Title
Early Learning with the Smithsonian Learning Lab

Start and End Date
January 2017 through June 2017

Project Description
This planning grant focused on conducting research necessary to make a web platform (Smithsonian Learning Lab (https://learninglab.si.edu/) useful as a collaborative learning tool for underserved families with young children[i]. The Smithsonian Center for Learning and Digital Access (SCLDA), the Lab's creator, collaborated with the Smithsonian Early Enrichment Center (SEEC) to conduct observations and interviews with underserved Washington, D.C., families. The learning objective was that parents would know how to build children's language and thinking skills using technology within the context of an engaged conversation.

Learning Objectives
When using technology with young children, experts recommend engaged encounters between a parent, child, and the technological platform[ii]. With this pedagogical perspective as a starting place and the Smithsonian Learning Lab as the platform, the project proposed to provide access to the Smithsonian's collection with tools for parents and caregivers to accomplish the following:
- Develop and expand the child's vocabulary through careful looking and conversations using descriptive language
- Build the child's thinking skills with effective questioning
- Effectively use technology with young children

Target Audience
The Smithsonian Early Enrichment Center provided access to families it was working with through the DC Promise Neighborhood Initiative. Approximately 50 families from DC's Ward 7 meet monthly for Smithsonian-designed hands-on family learning sessions, and these sessions were the location for project activities. Characteristics of the population are:

- 95% black non-Hispanic
- 74% female heads of household
- 19% teen mothers
- 88% 2016 graduation rate (up from 58% 2014 graduation rate)
- $31,273 average family income

All of the parents and children observed and those that took part in the activities and interviews were part of this community.

Methodology
Educators from both SCLDA and SEEC developed and tested content and the Lab platform with representatives of the target audience. The approach and content were developed, tested, redeveloped

and retested during the scope of this project, based on what the team learned during each interaction with families.

Observations and interactions

1. *Observations of family groups' interaction with the Smithsonian Learning Lab at the Neval Thomas Elementary School (650 Anacostia Ave. NE) on February 15, 2017.*

The goal of the observation was to provide preliminary information to the team to help decide whether the implemented activities could lead to the achievement of the grant articulated outcome: expand vocabulary skill in young children by interacting with their parents while using the Lab by applying the Harvard Project Zero Thinking Routines.

2. *Observations of family groups' interaction with the Smithsonian Learning Lab at the Smithsonian National Museum of Natural History, March 4, 2017.*

By incorporating the findings from the observations at the first event, during the second team meeting, the PI decided it best to observe at least one additional event held at a museum. The goal was to understand whether the modifications to the activities (i.e., two facilitators engage independently a parent and a child to get them familiarized with the Lab before inviting them to interact between each other with the Lab and apply the Thinking Routine).

3. *Recruitment and training of 10 families to participate in revised research plan at Neval Thomas Elementary School (650 Anacostia Ave. NE), May 2017.*

SEEC staff asked parents attending a community event if they would like a brief (10-minute) orientation to Smithsonian Learning Lab and the project materials and if they would agree to try the activity at home with a child. They would receive a gift card for completing the activity and a brief phone interview with a Smithsonian representative. We recruited and oriented 10 parents.

Evaluation and Analysis

We had originally planned to observe more than 50 families using Smithsonian Learning Lab in order to rank the following:

- o engagement or interest
- o attitude
- o behavior
- o skills related to the parents' ability to support their child's language development

We changed this plan based on the first two observations, which showed that children engaged with the Lab and the content as presented by SEEC staff members, but parents were detached. Based on our own research and in consultation with Dr. Chip Donohoe, Director of the Erikson Institute's Technology in Early Childhood Center, we changed the approach. In the new approach, team members demonstrated the Lab and materials to parents, asked them to use them at home with children and agree to talk with evaluators. Six participating families would be a sufficiently large group for interviews, but we recruited ten. Nine of the ten completed all activities and interview.

This new approach seemed likely to require parent leadership in using technology with a young child. The questionnaire used by the evaluators and a summary of parent responses is included with this report, and provides insights into the experience.

Project Outputs
- SI-wide presentation on "Technology and Digital Media in the Early Years" by Dr. Chip Donohue of Erikson Institute (April 2017)
- A tested Learning Lab collection of Smithsonian images and recordings on animal movement (as well as earlier prototype collections)
- Effective prompts, tools, and approaches for use by parents and caregivers
- 9 of 10 parents in the research group satisfactorily completed the activity and interview
- Information on usability of the Lab for the target audience
- Recommendations by parents on subject matter and features they would like to see in Learning Lab content designed for families with preschool children

Findings
- Parents can use Smithsonian Learning Lab at home with their children with minimal training
- Parents and children reported enjoyment of the platform as well as the content
- Most parents successfully executed at least part of the designed educational activity
- Parents successfully used the Lab and the educational activity on tablets, laptop computers, cellphone, and smartboard; in other words, there were no technological barriers to use
- Parents reported that they had deeper and more focused conversations than usual with their child using the Lab and activity than was usual (this builds thinking and vocabulary skills)
- Parents learned to ask questions to get their child thinking and expressing ideas in words
- Some parents reported that they were surprised about what their child already knew, and felt that they learned something new about their child
- Parent expressed interest in the Smithsonian developing more activities similar to the one used in the research

Conclusions
Smithsonian Learning Lab succeeds as a platform for parents to use with young children. This finding is new, as all other Lab research has been with teachers and school-age children. Parents did recommend modifications that would make it easier to use, however, and the Smithsonian would need to develop new content geared to this audience. With these changes, the Lab can become an effective means for audience outreach and engagement as well as contribute to family literacy.

Researchers also found that parents have a strong inclination to see the technology as the teacher rather than themselves. The project materials and instructions repeatedly emphasized that the parent was to lead the activity and the ensuing discussions, yet some parents still assumed that the child would be the one handling the computer/device and managing the experience. This finding suggests that even more methods would need to be produced to encourage and support parents in being their children's first and best teacher.

[i] "Young children" in the context of this project are under the age of six. "

[ii] Donohue, Chip. (2015). *Technology and Digital Media in the Early Years: Tools for Teaching and Learning,* Taylor & Francis.

SEEC/SCLDA YAG Evaluation – Parent Interview Analysis
Alexander Graves and Melissa Wadman
Submitted July 11, 2017

The Smithsonian Center for Learning and Digital Access (SCLDA) collaborated with the Smithsonian Early Enrichment Center (SEEC) for a grant to develop, facilitate, and evaluate an activity for parents and their children. During the project, SCLDA and SEEC recruited 10 families who participated in an after-school 'take-and-play' event at Thomas Elementary School in the Anacostia neighborhood in Washington D.C. Nine of these families were interviewed on the phone between a week and two weeks after their recruitment. They were sent a gift card as compensation after they completed the interview.

The activity called for parents to read a picture with their children, and use the Smithsonian Learning Lab (SLL) collection to watch videos related to the book and have a discussion with their child. The activity was intended to test whether or not the SLL collection would lead to deeper or longer discussions between parents and their children, and was based around theories related to dialogic reading.

An evaluation of the project was conducted to understand the parent/child engagement in the activity as well as to assess the SLL collection developed for the project and to gather impressions on the SLL. As there was a small sample size the analysis does not include quantitative data but rather represents trends that emerged from the data. This summary report presents the findings:

1. **How old is your child that you did the activity with? (If they did it with more than one child ask them to focus their answers on one child)**

Ages	# of children
2-year-olds	3
3-year-olds	1
4-year-olds	2
5-year-olds	2
6-year-olds	2
7-year-olds	1
8-year-olds	1

Two parents completed the activity with **multiple children**. One participant said that she completed the activity with three children (ages five, six, and two). Another parent did it with

two children (ages eight and seven). The rest of the parents reported that they did it with one child. One parent reported that she also did the activity with her kindergarten class.

2. How did you use the Learning Lab collection with your child?

A major theme noted in the interviews was that the parents used both **the book and the online portions** of the activity. Only a few of participants said that they only used **the online portion**. The parents used the book and the Smithsonian Learning Lab collection in different ways:

- Some parents had their child **mimic the animals' movements** as shown in the videos in the SLL collection. One example of this is below:

     "So, we also went ahead and showing the moves of each animal on the website. We showed the cats, the elephants and they imitated it. Each of them we showed the movement. The two-year old was able to do it. The monkey, was able to move the hands, the elephant, the giraffe. It was the movement. They enjoyed it. They were clapping hands."

- Some parents had their child **name the different animals** and **identify their favorites**. One example of this is below:

     "We went through the other animals. What I had him do was name them. I knew the penguin, crocodile, he said alligator. He knows most of them but he didn't want to go to those animals, he liked the animated animals better. He liked looking at the pictures of the other ones better."

- Some parents had their child research and discuss **facts** or "**biographic information**" about the animals. One example of this is below:

     "We used the Learning Lab to research animal stories. We looked to see biographic information as a way the animals' adaptation what their life is from, their lifestyle."

It is important to note that several parents identified the videos in the SLL collection as **pictures**. One parent talked about going to **YouTube** to look at the different animals in place of the SLL collection.

3. **What kind of technology did you use when looking at the Learning Lab (cell phone, tablet, laptop, etc.)?**

Type of Technology	# of Families
Tablet	5
Computer/Laptop	4
Phone	1
Smartboard	1

One parent responded that he "**had a nice big picture**" when accessing the SLL collection on his computer. Another parent felt that her child **liked the book more than the online portion**. Another parent also used the SLL collection with her kindergarten class, and accessed it with her **Smartboard**.

4. **Please describe how you were trained to use the Learning Lab (activity/collection).**

When asked about how they were trained to use the Smithsonian Learning Lab, the parents responded that they were given **hands-on training**. They described the training as focused on how to **navigate** the Learning Lab and the specific collection.

One of the parents did not discuss the training as she was not asked the question during her interview. Another parent reported that there were **technical difficulties** during the training. She said the following:

> "There was a lady there. They knew I was a teacher and they said, 'hey I think you'd be great at this.' They gave us the iPad and someone showed us how to log in but at school it was blocked so I didn't get to see any of it until I got home."

Even though the parent mentioned technical difficulties during the training session, she did not report any similar issues while doing the activity.

5. **On a scale of 1-5 with 1 being uncomfortable and 5 being extremely comfortable, how comfortable were you using the Learning Lab collection and the Learning Lab in general? Did you find anything confusing? Please describe.**

Rating	Amount
Five	4
Four	1

Three	2
Seven*	1
Did not provide a number (positive response)	1

It is uncertain if the parent scored above the scale or if he misheard the question and thought he was scoring out of ten. We cannot assume his reason for this answer and assign a different number.

A majority of the parents who rated the Learning Lab and the collection as a five did not provide details to support their statement. When asked about her rating, one parent focused primarily on the **use of the collection**. She said the following:

> "Five. It was really easy to use. It was a day I wasn't home. I forgot the website. They gave different animals than the ones we had to read in the book. It was really fun to have."

One parent who rated the SLL collection and the SLL in general as a four, expressed concern on **navigation** and **the clarity of the resources** and **purpose of the collection**. She said the following:

> "I would say 4. You know how you self-taught yourself sitting around on a computer. When it wanted you to get out of the video…. I was comfortable with it. I would give it about a four. There was something; I can't remember. There was the book and there were videos on the animals. I don't think there was a description. I don't know; I have to look at that. Just the indication if it's a video or a picture. Some look like instruction. I could've clicked on something and I didn't know if it was for the parent or the child."

The two parents who gave a three as a rating for the SLL collection and SLL as a whole focused on the **navigation**. One parent was concerned about the amount of clicks and how the resources opened in different windows. Another parent was the most critical of the execution of the SLL, and said the following:

> "Straight down the middle. 2.5. Well, three. I'm being generous because if I'm there with them then it goes smoother but if I could sit my three-year old down with that and he can push the giraffe and gorilla. My tablet is fairly new and my internet is average to advanced speed so this was a little slow. Don't make it so much faster but ...more click. I don't know what to say. I don't know. I think the idea and concept is a five."

One parent scored outside of the scale, rating his experience at a seven. He also had concerns on **navigation**. His response in full is below:

> "I would say seven. We had to go back and forth. Well when you click on the window to navigate to a particular animal you were looking for zebra... so when we finished from there, my son also said he wanted a different animal and so we were getting from that window to a different one and so navigation back and forth. That had nothing to do the software, it was about us having to learn how to navigate through it."

6.   Describe how you did the activity with your child. (Did you read the book, watch the video of the book being read or both? What animals did your child want to explore?)

When asked about how they used the Smithsonian Learning Lab collection with their child, the parents most frequently responded that they **talked about the animals and had their child mimic their movements**.

Some parents were confused about the SLL collection, and **identified the videos as images**. One example of this is below:

> "Probably just the squares because he is little. Just online. I think it was the monkey."

Several parents reported that they used **resources outside of the Learning Lab**. **YouTube** was mentioned by several parents. One parent reported that she did not watch the videos with her child, and instead went on YouTube. Another example of this is below:

> "No, we used the videos, the pictures and the thing I liked about it is it goes into different animals and you can go to YouTube and show the different animals. He was able to go into a lot that he liked."

Several parents **read the book multiple times** with their child before moving to the online portion, while some parents did not read the book at all and **just used the online portion**. The parents and children had **mixed responses** to the book and online portions. One parent did not find the book to be beneficial as she thought it was too small, while another parent said that she did the book portion multiple times with her child and that her child did not like the online portion. One example of this is below:

> "We have been doing it with the book and I think I did it too many times with the book; he couldn't do the computer by himself and I had a difficult time going through the computer. I don't know why. I would go somewhere and I would have a difficult time getting out of it. For me, and I'm not that great with computers and tablets, it was difficult. But for him, he would do it a couple of times but he wasn't that interested.

Some parents reported that they watched **a majority of the videos**, while others said that they either only watched **a few or did not watch any of them**.

One parent mentioned how the format of the online portion of the activity allowed for them to complete it with **multiple children**. She said the following:

> "I think it was great. I have five altogether so they can all sit down together and use it and then when we go to the museums they can find the pictures we saw on the computer."

7.   Did you use the prompts in the collection/activity (blue arrow images with writing)? How did they work? Do you think they helped your child to talk more during the activity? Please describe.

Four of the respondents reported that they **used the prompts** during the activity while five parents said that they **did not use the prompts**. One parent reported that she did not remember the prompts. The respondents who used the prompts said that they were **helpful**.

The respondents who did not use the prompts said that they either **already asked** questions when she reads to her children, **"free-styled"** their own questions, or allowed their children to **explore and form their own** questions.

8. Tell me about your conversation with your child during the activity. What did you and your child talk about?

Each of the parents reported that they had **different types of conversations** with their child over the course of the activity. In one instance, the child was more interested in the song and animated animals rather than the videos of the real animals. A majority of the parents said that they asked their children **questions** while looking through the activity, such as in the example below:

> "I asked him what he saw the animals doing, where they lived. I think they had some penguins and some type of sea animals. The weather, the color, he likes to point out what their five senses are."

One parent was **more focused on the book** rather than the online portion of the activity. She said the following:

> "I would go through and in the book, I would say well this is this and that, and if he had other questions, we would go to You Tube. But the Learning Lab page was open and it kept distracting him from the actual book, so I had to flip it over so it was open but he wouldn't be distracted."

Another parent responded that that he was **more focused on the online portion** of the activity, and had his children do research on the animals. Even though he said the conversation was "normal", he also described it as "**in-depth on an educational level**". His full quote is below:

> "It's more instructional. As we were reading through it, there were some adaptations, some research who were done by folks on your side, with some research element to it, an analysis about animals, especially the dolphins, how they migrate, how they mate, how they take care of their young ones, how they breath, so I was going through with them to see how long it takes for their research and so it was normal and it was also in-depth on an educational level.

Some of the parents reported that they were surprised about what their child already knew, and felt that **they learned more about her child** through the activity. One parent said that "I was shocked that her child knew that". Her full quote is below:

> "Giraffes, normally you see lions and other animals and they try to fight a lot and drag their food. I asked my son how do you think a giraffe can protect his territory? They use their neck to fight to tackle other animals. I asked how they do that and he stuck out his

neck to show me. It was quite funny. That is how it happens. They use their necks to fight. I was shocked that he knew that."

Here is another example of a parent reporting that they learned more about her child and their level of knowledge is included below:

"Yes. The first question…asking a child a question about something they didn't really know well before, they watched some things on tv but to sit and watch with them and really ask them questions. The answers they gave me I was really shocked. I didn't know they were that smart."

Another example is when a parent pointed out that she learned about her child was learning in school through the activity. Her full quote is below:

"He told me his teacher read a book to them and he said, 'oh yeah, because they cut their hands?' I was like, ok, he knows something, I didn't teach him this."

Another parent responded that her child was able to **teach her** about the animals. Her full quote is below:

"They explained how the giraffes ate. I asked them questions and they said the neck is long. They have to bend it down to get food to eat. Something they had learned in the collection about the giraffe. I was able to ask that and they were able to tell me."

9.   Did the activity lead to a deeper or longer conversation with your child than usual? How so?

Several parents felt that the activity **led to a deeper or longer conversation** with their children than normal. One parent responded that since she had a longer discussion with her child, that she felt that she learned more about him. She said:

"I kind of like the longer because the longer time you spend with your child. I didn't know my son could think that deeply, that far, for him to tell me. The longer it is, the more time you spend with your child. I think the time is ok. This one, you had the second packet (?) at the same time we played with his sister. We played it on the laptop. The more time to spend with your kids."

A few of the parents reported that the discussion during the activity was **not longer or deeper** than normal. One of the parents responded that she did not expect the activity to lead to deeper discussing; she said the following:

"Just the animals and the different paintings but only two. It's not going to be a deep super long conversation. Like 'this is a…' and that' it."

One of the parents, who reported that the conversation during the activity was the same as normal, described her discussion with her child as the following:

"Just the basic movement they were doing to see if he could mimic what they were doing in the videos; he liked that part."

10. Please share any additional comments or suggestions.

A majority of the respondents suggested that **additional Learning Lab collections were created based on other books**. Several parents mentioned that they returned to the Learning Lab collection after completing the activity to see if it has been updated. One parent responded with the following:

"I don't know how often you are going to update it for the next month. I think I went on there twice and it was the same book with the same animal."

Another parents said the following:

"Yes, more books. When you're reading the books, the kids will sit down but when they're on the tablet, it shows the animals and another book would have been helpful."

Other respondents had suggested improvements to the **navigation** for the Learning Lab collection and the Learning Lab as a whole. Parents had concerns on whether or not a child would understand how to navigate the Learning Lab. One parent said the following:

"If there was a way where you could always click back to on the bottom. I found that some videos you have to click on different windows. If you're a kid, you have to exit out. If there was some small tab that would take you back."

Another parent said the following:

"It was easy for me to navigate but if I were to get a kid to do it, I don't know how easy it would be. You have to click on something and then you have to back out of it to get back to the main page and I don't know how much a kid might get lost. You have to open things in a different window and then go back. I don't know how kids can really do that unless they are older."

Another parent clarified that it was not the software/format of the Learning Lab that was difficult to navigate, rather that they had to **take the time to learn how to properly navigate** through the collection and its resources. He said the following:

"We had to go back and forth. Well when you click on the window to navigate to a particular animal you were looking for zebra... so when we finished from there, my son also said he wanted a different animal and so we were getting from that window to a different one and so navigation back and forth. That had nothing to do the software, it was about us having to learn how to navigate through it."

One parent recommended that the **metadata** with the animals would be on a more appropriate level for a child. He said the following:

"On that front, based on their level of education, the construction of the animals there was a little more advanced for their age. The text of the animals. The words that was written about the animals on the website, was a little bit more advanced for their age. Yes. My other suggestion is in some areas of fields. You have the video collection for one and some that have only text in it. For instance, when my daughter went to the zebra, there was no video. When my son went to the baboon, there was a video. So for research, besides the text being a little bit more advanced the language, with too much vocabulary I had to give them. So, some only have video no text and if you combine the two together it will be much easier for them to learn from."

Another parent recommended allowing the child to compare different images of animals in a **side-by-side view**. She said the following:

"And I'm not programmer but if the main page for kids, the gorilla could be up at all times so they could go back. For me, I know how to go home. Sometimes, sometimes, it gets a little difficult. But that is what he remembered. The front of the book is that little gorilla. Even if you go into the giraffe, he could go back to the gorilla and make it the homepage."

Interview Questions for SEEC/SCLDA YAG

1. How old is your child that you did the activity with? (if they did it with more than one child ask them to focus their answers on one child)
2. How did you use the Learning Lab collection with your child?
3. What kind of technology did you use when looking at the Learning Lab (cell phone, tablet, laptop, etc.)?
4. Please describe how you were trained to use the Learning Lab (activity/collection).
5. On a scale of 1-5 with 1 being uncomfortable and 5 being extremely comfortable, how comfortable were you using the Learning Lab collection and the Learning Lab in general? Did you find anything confusing? Please describe.
6. Describe how you did the activity with your child. (Did you read the book, watch the video of the book being read or both? What animals did your child want to explore?)
7. Did you use the prompts in the collection/activity (blue arrow images with writing)? How did they work? Do you think they helped your child to talk more during the activity? Please describe.
8. Tell me about your conversation with your child during the activity. What did you and your child talk about?
9. Did the activity lead to a deeper or longer conversation with your child than usual? How so?
10. Please share any additional comments or suggestions.