

# **Create.Connect**

## Remedial Stage Evaluation Report

Gretchen Haupt and Al Onkka  
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### **Introduction**

The full implementation of the Create.Connect exhibition opened at Conner Prairie in late March. Evaluators from Conner Prairie and the Science Museum conducted evaluation in the exhibit from April 3<sup>rd</sup> to the 6<sup>th</sup>. This is the third major round of evaluation in the Create.Connect exhibit at Conner Prairie and is referred to as the remedial evaluation. The evaluation had two primary purposes.

#### **Purpose 1: Remedial Evaluation**

Remedial evaluations are designed as a final check for an exhibit that is finished or nearly finished. If problems are identified, the project team works to fix them. The project team identified two remedial questions to test with visitors:

- Do visitors want more information in the exhibit?
- Are the “snoops” a barrier to visitors who are looking for information?

In order to answer these questions the evaluators designed a survey for adults exiting Create.Connect and collected 75 responses.

#### **Purpose 2: Family Conversation Piloting**

The Prairie Science NSF grant includes questions and outcomes about family conversations in Create.Connect. Family conversation is an exciting but complex topic to study. It’s also a topic that Conner Prairie has a history of embracing and leading.

The IMLS evaluation in the summer of 2013 included family conversation evaluation, but we chose not include it in the formative evaluation. Because the exhibit was nearly complete during the remedial stage, we took the opportunity to pilot a family conversation evaluation method that we would like to use in the summative evaluation. Our goal was to learn everything we could about how the method worked and what it could show us about the exhibition so that we can implement the method effectively during the upcoming summative evaluation.

### **Remedial Evaluation**

The project team had questions about the amount of information in Create.Connect and the efficacy of the “snoops” in delivering information. In order to provide insight to these questions we designed an exit survey. During the April remedial data collection, evaluators distributed paper surveys to Create.Connect adult visitors as they exited the exhibition. Using this method, we collected 75 surveys.

When we talk about information in the exhibition, it’s important to note that visitors engage with information from multiple sources. They see static information on labels, objects, and activities. Visitors give and receive information during interactions with facilitators. Visitors bring information with them (from past life experience or previous experience in the exhibition) and access it during their time in Create.Connect.

Overall, the majority of visitors felt that they had enough information in the exhibition: 85% said they were never frustrated looking for more information. A similar percentage said that they had the information they wanted to help their children have fun and learn in Create.Connect.

We did not see differences in this overall finding when we looked at whether the visitors were members or non-members. We also did not see differences in the data between visitors who “noticed that you had to look for objects and information” (snoops) and those that did not notice. Both groups felt they had enough information.

We did see a slight difference in this finding when we looked at visitors who had visited Create.Connect more than once. Visitors who were there for the first or second time were slightly more likely to want more information than visitors who were visiting for a third or greater time. Most likely, these first and second time visitors would like additional instructions on the activities. This was a common response during the family conversation interview questions.

Almost all of visitors said that the act of exploring for objects and information (snoops) is fun for themselves (90%) and their children (97%).

See Appendix 1 for a more detailed look at the results of the exit survey.

### **Activity Table Label Development**

While visitors overall felt that they had enough information in the exhibition, evaluators noticed during the family conversation data collection that many participants asked for more instructions at the activity tables. While these tables were originally developed to be used as facilitated programs, their popularity with visitors has resulted in them being used more as standalone exhibit activities. In response to these remedial evaluation results, SMM and Conner Prairie exhibit developers and evaluators immediately started a round of exhibit label prototyping. With the final labels for these activity tables, visitors will feel more comfortable engaging with the activities by themselves. This change will improve visitor experience at the tables for other organizations who use the pieces. Specifically:

- The activity tables will require less or no facilitation for visitors to engage with.
- Available facilitators will be able to spend less time explaining instructions and more time engaging with visitors about exhibit messages and connections.

## Family Conversation Findings

The evaluation team piloted a family conversation data collection method during the remedial evaluation with the intent of adapting and using it during the summative evaluation. Overall, we felt that this method captured rich data about how families communicate in Create.Connect. In order to provide a first look at how families are using and talking about the full installation of Create.Connect, we will describe a few cases from this data set in detail at the end of this report.

The family conversation data collection method involved fitting family groups with microphones so that evaluators would be able to hear the conversation within the groups as they explored the exhibit. The evaluators relied on this “third person” perspective to generate reflective interview questions tailored to each family’s experience. The audio from the observation period, along with the subsequent interviews, was recorded, and combined with the evaluator’s reflections on the case served as a comprehensive snap-shot of what each family talked about while interacting with each other and the exhibit pieces.

Evaluators collected a total of 23 cases (approximately one week after installation), which included 82 individuals: 34 adults and 48 children. The typical group among the sample was one mom supervising several children, most of whom were preschool aged. Overall the children in the cases are on the young side of our target range.

### Cross-Case Analysis

Looking across all 23 cases, the interview portions were coded for information about family agenda at Conner Prairie in general and Create.Connect specifically. The interviews were also analyzed to identify adults’ reflections on scaffolding behavior during their time in the exhibition.

### *Family Agenda*

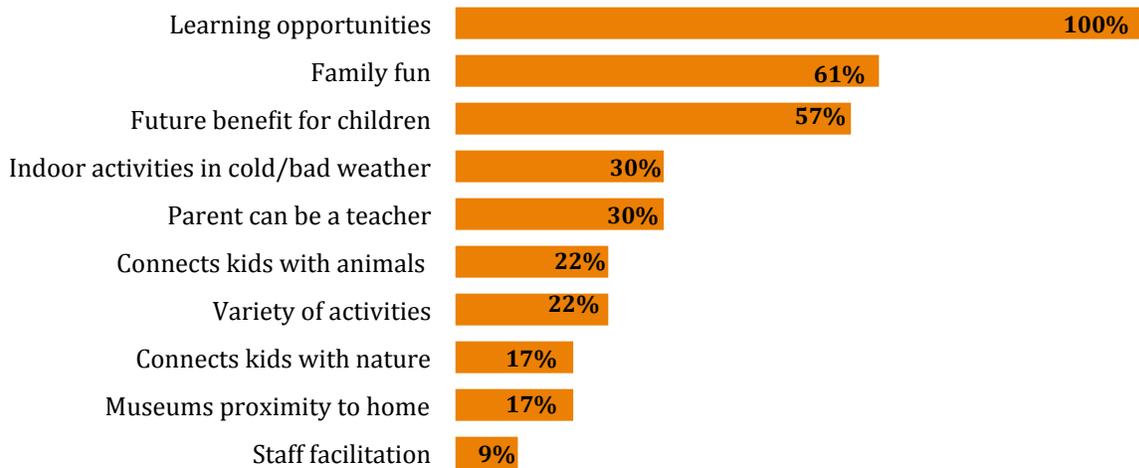
Evaluators asked parents reflective interview questions about their experience in Create.Connect. After several reflective questions about their time in the exhibition, adults were asked two questions about their overall visit agenda:

1. Why did you come to Conner Prairie today?
2. What does your family value about a trip to Conner Prairie?

### *Value*

When adults talked about what they valued in a trip to Conner Prairie, everyone mentioned learning opportunities, regardless of if they were explicitly asked or if it was an unprompted response generated during the course of the interview. However, the additional responses (see Figure 1, below) hint at a potential shift in visitors’ perception of Conner Prairie during the time of Create.Connect, most notably that they value access to inside activities during bad weather. It is our understanding that in the past Conner Prairie has been seen by visitors as mostly an outdoor activity.

**Figure 1: What visitors value about Conner Prairie (n=23\*)**



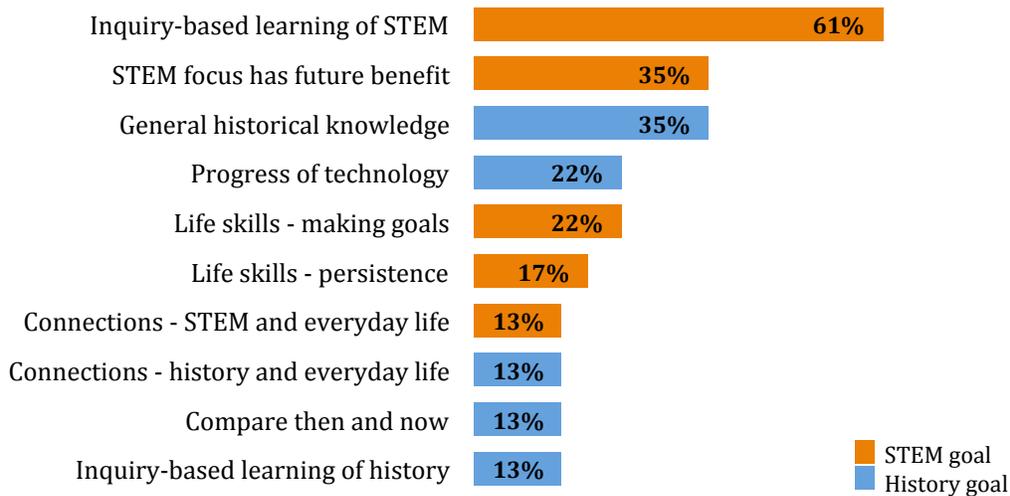
\*Multiple responses possible; total exceeds 100%.

*Parent goals in Create.Connect*

A closer look at what visitors said when they talked about “learning opportunities” revealed that these comments could be sub-divided into “STEM Learning” and “History Learning;” that one did not necessarily overwhelm the other; and in fact they were often mentioned in the same breath.

Within the context of the family dialogue recorded in Create.Connect, STEM and History learning opportunities also reflect the goals adults have for their children while in the exhibit. Even when comments referring to Prairie Town were removed, History learning goals were strongly voiced when adults talked about their goals in Create.Connect. Evaluators coded the responses adults gave into categories and the findings are shown in Figure 2 below. Parent’s voiced goals within both the STEM and history domains.

**Figure 2: Parent goals in Create.Connect (n=23\*)**



\*Multiple responses possible; total exceeds 100%.

## ***Scaffolding***

Children require the assistance of adults to build knowledge by introducing them to content, explaining it, and answering questions. Adults help kids get more out of an experience, and have a large impact on child learning throughout their lives. Examining the interviews for evidence of scaffolding uncovered examples that cover the entire timeline of lifelong learning. Following are excerpts from interviews where evaluators asked parents to reflect on actions that they did in Create.Connect.

### *Prior knowledge and relevance*

Parents often brought up previous experiences in the child's life or called on prior knowledge they had acquired themselves during their life, such as having worked as an electrician.

*Interviewer: At one point, when you guys were hanging out there, I noticed you said something about her great-grandfather doing the ice work. What were you trying to accomplish by mentioning that fact?*

*Adult: Connection to family. We had actually talked about one other time; you know in the movie, "Frozen," when they do the ice? I said, "That's what your great-grandfather used to do." I've got his ice tongs and stuff, so it was just kind of introducing her. That was a follow-up, but she didn't really remember it. But yeah, trying to connect to family history.*

### *Scaffolding and facilitation during time in the exhibit*

Parents contributed to building their child's knowledge during that day's visit to Create.Connect by calling on the child's prior knowledge or experiences that were just described, and by and explaining new content and activities: essentially stepping into the role of facilitator.

*Interviewer: I noticed that you made a comparison, while you were working on making is own wind turbine, to the wind turbine up there [the large Flint and Walling turbine]. What were you thinking about and trying to do with that comparison?*

*Adult: I was just trying to show him an existing model, and how that was built so he could take a look and decide how he wanted to build his own.*

### *Future actions and relevance*

Evaluators asked parents if they could think of a way to support their child's enthusiasm for the activities when they go home. Most people had no problem imagining activities to build on the day's experiences.

*Interviewer: Can you think about ways to continue this [flight activity] in the future?*

*Adult: Just to make paper airplanes and shoot them to the sky.*

All three varieties of scaffolding behavior were noted in almost all cases. Scaffolding around STEM learning occurred in the interviews of all 23 cases. Scaffolding around history learning occurred in the interviews of 19 of 23 cases (83%). Evaluators chose actions to ask the participants about, so it is possible that more than 19 of the cases displayed scaffolding around history learning, but that it was not captured in the interview. Because of time and budget constraints, we did not fully analyze the observational data from all of the cases.

## Case Studies

Following are three cases that highlight interesting interactions and conversations within Create.Connect. They are not atypical of what evaluators observed during the four days of data collection. These cases also present some of the variables that encompass the Conner Prairie audience:

**Table 1: Case study variables**

<b>Variable</b>	<b>Description</b>	<b>Case 7</b>	<b>Case 22</b>	<b>Case 23</b>
<i>Group Type:</i>	Who are the people in the group?	Two moms with their children	Multi-generational family	Nuclear family
<i>Visitation History:</i>	How frequently do they visit Conner Prairie?	Multiple times a month	First time	First time
<i>Agenda:</i>	What does it seem like the group's motivation is for visiting?	Play date	Outing with visiting relatives	Family outing
<i>Behavior within the space:</i>	How do they use the space as a group?	The girls, boys, and moms split up	Fission and fusion between all members	Mostly together
<i>Parental facilitation style:</i>	How do parents interact with their children in the exhibition?	Checked in from time to time	Very facilitative and explanatory	Let the child take the lead, followed, and supervised
<i>How long do they use the space?</i>	Dwell time in Create.Connect	2 hours	45 minutes	30 minutes

While the three following cases represent different types of family groups with different motivations and behavior, it is important to note that family conversation and scaffolding was evident in each group despite their differing characteristics.

### **Example 1: Case 07**

#### **Who are they?**

##### *Multi-family Group on a Play Date*

This group consisted of two moms and four children. Both adults came with one daughter (both aged about 11) and one son (ages unknown, but under 10). They are members and frequent visitors, coming multiple times a month. It is unclear if they traveled to the museum together, or met there, but the agenda for the day appears to be a play date.

## **What did they do?**

### *Extended Independent Interactions*

The target individuals (mother and daughter) separated early on in the interaction. The two girls spent more than an hour working on a challenge at the Wind Turbine bench: to configure a turbine that will spin in excess of 450 RPMs. The two girls spend the bulk of the visit trying to achieve success with only two blades, only to learn at the end that the task was impossible. They also spent some time in the REA area working with the circuits and exploring the kitchen objects.

The two boys were more closely monitored by the two adult women in the group. They begin at the Invention Table in the Patent Area before moving on to work with the circuits and then spending the last hour at the flight area.

The adults spent most of their time in close proximity to the boys and explored the nearby setting and content pieces, but would occasionally drift over to where the girls are working to check in on their progress. They split their time between three focal points: helping the boys, checking in on the girls, and having their own conversations.

In all, this group spent nearly two-hours in the exhibit.

## **What did we hear?**

### *Iteration and Personal Connections*

This family split up, resulting in concurrent and overlapping interactions. This section will address dialogue from the girls and the adults separately.

### *Girls*

The two girls worked together very diligently on their challenge. They took notes on the characteristics of the turbine blades and documented what worked and what didn't as they attempted to configure an effective twin-blade turbine.

The following excerpt is an example of the two girls working at the Wind Turbine activity bench. They make observations, try different arrangements based on hypotheses, and use the results. While the girls worked, one of the adults comes over to check on them, asks some critical questions, and offer suggestions and encouragement while she is there before returning to the other children in the group.

*Adult: So, how's the wind?*

*Girl 1: We're trying to get it up to 400 or 500 [RPMs].*

*Adult: With just two [blades]?*

*Girl 2: Well, with two, we got it up to 250.*

*Girl 1: Let's try the curved [blade].*

*Adult: Are they the same width?*

*Girl 1: The white [blade] is just a flat one. This [red blade] is a twisted, and the blue [blade] is curved.*

*Adult: Ah.*

*Girl 2: They're all the same width.*

*Girls 1: They're all the same length, but they're different shapes. So far we've gotten at least up to 250.*

*Adult: Are they angled right? Try tweaking them.*

*Girl 2: Let's try red and blue... It's making it slower.*

*Girl 1: It was worth a try.*

Eventually, they sought out a facilitator to assist them and learned that their twin-blade project was not physically possible. With a few tips from the costumed staff person about blade pitch, the pair successfully reached 450 RPMs.

In the REA area, the target child announces that she has experience with the circuits and expresses that “they are awesome,” she is “awesome at them,” and she “loves them.”

### *Adults*

The target adult in the group quickly stepped in to help with the activities when her son seemed to be struggling. She initiated conversation about airplanes with her son and reminded him that they had read about the Wright Brothers after a facilitator brings them up.

*Adult: See, there's the different kinds of planes that they tried. You can try making some of the planes that you see up there, buddy. The two wings, one on top of the other. That's what the straws are for.*

*Adult: Oops, your wings aren't attached. The top wings aren't attached buddy. They came undone. Can I make a suggestion on how to put that on?*

*Boy: I'm stapling it on.*

*Adult: Yeah, but then you're going to have a funky angle.*

*Facilitator: [To child] You know about the Wright Brothers? Don't you?*

*Adult: Yes, we read about them in book.*

Periodically, she would check in with the girls at the turbine. However, the largest volume of conversation occurred between the two adults in the group.

When they were not actively assisting one of the kids, the two adults explored the setting pieces and talked about the connections they had to objects like the radio and the fact that they had personal experience with some of the pieces (i.e., the ice cube trays).

*Adult 1: My dad rebuilt his [radio], and we've got one just like this at home.*

*Adult 2: How did you have the opportunity to build one?*

*Adult 1: No, it was my grandfather's, but it needed to be tweaked and fixed a little. My dad fixed it, since he's an electrical engineer.*

*Adult 2: How fun.*

*Adult 1: And it works.*

*Adult 2: My grandpa's brother in law, his job was fixing radios. He had this.. hardly bigger than the area from that wall to the door and not much wider than that. [Referring to the shop in the exhibition.] That was his shop. It was part of the porch, and I got to learn how to solder by going out there when my great aunt was babysitting me in the summers.*

The target adult remarked feeling dated seeing things she had used featured in a museum. This led to a story about a recent experience of her daughter's perception of a coin from 1971 being “extremely old,” which reminded her about how, as a child, she asked her grandfather if he had been born in AD or BC.

*Adult 1: It's really sad when the stuff that you've seen your grandmother use is in a museum. And it's even sadder [seeing] the things [i.e., ice cube tray from REA kitchen] that you've used, in a museum.*

*Adult 2: When we were getting everything out of mom's jewelry box a couple nights ago. She [daughter] said, “Wow, this is a really old coin. It's from 1971!” I'm like, holey mackerel. Sounds like it's really old... but it's not. 1831 is...*

*Adult 1: Or 1700's.*

*Adult 2: Is way back when. The treasures that mom brought back from Germany, that's what she was finding also. The little pins and the charm bracelet. So everything was extremely old. I'm like "it's not that old."*

*Adult 1: When I was in third grade, I told you this, didn't I? I asked my grandfather, "Were you born in AD or BC?" [Both women are laughing and catching their breath] My grandfather didn't find it funny, but I still remember, as if it was yesterday, everyone else laughing so hard. My grandma had to sit down. I didn't understand what I'd said that was so funny.*

Both women also looked through the flipbook in the Patent Office, remarking on the story of the woman who invented diapers, and the target adult can be heard referencing the media projected over the flight activity table when she is interacting with her son.

### **What did they say?**

*CREATE.Connect Supports Multiple Ages and Interests*

In the interview, the target adult described that her children have different interests, so she appreciated that the exhibit was flexible enough for her to be able to supervise her younger son, who needed more attention, while being able to monitor her daughter's progress, hopping over to her if need be.

She also explained that her son loves planes and has been learning about the Wright Brothers, different kinds of planes, and military planes. When asked about continuing the experience, she said they would probably work on making different kinds of planes since he has a plane book at home, which was how he knew about the back of the plane being called the tail.

While she mentioned several times in the interview that she had wanted more information about how to do the activities, it is clear from the audio that they were able to figure things out eventually if there was no facilitator available.

### **Discussion**

While it could appear that these moms were often "checked out" in the exhibit because they were not working with their children at all times, their conversation shows that they did engage with the content, make connections, and take in information that they could possibly use later during the visit or a future visit. Since this family visits so frequently, they may apply information from one visit to the next. In the interview, the target adult even mentioned that she knew how to use the circuit activity from a previous visit and daughter was familiar with many pieces of Create.Connect as well.

This group included adults and children of different ages with different abilities and interests. Create.Connect effectively engaged everyone (including the adults) for an extended period of time, and everyone had a good time.

## **Example 2: Case 22**

### **Who are they?**

#### *Multi-generational Family Outing*

This was an extended family group comprised of mom, dad, two daughters (a 5 year old and a toddler), grandpa, grandma and uncle. They had never visited Conner Prairie before having just moved to the area several months before. They decided to visit that day on account of family being in town.

### **What do they do?**

#### *Intergenerational Fission-Fusion*

The group visited every area, starting with Flight (though they did not make a glider), then moving to the Mechanical Ball Run, the cardboard Windmill activity, and finally spending the second half of their visit in the REA Kitchen using the electricity components and exploring the setting components.

The mother was initially the target adult, but she handed off the microphone to the father after about fifteen minutes, claiming he would be “better at explaining things.” At first, the whole group stayed together, following the older (target) child from activity to activity, but eventually individuals started to drift into a less defined arrangement where each person would move in and out of interacting with the others in order to focus on something specific. The child usually started off working with one or more adults, then broke off to explore something on her own before coming back to the same, or different grouping of the adults. This happened frequently in the REA area.

The adult men in the group (brothers and their father) became very engaged working together with the circuit activities. They spent the bulk of their time creating different circuit configurations. The grandmother did not engage very much with the other adults, though did interact with her granddaughters, usually caring for the infant. The mother hung back in the wind area and REA, though she did have some interactions with her daughter around the calendar snoop and oven.

This group spent nearly 45 minutes in the exhibit.

### **What did we hear?**

#### *Adult-Led Facilitation*

This family seemed very conscious of communicating information to their children. In the flight area, dad shows and explains how the small plane in the wind tunnel goes up and down in the wind. Mom also points out some of the features at the wind table related to lift and airflow.

*Adult male: Do you want to play with this and see how this works? This is a plane like we flew in the other day.*

*Child: I want to see how it works.*

*Adult male: Okay, turn on the fan. Then turn the speed of the air up. This is how you control the plane. See? Tilt up, you go up. Tilt down, you go down. So you can't go up any higher. Push down. Down. See, that's how you go down. We're not actually lifting it, the wind's pushing it.*

*Adult female: Kind of like the airplane we flew in Florida.*

*[Move to wind table]*

*Adult female: There's the fan buttons. Which one's going to go faster?*

*Child: This one.*

*Adult female: Do you see how that's working? You turn it this way, it creates a flat surface for the wind to blow on it. If you put it this way, the wind's just going along the sides of it.*

Dad uses one of the existing windmills as an example for her model and mom instructs her to hold her hands in the airflow to feel how they “catch the wind.”

*Adult male: See, when you turn the fan on, it pushes that.*

*Child: What pushes it?*

*Adult male: The fan. The wind.*

*Adult female: Sweetie, can you feel the wind? Put your hand up there to feel the wind?*

*Adult male: Now see, [indicating windmill that is already set up] you're supposed to design yours, so you can see how you can make yours turn. That one works pretty well, doesn't it? So let's try.*

Dad wants to help her make one, but she protests, and ends up making his own to try. The target child's windmill doesn't work right away, and dad makes the proper adjustments while explaining what he is doing to make it work. It is at this activity, that the grandfather makes a comment that transitions everyone to the REA area.

*Adult male: Here we go. Daddy made this one.*

*Child: You did?*

*Adult male: Yep. See how fast it's going? Let's do yours, okay?*

*Grandfather: You don't need to learn about wind, you need to learn about electricity.*

*Adult male: Hey, well this could make electricity with wind...*

Everyone eventually ended up in REA where dad, uncle, grandpa, and the target child work on building circuits. The men in the group all work together trying to configure more complicated circuit tasks. The dad and uncle are very interested in circuits and ask the grandfather questions, as he is an electrician, from time to time. Grandfather also points out the iron and compares it to modern irons. This is an excellent example of intergenerational learning going on within the exhibit.

Meanwhile, mom and daughter explored the kitchen setting, They talked about the oven and how the one in the exhibit was heated with coal and wood and that would have made the house very dirty. A facilitator comes over and mentions that they can see the soot on the fireplaces in Prairie Town.

*Child: I am going to make some tea [can hear oven doors opening]. Oh! Coal!*

*Adult female: It says, "This stove could burn easily available coal and wood, but could be messy." You put coal in here to heat the stove. So, it'd mean the house is really dirty and the ash has to be taken out after they burn.*

*Facilitator: What do you think of this nice stove? This is where you would have your fire. You'd build a fire with wood or coal.*

*Adult female: So your house would be really dirty.*

*Facilitator: Oh, yeah. And then you'd have the ash right in there. Now, you can see some of the fireplaces out in the village. You'll see that there's actually soot on them.*

Near the end of their time in the exhibit, the daughter notices the calendar. Her mother reads from it and poses a question that asks the child to reflect on the lives of people in the past.

*Girl: Whoah, look-it momma, today's your birthday! Mom look-it! It's a calendar. Look-it! What does it say?*

*Adult female: [Reading] "Do you think it was a good idea for the government to provide money to help get electricity to farms?"*

*Child: Yeah.*

*Adult female: Can you imagine if we didn't have electricity today?*

*Child: Yeah.*

*Adult female: How boring it would be?*

*Child: Yeah. No TV. No Light. No nothing!*

## **What did they say?**

### *Learning Experiences All Around*

In the interview the parents mention that their daughter, the target child, is very independent, and they tend to let her explore and lead the way unless she looks confused or doing something potentially dangerous.

Despite the grandfather having been an electrician, the father admitted that he did not know that much about electricity and the time spent in the exhibit working with the circuits was a learning experience for him along with his daughter. When the mother mentioned that their daughter really liked working with the circuits she also speculated on getting a set for home. In fact, during their time in the exhibition, the grandfather notices that the girl is interested in the circuits and tells her parents that he has a kit he can give her.

When asked about her intentions at the calendar, the mother stated that they use a lot of electricity at their house, and her daughter is always using something that has to be plugged in (TV, tablet, etc...) She hoped that thinking about life before electricity in the home would help her child appreciate the things she has in her own life today.

## **Discussion**

The adults in this family brought prior knowledge and experiences into Create.Connect. The grandfather's professional knowledge as an electrician allowed him to facilitate intergeneration learning where he worked with his sons to build circuits. The father (target male adult) was then more prepared to help his daughter during this specific visit and likely into the future. Prior knowledge impacts how adults use the exhibit to make connections with children in their group.

This group was configured with more adults than children. This allowed supervisory and facilitatory duty to be shared more broadly so that adults were able to indulge their own interests and explore the exhibits. The father in particular engaged his own interest for a long time at the Circuit Table. When adults have an opportunity to interact with the content, they get interested in it, and then they share those things with their children.

### **Example 3: Case 23**

#### **Who are they?**

##### *Nuclear Family Group*

This family was also visiting Conner Prairie for the first time. They had bought a membership that afternoon, at the suggestion of friends, and Create.Connect was their first stop. The group consisted of mom (target adult), dad, two sons (5 & 6 years old), and an infant (about 3 months old).

#### **What do they do?**

##### *Child-Led Activity and Engagement*

For the majority of the visit, mom supervised the two boys, the younger of whom was the target child. Dad cared for the infant and worked with the older boy during the latter part of the visit.

For the most part, this family moved through the exhibit as one group and focused on the activities and benches. They used the Mechanical Ball Run first, eventually completing a successful run. They attempted to build a simple machine at the invention table, but the activity did not hold the boys attention for very long before they moved on to the Wind area. At this point a facilitator helped mom and the target child build and test a windmill while the six year old moved on to REA with his father and sister. After some adjustments, the target boy's windmill worked to his satisfaction and they joined dad and the other siblings in REA.

The target adult and child spent the last five minutes in REA before concluding the experience to be interviewed, but during that time they interacted with both the circuit activity table and bench, and explored some of the kitchen setting. Both of the boys were able to occupy themselves with the kitchen objects, which allowed the adults to engage with the circuit activity themselves and take in some of the setting pieces.

This was one of the shorter cases we observed: they stayed for right around thirty minutes. However, this family arrived later in the afternoon and had not yet made it to the exterior areas when the mother decided to conclude their time in Create.Connect.

#### **What did we hear?**

##### *Making Connections in REA*

Until they reached the REA area and the boys were able to engage themselves with the kitchen objects, Mom's primary role was wrangling the two boys. She repeatedly requested that the boys stop arguing with each other and implored them to try working together. She also asked many questions in regards to what step should come next when they were constructing the Mechanical Ball Run.

*Child 1: Stop!*

*Child 2: It's not yours.*

*Child 1: Hey, don't put it like that.*

*Adult female: I thought you were going to make it go? That looks good. Now, what's going to happen when the ball gets here? Is the ball going to go up? If you want it to go down, what do we need to do?*

*Child 1: [To other child] STOP!*

*Adult female: Okay, can we work together? We can work together. Why don't you talk to your brother and tell him exactly what you want? Because, we want to get here, to this hole. We want to get here to finish.*

*Child 1: I know, but [he] keeps doing...*

*Adult female: Let's see. Start at the top. [Child 1], what are you going to do? What does [Child 2] need to do right here? What do we need to do there?*

*Child 2: [Child 1], I need help.*

*Adult female: [Child 1], [Child 2] needs help.*

At the Invention Table, mom tried to engage the boys in building the flag-raising machine described on an instruction sheet, but the boys lost interest quickly when they noticed the model grinding stone and began fighting over who would could play with it. Mom tries to ask questions about what a windmill is and what it does, but ends up playing referee until the facilitator comes over to show them how the activity works. The Wind area is the only location where the family encountered a facilitator, and mom stepped back to let her explain and make suggestions about what to do.

*Adult female: Do you see what it does?*

*Child 2: Let me try! I wanna try!*

*Adult female: You can try after [Child 2]. Do you know what this is called?*

*Child 2: [Whines at brother] Let me try!*

*Child 1: A Windmill?*

*Adult female: Yes! A windmill. [Child 1]! Just wait your turn. Just wait your turn.*

*Child 2: He's pushing me.*

*Adult female: Can you see it?*

*Child 2: I'm going to make one.*

*Adult female: They have the little spears here.*

*Child 1: Why?*

*Facilitator: You guys want to see what this is? What we do, is we're building a little windmill like this, and then we turn on the fan...*

*Adult female: Look.*

*Facilitator: And watch what happens.*

*Adult female: Ooh see?*

*Facilitator: And look it that. It spins this, and it moves this belt, and it's making... See this little stone? It's making that spin.*

*Adult female: Isn't that neat? Do you see how it's all connected?*

Once the entire family has regrouped in REA the boys explore the kitchen and use the objects in the stove and cabinets to "cook" for their parents. Meanwhile, mom and dad have an opportunity to devote their full attention to the circuit activity. Mom completes a circuit and gloats over her husband to their infant daughter that she figured it out when daddy couldn't.

*Adult female: So, does it tell you what the...*

*Adult male: Nope.*

*Adult female: So, how do you know what to attach?*

*Adult male: The red and black leads. Match red and black.*

*Adult female: Oh. What are you doing over there? [to children].*

*Child 1: I'm going to cook while you're doing that. Tell me when it's done.*

*Adult female. Okay. You let me know when my dinner is ready. What does this do? [to husband]. It's supposed to be a washing machine.*

*Adult male: [muffled]*

*Adult female: Then why didn't you tell me before I did all this work? Oh! There it went.*

*Child 1: The chicken's done.*

*Adult female: The chicken's done? Okay. There we go. I got the washing machine to work. It's spinning. Yes... [to infant daughter] Mommy got it! Daddy didn't get it, but mommy got it. Yes I did!*

A few minutes later, mom points out the waffle maker by asking the kids if they know what it's for. She jogged their memories by saying she makes the same thing for them using blueberries. Then she moved on to the circuit bench with the target child and explained how to adjust the frequency on the voltage meter. The last interaction in the observation period before they conclude for the interview involved mom comparing the voltage meter to the fetal heart monitor in her room when she gave birth to her infant daughter.

*Adult female: [At circuit bench] You can adjust the frequency. See the frequency changing? Isn't that cool? Where did you see that? Did you see that when mommy was pregnant with [infant]? Remember they had that hooked up to mommy.*

*Child 2: Did you like it?*

*Adult female: It was just to make sure that... to look at her heartbeats and stuff? Remember? Do you guys remember that? Can you see the lines?*

*Child 2: Yeah...*

*Adult female: You do?*

## **What did they say about it?**

### *Persistence and Making Connections*

When asked about her goals at the Mechanical Ball Run, the target parent stated that she wanted her sons to learn about the persistence needed to finish something they started. She provided a lot of guidance since the boys tended to lose interest if they didn't get results right away. She also wanted them to be able to connect their experiences to real life. She also said that it was important for them to learn how to work together and to help each other.

Mom mentioned that it didn't surprise her when the boys engaged so easily with the kitchen setting in REA because they spend a good deal of time with her in their kitchen at home. The familiarity of it helped hold their attention.

*We didn't really go into the history with the stove, but my boys are all about the kitchen. They're always in the kitchen cooking with mommy. So the fact that there was a stove there, the waffle maker; that would keep their attention.*

When asked specifically about why she compared the voltage meter in REA to the fetal heart monitor in her room when she was pregnant, she stated that she thought they would be able to make a connection between the similar types of machines and it would make more sense to them.

Mom also revealed that they have not done much with electricity out of the house, so the activity was a learning experience for her too, despite the fact that she has a science background.

*I have a science background, but it's nothing with electronics or anything. I work as a microbiologist. But I would love to get their interest in circuits and all that stuff, because for me, it would be learning for all of us, something that we would be able to do together.*

## **Discussion**

The target adult in this group was really only able to manage crowd control and pushing broad goals (like teamwork and persistence) with her two children during the early part of this experience. It is not until the family got to the REA area that she was able to divert her attention to the activities and setting enough to help her children make connections.

This adult referred to the facilitator as the expert who likely had more information about the activity. This is something that other adults also frequently said when asked about instances when they deferred to a staff person.

## Further Discussion

Adults are interested in the exhibit too. When relieved of their children, even briefly, adults dig into the objects, stories, and activities. Adults seem to be able to interact with the exhibit and figure it out themselves. Their interactions with the exhibition impact how they interact with their kids. In fact, we saw in these cases that when adults are given this opportunity to explore, they bring back new information to their children. While this evaluation was based on the idea that adults are important to their children's learning, we were still struck at how important the adult's experience in the exhibition seemed to be. While some adults seemed experienced in prompting kids with questions regardless of their experience or the topic in the exhibit, many of the most interesting bits of adult/child conversation came after adults experienced something that interested them and shared that interest with their children. What is the best way for Conner Prairie staff to facilitate in order to encourage this type of family dialogue in the exhibit, especially around connecting the history and STEM experiences?

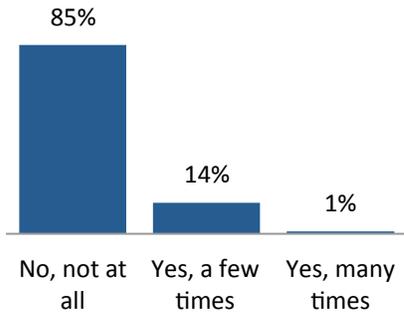
Create.Connect works for multiple ages in different ways. One challenge is how to help parents of young children get more out of the exhibit. What is a developmentally appropriate goal for young children in Create.Connect? Developmentally appropriate facilitation can be used with the children or directly with the parent to help them understand how to help their child in the exhibit. Especially since many of these families with young children may be repeat visitors and can build on their experience during and between visits.

Something about the REA area seems to be working well, even now that all the other exhibit areas are fully developed. It may be the combination of familiar and unfamiliar that holds the attention of visitors and encourages conversation. The kitchen is a familiar setting for all ages but includes unfamiliar kitchen objects. In a very real way, visitors who use the Circuit Table are sitting at the kitchen table. It is probably a comfortable setting for both children and adults.

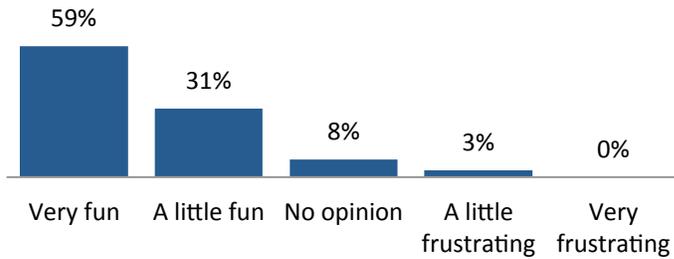
We also guessed that the depth of conversation we saw in REA may have something to do with the fact that this was the last stop for the three cases we examined in depth. One thing we noticed in these three cases is that the participants needed a little time to experience the exhibit before we heard more complex conversation. Create.Connect is a little different than the rest of Conner Prairie. It makes sense that visitors are able to make more connections when they have seen more of the exhibition and learned what types of interactions are possible in it. If this is true, this is an exciting potential of Create.Connect for repeat visitors.

## Appendix 1: Exit Survey Results

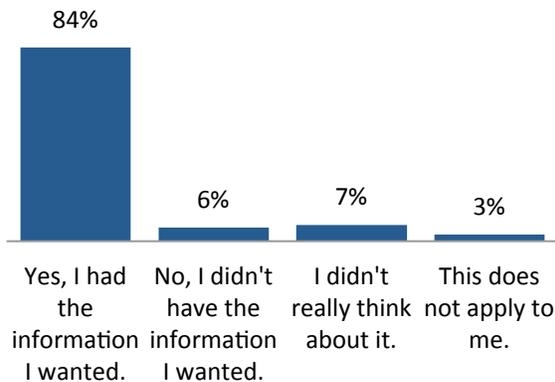
**Chart 1: When you were in Create.Connect today, did you ever feel frustrated looking for more information? (n=74)**



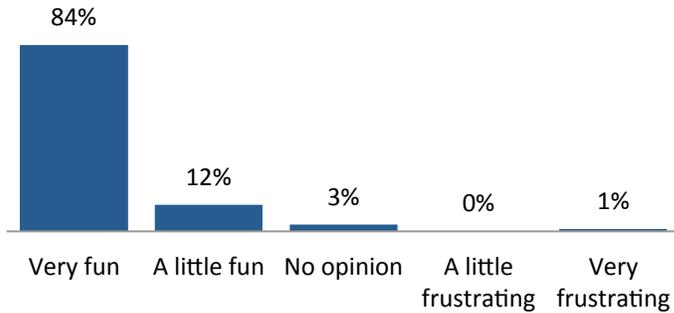
**Chart 2: For you personally, is exploring the exhibition for objects and information fun or frustrating? (n=75)**



**Chart 3: Did you feel like you had the information you wanted from the exhibit to help the children in your group have fun and learn? (n=68)**



**Chart 4: For the children in your group, do you think exploring the exhibition for objects and information is fun or frustrating? (n=68)**



**Table 1: When you were in Create.Connect today, did you ever feel frustrated looking for more information? (n=74)**

	No, not at all	Yes, a few times	Yes, many times
First and Second Time C.C Visitors	78%	22%	0%
More Than Second Time C.C Visitors	94%	3%	3%

Visitors who are visiting Create.Connect for the first or second time are slightly more likely to feel frustrated looking for more information. From the remedial observations, they are likely referring to additional instructions on the activities.

**Table 2: When you were in Create.Connect today, did you ever feel frustrated looking for more information? (n=74)**

	No, not at all	Yes, a few times	Yes, many times
Visitors who did NOT notice the snoops	84%	16%	0%
Visitors who did notice the snoops	87%	10%	3%

We asked visitors if they noticed that you had to “look inside of things for some objects and information.” A little over half did not notice (58%) and the remaining percentage did notice. Regardless of whether they said they noticed this feature of the exhibition, they responded the same to the question of whether they were frustrated looking for more information. There were no meaningful differences between how these two groups responded to this question.

**Table 3: When you were in Create.Connect today, did you ever feel frustrated looking for more information? (n=74)**

	No, not at all	Yes, a few times	Yes, many times
Members	87%	11%	2%
Non-Members	82%	18%	0%

Likewise, there were no meaningful differences between how members and non-members responded to this question.