easily to parents and other museum/library visitors, and don't involve overly-thorny ethical concerns.

2. If your study seems like a good fit, your IRB application (or amendment) will need to list the specific Living Lab site(s) that you plan to use for your study. Along with this, you will need to submit a site approval letter from the director of the site you want to use (e.g., if you want to run your study at the AAHOM Living Lab, you will need to submit a site approval letter from the AAHOM director with your IRB application/amendment). For a copy of the appropriate site approval letter(s), please contact the Living Lab coordinator or a Living Lab staff member.

3. Once your study has IRB approval to run in the Living Lab, you will need to get the director(s) of the site(s) you plan to use to approve your study. (It should also be stated clearly in your IRB application/amendment that you will wait for this approval before starting your study in the Living Lab.) In order to get approval from the director of the museum/library where you plan to run your study, please submit the following to the Living Lab coordinator or staff member:
   a. PDF of study summary (using provided template)
   b. PDF of museum/library-friendly consent form (should be no more than one sheet, front and back)
   c. PDF of Living Lab-type debrief form (should not be overly academic, and should include ideas for ways for parents to talk about the study with their children; see provided examples)
   d. PDF of approval letter that was emailed to you by the IRB
   e. PDF of your IRB application
   f. PDF of any images or interview text that you think would make your study clearer (this is optional)

4. Once the museum/library director has received your materials from the Living Lab coordinator or staff member, he/she will email with approval, or with a request for more information. You will be contacted with this response. Providing a very clear and complete set of materials for the director(s) will make this part of the process move much faster, and may avoid the need to provide additional information. (For example, if your study falls under an umbrella IRB application, make this clear in your study summary, so the director doesn't have questions about why there are differences between the application and your specific study.) You may not start
running your study in a Living Lab site until the Living Lab coordinator or a staff member emails you to let you know that you have approval from the director of that museum or library.

5. Before running your study in a Living Lab site, the other issues listed below must be taken care of:
   a. Your whole Living Lab study team must be part of your IRB application (i.e., you and your RAs).
   b. Your Living Lab study team must have completed the PEERRS online training on working with human subjects.
   c. Your whole Living Lab study team must have completed the orientation for the Living Lab at that site (contact a Living Lab staff member for information about when an orientation is happening). You must do this before starting your study in the Living Lab.
   d. Your whole Living Lab team must read the Living Lab researcher manual before starting your study in the Living Lab.

A Note to PIs: When recruiting RAs to assist you in the Living Lab, you should make sure that they are comfortable talking to strangers, eager to educate the visitors, and comfortable interacting with children of all ages (as you will likely demo your study with children outside your target age range).

If you have any questions at all, please email Craig Smith (craigsm@umich.edu), Margaret Echelbarger (echelbar@umich.edu), or Kimberly Brink (kabrink@umich.edu). These steps are easy to take care of, and there are templates and examples of forms provided along with this document to help you.
For PIs and RAs: Before Your First Shift at the Living Lab

All researchers (both PIs and RAs) who will be working in the Museum must do the following prior to running a Museum-approved study in the AAHOM:

- Complete the PEERRS online ethics training
- Make sure you are added as a study team member on the study's IRB application
- Complete an orientation for new AAHOM researchers at the Museum
- Finish an online background check (the Museum will run this check - you must make sure you've had this done)
- Practice the procedure for your study until you are very comfortable with it
- Practice (and practice even more!) talking to children and adults about your study and answering questions about it
- Practice recruiting scripts
- Practice debriefing
- Practice getting consent quickly but thoroughly
- Get to know the Museum
Appendix 1: The Living Lab Exhibit

The Living Lab exhibit should be as inviting as possible. In addition to the recommendations made throughout this manual, you should also maintain an orderly table during your shift. Please see an example of a well-organized exhibit below.

Notice the following:
- The research question is written clearly and concisely
- The table is flush with the outside of the house
- The chairs are situated around the table in an orderly fashion
- The tablecloth is evenly spread across the table
- Flyers are easily accessible
- A consent (and questionnaire if applicable) is ready for a parent to sign
- Only essential research materials are on the table (non-essential materials are stored behind/underneath the table)
- A selection of gifts is available for children to choose from (you do not need to have all your gifts out)