

Concord Evaluation Group

PEEP and the Big Wide World: User Experience Study

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Executive Summary

Background

PEEP and the Big Wide World/El Mundo Divertido de PEEP is a bilingual, NSF-funded public media project that uses animation, live-action videos, games, mobile apps, hands-on science activities—and a wide-eyed chicken named Peep—to motivate preschool-age children to investigate the world around them. At PEEP’s core is a television series for 3- to 5-year-old children. Episodes feature a mix of animation (in which Peep and his friends Chirp and Quack -- a robin and a duck – explore science and math on their daily adventures) and live-action (in which real kids explore related ideas in their homes and neighborhoods). Online, PEEP extends children’s science and math learning with a mobile-friendly website that offers games, videos, and hands-on activities, as well as a collection of 15 apps. PEEP is also reaching children in preschool classrooms and family/home childcare settings via the PEEP Science Curriculum, which provides resources for a year’s worth of science and math investigation. Professional development materials, including videos featuring real educators, model best practices in teaching science and math for both center-based preschool educators and family childcare educators (an important audience for which very few resources have been developed).

WGBH recently completed a total redesign of the PEEP website that was intended to make the site more accessible to Spanish-speakers, more supportive of extended informal science and math exploration, and more functional for users of tablets and mobile devices. As as part of the redesign, WGBH also added new resources to the Educators section of the PEEP website, specifically, the Science Curriculum and professional development materials described above.

Evaluation

Concord Evaluation Group (CEG), an independent evaluator, conducted a nationwide user experience study with 10 English-speaking families, 10 Spanish-speaking families, 21 preschool-based educators, and 10 family childcare educators (of which five were Spanish speakers) to gain a deeper understanding of how English- and Spanish-speaking families and preschool educators use the PEEP website and its resources.

CEG conducted user interviews with families and educators. In a user interview, participants are observed as they navigate a website. Their mouse movements and verbalizations are recorded. To ensure a national sample, all interviews took

place online. Web conferencing software was used to provide the participants remote control of CEG's computers. This methodology enabled participants to demonstrate exactly how they used the website and which areas they visited most frequently.

High-Level Findings

Below is a top-level summary of the study findings.

Family User Experience Findings

Website Access

- Nearly all families reported that they typically accessed the website through their browser history and/or browser bookmarks.
- There was no preferred browser among interview and survey respondents. Chrome, Firefox, and Safari were mentioned by parents as the browsers they used when accessing the PEEP website.
- Nearly all parents reported that they used the PEEP website on a computer (desktop or laptop) and/or a mobile device (tablet or smartphone).
- The majority of English- and Spanish-speaking families reported that they initially became interested in using the PEEP website after watching PEEP on television.
- All Spanish-speaking families reported that their children mainly used the English version of the website. However, some Spanish-speaking parents reported that they themselves will visit the Spanish version when they want to see the website.

Website Navigation and Use

- With kids making nearly all the decisions about where to navigate, the most frequently visited resources were games and videos.
- Children generally navigated to games and videos by choosing a "Pathway" to explore, rather than using the "Games and Videos" tab at the top of the Home Page. Pathways are collections of thematically-related games and videos, accessible from the Home Page via colorful buttons that feature cartoon images. Children chose which Pathway to explore by selecting a button that looked fun or interesting to them. Within a pathway, children chose specific videos or games to explore by clicking on small "thumbnail" images that represented each resource.
- The only exception to children accessing games and videos via Pathway buttons was when parents read the tabs at the top of the Home Page to

children who could not read yet. In these cases, children were interested in games and videos, so they asked to navigate there first. The Games and Videos tab leads children to a rotating selection of videos and games that are not thematically related.

- Once children landed within a given Pathway, they tended to stay and explore games and videos within the given Pathway, rather than navigating to other Pathways or other website pages.
- While most families reported that they enjoy using the website together at home, parents reported that they also felt comfortable enough with the PEEP website and apps to allow their children to independently explore the math and science resources without parental supervision.
- All parents reported that they do not direct their children's actions per se while using the PEEP website. Rather, parents reported that they encouraged their children to self-direct their own experience with the PEEP website.
- Approximately 50% of parents reported that their children could typically navigate and use the PEEP website without any parental assistance. The rest reported that they assisted their children as "navigators" primarily because it was challenging for children to use a computer mouse.
- Among parents whose children used PEEP on a mobile device, all (100%) reported that their children could independently navigate using the touch screen, including those who categorized themselves as having to serve as "navigators" when using the website on a computer.

Website Content

- Overall, parents reported a very favorable opinion of the PEEP website content. Parents reported that they enjoyed the parenting videos, the website's simple explanations of science and math content, and PEEP's ideas for fun activities.
- We observed, and families reported, that more children preferred the animated/cartoon videos over the videos with real kids.
- Several parents reported that they used the videos with real children and families to get an idea for activities to do at home.
- Several parents reported that they preferred to watch the videos on Netflix rather than the PEEP website.
- Forty percent of parents reported they had used the parent resources available on the PEEP website, in addition to exploring videos, games, and other interactive resources. The most popular resources cited by these parents were the hands-on anywhere activities and the family science handouts.
- Among both groups of parents, those who had used the parent website and those who had not, a common concern was the issue of time. Parents reported that they wanted to use *more* of these resources with

their children, but they frequently cited the lack of time as a barrier to using more materials on the parent website.

The full report contains families' feedback and suggestions for enhancing the PEEP website.

Preschool-Based and Family Childcare Educators

Website Access

- To get started on the PEEP and the Big Wide World site, educators either clicked on a saved desktop shortcut, used a bookmark, or searched Google with the phrase “PEEP and the Big Wide World.”
- All Spanish-speaking family childcare educators reported that they only accessed the English version of the website, as they were fluent in English and most of their students spoke English, too.

Website Navigation

- We observed that educators seemed very comfortable moving through the material and were able to navigate without challenges.
- We observed that preschool-based educators tended to locate specific activities within themes, either by picking and choosing parts of the curriculum for a unit or by using the “find activities” tool at the bottom of the page. Not all preschool-based educators were aware of the tool to find standalone activities, however. Educators who had used the tool (as well as those who had not) agreed that it was a useful option. We don't know why educators reported that they couldn't find the tool.
- Family childcare educators used the educator resources in similar ways, locating specific activities within themes, or by using parts of the curriculum. However, none of the family childcare educators reported use of the “find activities” tool at the bottom of the page. Family childcare educators tended to only locate activities within themes.

Website Video and Game Content

- Educators reported using the games and videos embedded with the Science Curriculum rather than the content from the kids' section of the website. Classroom technology resources varied somewhat, with some preschool-based educators using personal computers and others using iPads to share PEEP content with students. Only one educator reported projecting the information onto a larger screen.
- Only half of the family childcare educators reported use of the PEEP resources or website with their students. Of the family childcare educators

that did not use PEEP in the classroom with their students, they reported using the PEEP website independently, outside of the school day, as part of their lesson planning and preparation on either computers or iPads.

- In some classrooms, educators encouraged children to use the website on their own to view the PEEP videos and games, providing help as needed.
- Educators spoke highly of the animated videos.

Other Website Content

- Very few of the preschool-based educators had accessed the “Teaching Strategies” professional development materials, because the educators were more focused on the curriculum content. However, many family childcare educators indicated they had seen the Teaching Strategies (just not used them). Others said, now that they were aware of these resources, they would seek them out after their interview, for themselves or more junior educators.
- Many educators found it helpful to print out the lesson plans, rather than accessing the information only online. They appreciated the convenience of the “print” button to aid in lesson planning, resource development, and personal reference.
- Educators reported that the most useful PEEP tools were the weekly calendars for each of the different themes.
- While educators appreciated the curriculum calendar, all of them used it with modifications, doing some, but not all, activities or altering activities to meet their needs. Overall, educators used the curriculum as a guide and were flexible in how they followed the calendar.
- Educators reported that they used the PEEP resources to supplement their existing curriculum. Frequently, educators reported that they already had a full curriculum to follow, so they picked and chose parts of the PEEP website that matched topics they were already planning to cover.
- Educators reported that they shared the Parent Resources with their students’ families.
- Other resources that educators found valuable included vocabulary and information for English language learners.
- None of the educators reported using the PEEP event kit, Diary of a Teacher, or the Educator webinar.

Feedback on Website Content

- Educators were unanimous in their praise of the PEEP website and reported that the materials and resources were of high quality and very valuable for introducing math and science concepts to pre-school children.

- Educators were impressed with the detailed information and suggestions included in the resources. They reported that the PEEP materials were understandable and thorough, allowing for quick preparation and easy use with their students.
- Many educators cited difficulties with teaching math and science concepts to young students. All of the educators reported that the PEEP website was a tool that supported them as they incorporated these “foundational skills” into their lessons by providing practical activities, learning ideas, and simple content explanations.
- In addition to fostering student learning of math and science concepts, educators reported an increased level of engagement among their students in using the PEEP resources.

Experiences with Topics

- Educators used the curriculum to develop **questions or prompts** for their students around the science topics.
- Educators reported that the curriculum provides an easy way for them to **meet the basic standards** they are required to meet with their students.
- Educators appreciated that the content enabled their students to make **real life connections** to science.
- Educators reported that it was **simple to make adjustments** or accommodations, when needed.

The full report contains educators’ feedback and suggestions for enhancing the PEEP website.

Findings Related to Impacts

Impacts on Parents

- Parents reported that PEEP helped them feel more **confident** and **better equipped** to explore math and science with their children.
- Parents reported that PEEP helped them **answer their child’s questions** about math and science.
- Parents reported that use of the PEEP resources gave them **ideas for exploring math and science** with their children at home. Parents reported that PEEP helped them learn **creative, simple strategies** for science and math exploration; provided interesting videos, activities and games; and introduced them to new, easily understandable science and math ideas to explore. One parent called the site a “launching pad for learning.”
- Parents reported that PEEP reaffirmed the **importance of helping their children learn math and science**.

- Parents reported that PEEP activities helped them learn **how to do educational activities at home**.

Impacts on Kids

- Parents reported that their children were able to **make connections and apply new concepts** acquired from the PEEP resources to the real world.
- Parents reported that their children were **interested in math and science and were more curious about their world** as a result of using PEEP resources.
- Educators reported that children **enjoyed** the materials and were **engaged** by the activities.

Impacts on Educators

- Educators indicated that the PEEP website helped them feel **empowered** or **more confident** to incorporate math and science into their curricula.
- For new educators, PEEP also included resources that were especially **helpful to new educators** who may not have had the experience or background to incorporate of math and science into the classroom. PEEP resources also gave more experienced educators the **confidence** they needed in order to include science and math in their classrooms.
- Many educators, new and experienced, indicated that the PEEP and the Big Wide World resources **inspired them to have new ideas** for incorporating math and science into their classrooms.
- Several educators indicated that they are more “aware”, and thus **more inclined to incorporate math or science into their curricula** as a result of the PEEP website.

Recommendations

Below, we offer some suggestions for WGBH’s consideration:

- We strongly encourage WGBH to continue using the Pathways as these were key to children’s navigation around the website.
- Since children relied so heavily on the Pathways buttons and thumbnail images to make choices about which content to view, we suggest that WGBH continue to ensure that the visuals on the website are not only appealing to children (through user research) but that they are informative (e.g., a picture of a frog if the resource is about pond life, a picture of a nest if the resources is about animal homes).

- Because parents tended to allow children to use the website on their own, we encourage WGBH as it makes any future changes to the website, to test the website with children to ensure it's as child-friendly as possible.
- Since parents relied on the live action videos for ideas, we suggest WGBH post links to such live action videos on its social media sites.
- Parents offered the following suggestions for enhancing the PEEP website:
 - Add more videos
 - “Advertise” the parent resources more prominently, by sending out a PEEP newsletter to parents, calling out parent activities more prominently on the website, or adding links from specific resources on the Kids section of the site to related activities on the Parents section of the site.
 - Add talking points to the parent section describing how best to use the materials.
 - Add more game options for older and younger children, and allow parents to sort activities by age.
 - Add a “new” banner to newly added features.
- Since educators didn't seem to notice the tool for finding standalone activities, we suggest making it more prominent on the website.
- Educators offered the following other suggestions for enhancing the PEEP website:
 - Offer a sitemap, table of contents, or a “start here” link on the homepage to aid navigation.
 - Highlight new content more prominently.
 - Provide alternatives for books that are hard to find and materials that are difficult to find.
 - Offer more topics, such as the human body.
 - Provide a hyperlink to resources whenever a resource is mentioned.
 - Test the content with young children to ensure the vocabulary is accessible to most children (no educators viewed this as a problem, this was simply a suggestion).

Background

PEEP and the Big Wide World/El Mundo Divertido de PEEP is a bilingual, NSF-funded public media project that uses animation, live-action videos, games, mobile apps, hands-on science activities—and a wide-eyed chicken named Peep—to motivate preschool-age children to investigate the world around them. At PEEP’s core is a television series for 3- to 5-year-old children. Episodes feature a mix of animation (in which Peep and his friends Chirp and Quack -- a robin and a duck – explore science and math on their daily adventures) and live-action (in which real kids explore related ideas in their homes and neighborhoods). Online, PEEP extends children’s science and math learning with a mobile-friendly website that offers games, videos, and hands-on activities, as well as a collection of 15 apps. PEEP is also reaching children in preschool classrooms and family childcare settings via the PEEP Science Curriculum, which provides resources for a year’s worth of science and math investigation. Professional development materials, including videos featuring real educators, model best practices in teaching science and math for both center-based preschool educators and home child care educators (an important audience for which very few resources have been developed).

WGBH recently completed a total redesign of the PEEP website that was intended to make the site more accessible to Spanish-speakers, more supportive of extended informal science and math exploration, and more functional for users of tablets and mobile devices. This work included:

- **The transformation of PEEP into a fully dual language website** via the translation of all games and website text into Spanish and the debut of a new Spanish-language title (El Mundo Divertido de PEEP) and accompanying logo;
- **A significant expansion of available PEEP assets**, including six new games for kids, new videos for parents, and new curricular resources and professional development materials for preschool educators and home childcare providers, as well as making more previously-produced PEEP animated videos available—going from 7 to more than 50;
- **The reorganization of media assets for children**, in which the site no longer focuses on discrete “types” of assets like games and videos, but rather invites children to explore science and math topics—like “sound,” and “numbers and measuring”— that feature integrated collections of animated stories, live-action videos, and online games;
- **The reorganization of materials for parents**, in which WGBH reworked the Parent section to make it easier for parents to explore hands-on activities (they are now searchable by location and theme) and find suggestions for related videos and games; and

- **A shift to responsive design**, meaning that the site now automatically adjusts to different window sizes on a variety of tablets, mobile devices and browsers.

Concord Evaluation Group (CEG), an independent evaluator, conducted a user experience study to gain a deeper understanding of how families and preschool educators use the PEEP website and its resources.

Methods and Procedures

Research Questions

The main purpose of the study was to collect user experience data from families and educators. The research questions are listed below.

Family Research Questions

Website Access

- Where do families typically start? What do they do on those pages?
- What made families interested in using the PEEP website to begin with?
- Do Spanish-speaking families tend to use the Spanish version of the website or the English version? Do they tend to stick with one language, or switch back and forth between languages?

Website Navigation and Use

- What do children like to do on the PEEP website?
- When children use the PEEP website, do parents help them, or direct them to specific areas of the website?
- In what situations do parents intervene?

Website Content

- What are families' opinions of the PEEP website content/resources?
- Do parents use the hands-on activities from the parent portion of the PEEP website? What challenges do they face, or think they would face, if they tried to use these resources at home to help their children learn? What supports might help them overcome these challenges?

Educator Research Questions

Website Access

- What areas of the website do educators use?
- How do educators access the "Teaching Strategies" professional development materials?
- Do Spanish-speaking educators tend to use the Spanish version of the website or the English version? Do they tend to stick with one language, or switch back and forth between languages?

Website Navigation and Use

- Do educators mainly use the content on the Educators section or do they use resources from other areas (like the Parents section or the main portion of the website)?
- How do educators locate specific activities on the website (i.e., Do they use the curriculum units or use the “find activities” tool at the bottom of the page)?
- Do educators seem to grasp intuitively how to move through the material, or do they get confused or “lose their place” as they navigate through?
- Do educators use the PEEP website on their own to plan activities, or as part of instructional time with their children?

Website Content

- Do some resources, or types of resources, promote better interactions than others?

Secondarily, CEG simultaneously collected data on the impact of the redesigned website on both English- and Spanish-speaking families and preschool educators. A separate report describes the impact of PEEP in greater detail.¹ When applicable, this report provides additional documentation of the impact of PEEP on families and educators. The project’s intended impacts included:

1. English- and Spanish-speaking parents will feel more equipped (self-efficacy), and thus more confident facilitating math and science exploration with their preschoolers as a result of using PEEP.
2. English- and Spanish-speaking parents will feel more inclined to facilitate math and science exploration with their preschoolers as a result of using PEEP.
3. Preschoolers will more effectively apply inquiry process skills, including prediction, observation, problem-solving, and exploration as a result of using PEEP.
4. Preschool educators will feel more empowered and confident to incorporate science into their curricula as a result of using the PEEP educator resources.

¹ Paulsen, C.A. (2016). *Evaluation of PEEP and the Big Wide World Resources for Families*. In support of NSF Grant No.: NSF DRL 1222607. Concord, MA: Concord Evaluation Group.

5. Preschool educators will have new ideas for incorporating science activities as a result of using the PEEP educator resources.
6. Preschool educators will feel more inclined to incorporate science into their curricula as a result of using the PEEP educator resources.

Study Design

We conducted user interviews with families and educators. In a user interview, we observe participants as they navigate a website, recording their mouse movements and verbalizations. To ensure a national sample, all interviews took place online. We used web conferencing software so that we could give the participants remote control of our computers. This methodology enabled participants to demonstrate exactly how they used the website and which areas they visited most frequently. The interview scripts are included in Appendices A and B.

Twenty parent-child dyads (“families”) were recruited for the study; 10 were English-speaking and 10 were Spanish-speaking families. We recruited families using multiple methods. First, we recruited families with previous PEEP experience from CEG’s existing research panel. The panel contains families who have expressed interest in other PEEP studies but have not been enrolled in those studies because those studies only included families without prior exposure to PEEP. This method of recruitment yielded all of our English-speaking families (n = 10) and fewer than half of our Spanish-speaking families (n = 3). We received feedback from some Spanish-speaking families that they were uncomfortable doing a web-based interview – regardless of whether it was conducted in English or Spanish.

So, to collect data from seven additional Spanish-speaking families, CEG provided a simple web-based survey in English and in Spanish for families that were uncomfortable with the web-based interview methodology (Appendix C). Although we were unable to capture the data related to website navigation with the surveys, we were able to collect most of the same data that were collected with the interviews.

For the preschool-based educator and family childcare educator samples, we used several methods of recruitment. First, we invited educators from WGBH’s social media and email distribution lists since they were already familiar with, and probably had used, the PEEP website before. In addition, we invited educators in our research panel to participate if they had prior experience with PEEP. These methods did not yield the full sample. So, we changed the study design. We recruited preschool educators with or without any prior experience using PEEP.

We shared the website address with them and, without prescribing how they should use it, we encouraged them to try as many activities and resources as they could with their students over a period of two weeks. Then, we interviewed them.

Participants

Families

The total sample size was 20 families (10 English-speaking and 10 Spanish-speaking). The Spanish-speaking children sample was split evenly between boys and girls, while the English-speaking children sample contained more girls than boys. The study included more 4 year olds than 5 year olds, at a ratio of 3:1.

**Table 1:
Children's Gender and Age**

	English Speakers (n = 10)	Spanish Speakers (n = 10)	TOTAL (N = 20)
Gender			
Girl	7 (70%)	5 (50%)	12 (60%)
Boy	3 (30%)	5 (50%)	8 (40%)
Age			
4	8 (80%)	6 (60%)	14 (70%)
5	2 (20%)	4 (40%)	6 (30%)

The majority of the parents involved in the study were mothers (all but two were mothers).

**Table 2:
Parents' Role**

	English Speakers (n = 10)	Spanish Speakers (n = 10)	TOTAL (N = 20)
Role			
Mother	10 (100%)	8 (80%)	18 (90%)
Father	0 (0%)	2 (20%)	2 (10%)

Educators

Twenty-one English-speaking preschool-based educators, five Spanish-speaking family childcare educators, and five English-speaking family childcare educators participated in the study. We did not collect detailed background information about the educators in the study, except for their geographic location. Their locations are summarized in the table below. Most of the educators were located in Massachusetts. CEG is located in Massachusetts, so our database contains more educators from that area.

**Table 3:
Educators' Location**

Location	Preschool-based Educators TOTAL (N = 21)	Home Educators TOTAL (N = 10)
Massachusetts	12	2
Maryland	3	0
Arizona	1	0
Illinois	1	0
Kentucky	1	0
Minnesota	1	0
Ohio	1	1
Pennsylvania	1	0
California	0	2
Iowa	0	1
South Dakota	0	1
Utah	0	1
Indiana	0	1

User Experience Findings

Families

Below is a summary of user experiences reported by English- and Spanish-speaking families regarding website access, navigation and use, and content.

Website Access

Approximately 80% of English and Spanish speaking parents reported being frequent users of the PEEP website. Nearly all families reported that they typically accessed the website through their browser history and/or browser bookmarks. Common parent comments included “I do have a bookmark already so that’s what I usually use”, and “...it’s in the history so we’ll just start typing on top and it’ll pop up for us.” Of the parents that did not use browser history or bookmarks, Google was their reported access point for the PEEP website. These parents typically “just click into Google and type it in.”

There was no preferred browser among interview and survey respondents. Chrome, Firefox, and Safari were mentioned by parents as the browsers they used when accessing the PEEP website.

Nearly all parents reported that they used the PEEP website on both a computer (desktop or laptop) and a mobile device (tablet or smartphone). One parent reported exclusive use of a computer, and one parent reported using a tablet exclusively. However, it is important to note that it was not possible to determine from the existing data whether parents were using the PEEP apps or the actual PEEP website when using a mobile device. When asked, parents could not tell us with certainty (which leads us to believe their children were primarily using PEEP on mobile devices, and not them).

The majority of English and Spanish speaking families reported that they initially became interested in using the PEEP website after watching PEEP on TV. A common sentiment reported among parents was “she just watches the show, so I just Googled it.” Other routes of interest reported by parents included “researching sites that were smart but for kids,” and an exhibit at the Boston Children’s Museum.

All Spanish-speaking families reported that their children mainly used the English version of the website. However, some Spanish-speaking parents reported that they themselves will visit the Spanish version when they want to see the website.

Website Navigation and Use

We observed families as they used the website. With kids making nearly all the decisions about where to navigate, the most frequently visited assets were games and videos. Children chose assets from all over the website based on what they were interested in exploring at the moment. There were no discernable patterns, with children making seemingly random choices or choosing buttons that “caught their eyes.”

Children generally navigated to games and videos by choosing a “Pathway” to explore, rather than using the “Games and Videos” tab at the top of the Home Page. Pathways are collections of thematically-related games and videos, accessible from the Home Page via colorful buttons that feature cartoon images. Children chose which Pathway to explore by selecting a button that looked fun or interesting to them. Within a pathway, children chose specific videos or games to explore by clicking on small “thumbnail” images that represented each resource.

Each study session began in a slightly different place, depending on how the families navigated to the website. Some landed on the homepage to begin with, while others landed deeper within the site by choosing links from search engines that landed them deeper in the site.

The only exception to children accessing games and videos via Pathway buttons was when parents read the tabs at the top of the Home Page to children who could not read yet. In these cases, children were interested in games and videos, so they asked to navigate there first. The Games and Videos tab leads children to a rotating selection of videos and games that are not thematically related.

Once children landed within a given Pathway, they tended to stay and explore games and videos within the given Pathway, rather than navigating to other Pathways or other website pages.

Due to the website’s “fun and interactive” nature, parents reported they were happy to engage with their children in using the PEEP website, particularly with the videos and games:

- *[I] like to play on the [website] with her because then I can be involved and ask her more questions.*
- *We use [the website] together. He will point out the things that he wants to go to and then we'll sit at the computer as a family and we'll walk through it together.*
- *I literally enjoy watching the movies with him...I feel like they're somewhat entertaining, especially with the silly things that they have on there.*

- *There's a lot of numbers and pattern things on there, and it's perfect for her. And I have a one-and-a-half-year-old as well. That's just perfect for both of them.*
- *I love the games and, of course, I love the videos. I wish there were more videos. There are enough games. Those are great.*
- *...then my husband and myself started watching it with her and we became obsessed with it because it's just hilarious.*

Parents reported that they also felt comfortable enough with the PEEP website and apps to allow their children to independently explore the math and science resources without parental supervision:

- *He's able to be very interactive with it and we let him drive it a little bit more. So if I'm not in the room with him or anything like that he will literally kind of take control of it.*
- *She's been doing it on her own. She's pretty good with it, because she's used it quite a bit. So she knows where she automatically wants to go. She clicks on whatever she's interested in at the moment and when she's done she knows how to scroll right through and choose what she wants to look at.*
- *I tend to give it to her to do alone, 90% of the time.*

Many parents reported that they enjoyed the fact that the website was educational and fun simultaneously:

- *The show and the website are great ways to incorporate science and math without pushing it in their face necessarily, being too academic.*
- *I like PEEP because there are a lot of lessons that are involved and it's not too heavy for kids to understand. It's just right at their age level. That's what I really like about it, and I like about the show, is just there's a lot of good points that are made that they can pick up on and she'll ask questions about, or she wonders about.*
- *I like how they introduce STEM concepts in a friendly and fun way. It's kind of disguised. So I love that because it's so fun.*
- *I would rate it 10 [out of] 10. I think the activities (almost all of them for all the age groups) are interactive, interesting, keep the children engrossed and inquisitive as to why and what happens next, etc. I wish we had such stuff when we were kids back then.*

All parents reported that they *do not* direct their children's actions *per se* while using the PEEP website. Rather, parents reported that they encouraged their children to self-direct their own experience with the PEEP website.

Approximately 50% of parents referred to themselves as ‘navigators’ to help their children use the PEEP website. In this role, parents reported that they performed tasks such as “clicking things” and “driving the mouse” when needed, yet still encouraged their children to explore the website features independently. For example, some parents reported:

- *She'll just show me and then I'll click on whatever she wants me to click on for her.*
- *[I do] pretty much just the navigational part of it.*
- *I help her. She'll just tell me what game she wants and I'll find it and then she'll take over.*
- *She uses me to navigate. She'll tell me what she wants to play and then I put her there.*
- *Generally, if she's tired I'll do it for her and I'll tell her where the different things are and she'll tell me what she wants.*
- *I'll just navigate it for her.*

Among parents whose children used PEEP on a mobile device, all reported that their children could independently navigate using the touch screen, including those who categorized themselves as having to serve as “navigators” when using the website on a computer due to difficulties using a computer mouse.

While approximately half of the parents did help their child navigate the website during the study session, the other 50% of parents reported that their children could typically navigate and use the PEEP website without any parental assistance:

- *He usually controls the mouse himself when he plays with PEEP. He likes to take over my computer.*
- *I give her full control. Other than typing in the website, I didn't do anything with the mouse.*
- *I (child) don't really always ask her [mom] for help because I can see the words. It's easier for me to press them and go on.*
- *Once in a blue moon she'll ask me for help but the majority of the time she can use the website on her own.*

Other than the navigational aspect of using the PEEP website, the need for parental involvement or intervention was reportedly low. Parents cited few instances where they needed to intervene:

- *Unless maybe his cursor goes awry and a strange thing pops up then I'll come and help him but he can pretty much navigate on his own.*
- *Occasionally she wants help with an answer but that's the only time she's asked me for help on the PEEP website.*

- *He gets stuck on a screen or the video will stop and then I will have to move it back to the regular screen where the links were.*

The most widely used features of the PEEP website reported by both parents and children were the games and videos. Nearly all English- and Spanish-speaking parents reported beginning their website user experience with either the games or the videos, with only one respondent reporting that they began at the parents' page.

Once at the homepage, parents reported that they typically allowed their children to independently define the user experience:

- *She just clicks around and [does] whatever interests her. She jumps around.*
- *[She does] what catches her eye or what she remembers she likes. I'll tell her the different options and then we'll go to it and then we'll watch different videos and just see what's going on. And then I'll leave her and she can do this on her own.*
- *He's a little bit arbitrarily choosing which ones he wants to watch.*
- *She just kind of picks and chooses. Whatever is flowing through her that moment is what she will look and find.*

Website Content

Overall, parents reported a very favorable opinion of the PEEP website content. Parents reported that they enjoyed the parenting videos, the website's simple explanations of science and math content, and PEEP's ideas for fun activities. They reported that they consider PEEP to be an excellent STEM educational resource for their children.

Children's favorite content included the games and videos. Families reported that they enjoyed the games because of their:

- *kid friendly appearance (My daughter loves that, between the animals and the background, it is very colorful. That truly captures her attention.)*
- *ease of use (...the way it's laid out. It is easy to click on a topic. I love how simple it is.)*
- *scaffolded help (If they don't grasp it the first time or they make a mistake they'll repeat it again.)*
- *wide variety (I like that there's a big variety of games because we play on PBS Kids a lot, and some of the characters that she's trying to play they don't have as many games.)*

- absence of advertisements (*I love how there [are] no ads. That's huge. I hate the ones with ads because she ends up clicked on some website and then can't go back to her game.*)

With respect to the videos:

- Children and parents reported that children preferred the animated/cartoon videos rather than the videos with real kids.
- Several parents reported that they use the videos with real children and families to get an idea for activities to do at home.
- Most children reported that PEEP was their favorite character, but children also reported that they enjoyed Chirp, Quack, and Bunny.
- Several parents reported that they prefer to watch the videos on Netflix rather than the PEEP website. (*We do them more on Netflix because they'll roll from one to the other and this doesn't.*)

Forty percent of parents reported they had used the parent resources available on the PEEP website, in addition to exploring videos, games, and other interactive resources. The most popular resources cited by these parents were the hands-on anywhere activities and the family science handouts. Some parents also reported that they used the coloring pages and neighborhood safari materials. Only two parents indicated that they used the parenting videos. Parents report the following regarding their use of the PEEP parent resources:

- *We did the one with the mirrors. We've also done the one with the flashlight to help him with the shadows and the shapes. We've done puppets. And we did the one with the colors. We did like the mixing of the colors one.*
- *We got glasses and put food coloring in it and looked through them and used a flashlight.*
- *We've done coloring as she likes to color... And then there were some nice handouts that we've used.*

Of the approximately 60% of respondents that had never used the parent resources, our research team directed them to the parent portion of the website. In an initial review, all parents reported that they would be interested in using these materials, with the hands-on anywhere activities and the family science handouts again being cited as the top two resources parents were interested in using:

- *Actually the science looks great. I'd bring those to work and print them.*
- *This is good. It gives a little bit more information on what types of activities to do and where.*

Among both groups of parents, those who had used the parent website and those who had not, a common concern was the issue of time. Parents reported that they wanted to use these resources with their children, but they frequently cited the lack of time as a barrier to using the materials on the parent website:

- *[I need] something that I could kind of look at quickly, or late at night when she's gone to bed. Life is just so quick and the hours go by so fast throughout the day.*
- *The main problem with us is time management. These activities demand a lot of time and being full-time working parents it becomes quite difficult for us.*
- *Some [activities on the parent site] are more time-consuming than others, but the videos help to show how it can be easily done.*
- *I wish I had the time but I very rarely sit down with her afterwards and go over it. It's usually more on the go.*

The majority of English- and Spanish-speaking families did not report any difficulties or issues with the PEEP website. The few issues that were reported are listed below:

- *I can't figure out how to make games stop...I just usually close the screen out or go to another game.*
- *Something to make it larger on the screen would be helpful.*
- *On some occasions when I use my smartphone it will exit me out of the program in the middle of an activity.*

Finally, parents offered suggestions for enhancing the PEEP website:

- Add more videos
- “Advertise” the parent resources more prominently, by sending out a PEEP newsletter to parents, calling out parent activities more prominently on the website, or adding links from specific resources on the Kids section of the site to related activities on the Parents section of the site.
- Add talking points to the parent section describing how best to use the materials.
- Add more game options for older and younger children, and allow parents to sort activities by age.
- Add a “new” banner to newly added features.

Preschool-based and Family Childcare Educators

Website Access

To get started on the PEEP and the Big Wide World site, educators either clicked on a saved desktop shortcut, used a bookmark, typed the word 'PEEP' into their preferred browser, or searched Google with the phrase "PEEP and the Big Wide World." Educators reported:

- *We have an icon on our desktop ... the children actually click on it and use it themselves.*
- *On my school computer I do have it bookmarked.*
- *I do have it bookmarked, but I just do the Google search 'PEEP and the Big Wide World' and it brings me to it.*
- *I would do the Google search using 'PEEP and the Big Wide World'. We are fortunate enough to have three iPads in our classroom. After I Google searched it and pulled up the website, I saved it to the desk screen so that the children could get to them during their free choice time.*
- *I usually either type it in the browser bar or I Google it, depending on what device I'm on. If I'm on the iPad and I have that in my classroom I Google it usually. It's just faster.*
- *What I have for them is a startup page because they're so little and I hyperlinked the website on the startup page that we use and they're able to access it that way.*
- *For me it just pops right up [when typing the word PEEP into the browser].*
- *I type it [PEEP] in.*
- *I just go in [my browser] and type [PEEP].*

Website Navigation

We observed that educators seemed very comfortable moving through the material and were able to navigate the website without challenges. Preschool-based educators confirmed our observations by reporting:

- *It definitely seems pretty much self-explanatory.*
- *I feel like it was really easy. Everything is found on the homepage, and I just needed a little while to find where everything was. Once I was able to locate everything it was very easy to manage, and it was easy for the kids to manage too.*
- *To me it was very easy to navigate, not necessarily knowing what I was supposed to be looking for.*

- *I thought overall it was very easy to navigate, so that was good. It was very user friendly and friendly for the preschool teacher.*
- *When I first looked at it there was so much information, I had to figure out what I was doing. But as soon as I understood how it worked, I had no problems. I was able to find what I was looking for and find activities without any difficulty.*
- *It took me a little while to get started but once I found it I was able to go through and to really look at what I wanted to do because then I could pick and choose from what I wanted to use.*
- *This was easy for me to pull up and use after I got going. So that was good. It took me a little while of just exploring and figuring out where things were, but once I did that I've been able to go back to it several times and find what I was looking for again without any difficulty.*

Family childcare educators echoed these sentiments, including:

- *I found it to be very easy to use. I've not had any trouble getting through the website. Everything is laid out...with the progression which I really enjoyed.*
- *I can't tell you what all the sections are called but I know how to get to them for what I need.*

We observed that preschool-based educators tended to locate specific activities within themes, either by picking and choosing parts of the curriculum for a unit or by using the “find activities” tool at the bottom of the page.

- *I went to the “Educators” tab and then I kind of just peeked around on here to see what I wanted to do.*
- *I only have maybe 20 minutes with them so I do a very shortened version of the morning circle, so learning centers and activities kind of mixed together and then the video and then the closing.*
- *I started with the curriculum just to see what the whole week looked like and went through the different days and pulled out the ones that I thought would work well in our classroom.*

Not all preschool-based educators were aware of the tool to find standalone activities, however. Educators who had used the tool (as well as those who had not) agreed that it was a useful option. We don't know why educators reported that they couldn't find the tool.

- *I will definitely be able to use the find the hands on by searching smaller activities until I get to the part.*

- *I click on the Theme, Plants. We used a lot of the Morning Circle activities – we call it ‘let’s find out about it.’ I would incorporate that into the curriculum.*
- *... being able to kind of pick and choose what fits for me. I liked the standalone activities – they were great and I could just do a few things.*
- *We did a few of the standalone activities. We did a nature walk, the color walk. We went outside around our school and we had the children pick out colors. We gave them each squares of colors and they had to find that color outside.*
- *I liked the way that it then gave me exactly what I wanted to do. I had lots of options. That’s a very handy tool especially if you have changes. You know, it’s raining outside, you can’t get outside, so I want to fill that time with something. It saves a lot of time looking. So, it was a handy tool.*
- *I was picking the standalone activities and using those and implementing them into the curriculum the way they fit best.*
- *I thought that was pretty cool...that I could go in and tailor-make it to exactly what I was looking for.*

As illustrated below, family childcare educators used the educator resources in similar ways, locating specific activities within themes, or by using parts of the curriculum. However, none of the family childcare educators reported use of the “find activities” tool at the bottom of the page. Family childcare educators tended to only locate activities within themes.

- *I use a variety of STEM curriculum so I kind of combine them and use bits and pieces. I don’t use just one.*
- *We did a lot of the guided activities. We did the closing circles. Morning circles we kind of added some of it to our already used curriculum.*
- *I took some pieces and I pick the one that’s what we’re doing. I integrate into my current curriculum.*

Website Video and Game Content

Educators reported using the games and videos embedded with the Science Curriculum rather than the content from the kids’ section of the website. Classroom technology resources varied somewhat, with some preschool-based educators using personal computers and others using iPads to share PEEP content with students. Only one educator reported projecting the information onto a larger screen.

- *We play videos on the desktop PC.*

- *I usually do it on my computer and am prepared and know what I need. I'm not great on the phone, I have to say, it's too small. And the tablet is okay but if I'm near a computer I would really rather the computer.*
- *I have a teacher iPad that I primarily use and then we have a child iPad that has an easier software on it. So what I do is if I'm presenting, when we watch one of the videos I actually use my iPad which is pretty big sized. I also do have two desktops in my room.*
- *There is one iPad here in the classroom, and I do let one or two children use it like a small group. When they were interested in going over the videos again, if it was just a small group, I did let them use it. Because we do only have one.*
- *I have them come to the computer lab and we have Airplay so I have a TV that I project what's on my computer to the television so that I can walk them through and instruct them a little bit before they start.*
- *I have a computer and I have a smart board. So I put it up on the big smart board. So it's like a big huge TV like a movie theater thing for the kids.*

Only half of the family childcare educators reported use of the PEEP resources or website with their students. Of the family childcare educators that did not use PEEP in the classroom with their students, they reported using the PEEP website independently, outside of the school day, as part of their lesson planning and preparation on either computers or iPads.

- *[Watching videos is] a whole class thing. And then I show them the games. And how to play the games.*
- *We're a media free program but we can use the iPad for things like this [watching videos].*
- *We use the video where Peep plants a seed. Then we also did the educator part, plants need water.*
- *I think that's [videos] kind of hit or miss with the kids whether that's interesting to them or not. Some kids really love that and some kids are like oh this...You know there's no cartoon so I'm going to move away from, my attention from this.*

In some classrooms, educators encouraged children to use the website on their own to view the PEEP videos and games, providing help as needed. Educators reported:

- *We watched one video as a class and then after that my kids found the website and were able to use it and manipulate it on their own.*
- *If [students] are unable to move the mouse, I come over and help them.*

- *I wanted to see how an entire day ran working with the Learning Centers and everything, and the kids loved the activities. It was really easy for me to use, they understood them. Everything was well explained.*
- *I have one iPad, one tablet. So if two children are interested in continuing to play the games then one of them can go in one corner and the other in one corner and they can just do it off by themselves. [Family childcare educator]²*

Several of the educators spoke highly of the animated videos. One educator pointed out that she won't use longer videos because she would rather have her students active, not watching videos.

- *I do use the live action videos. I will only use the short ones. If it's eight minutes (animated videos) I won't play it because I'd rather the children be active than sitting for that amount of time. But there are some (live action) that are just a couple minutes, three minutes or so, and those are great. Especially the ones, the shadow one is really good. The children love it. They'll laugh because it's so funny but at the same time they're getting an idea what the shadows are all about and what they're going to look for. [Preschool-based educator]*
- *...especially since it's fall and the weather isn't great for planting, we watched one of the videos that showed... [planting] a sunflower seed. So they were able to see the growth in steps. So it's nice to have those videos as visuals to reinforce the steps that the sunflower goes through as it's growing. [Preschool-based educator]*
- *I have a big screen so the kids are able to see the large screen. I connected it to my computer and they were able to see. They have short segments, a video segment. So I showed the kids. We did one on the water one. They liked it. [Family childcare educator]*
- *I do really like it in the sense that with the videos it relates it to the kids. And then to turn around and do a hands on. Like with the coloring. When Duck goes around and mixes up all the colors and then we go and we get some rubber ducks and we actually go and mix it up on the paper and see if our colors matched what Duck's colors matched, if they were the same or not. [Family childcare educator]*

Other Website Content

Very few of the preschool-based educators had accessed the "Teaching Strategies" professional development materials, because the educators were

² When a quote is not attributed to a family childcare educator, the quote came from a preschool-based educator.

more focused on the curriculum content. However, many family childcare educators indicated they had used the Teaching Strategies (just not used them). Others said, now that they were aware of these resources, they would seek them out after their interview, for themselves or more junior educators. Educators reported:

- *The Teaching Strategies give you a lot of good examples of things that you can do. The materials are easy to get so I think it gives you a lot of good ideas without having to spend a lot of money. [Preschool-based educator]*
- *It seems like if I didn't understand something there that I can go to some of those videos and actually watch some of the things that people actually implemented. This is great. [Preschool-based educator]*
- *I do think that they're useful. [Preschool-based educator]*
- *The Facilitators Guide gives you some nice suggestions ... gives you some good ideas. [Preschool-based educator]*
- *I'd say for a new teacher this is a very comprehensive planner. I think it's going to give them a lot of information, a lot of support as far as bringing all of this into the classroom. [Preschool-based educator]*
- *And then the Documentation and Reflection, that's something else that we've been really working on. So being able to put the plan in place but then what do you do with it after? Did it work? Did it not work? How did you document it? Did you take pictures? Do you have anecdotes? And then, if it did work, what are you going to do next? And then if it didn't work, what are you going to do instead? This seems very comprehensive. [Preschool-based educator]*
- *This is actually more comprehensive than I was expecting. This is a very solid training packet. [Preschool-based educator]*
- *It uses a lot of the same terminology that we use as far as what our hopes are for each of the classrooms, when it comes to science being in the classroom. [Preschool-based educator]*
- *[I]t makes it so easy because it's showing you an example and it's very easy to follow through. [Family childcare educator]*
- *It's always good to see videos of people doing what, yes. Especially for newer teachers or assistants or someone. This way they can say okay this is what we're going to be doing this week. Take a look so that you can see. [Family childcare educator]*

Many educators found it helpful to print out the lesson plans, rather than accessing the information only online. They appreciated the convenience of the "print" button to aid in lesson planning, resource development, and personal reference.

- *Since it has the print option I think that's going to be a lot easier because what I can do is print it all out and have it available in front of me to actually review it and then write it into my lesson plan. [Preschool-based educator]*
- *The binder is basically all of the things from the website that [I] printed. We have one computer in my classroom and it is problematic. If I want to make sure I have everything I do it either on my own laptop that I bring or based off of things that I've already printed out and prepped for. [Preschool-based educator]*
- *I printed the curriculum planner so I could have it as a reference during the week. [Preschool-based educator]*
- *I used the Print button within the activity. It was great that that Print button was right there. Printed out the lesson and I brought it into my classroom. I highlighted some things that [I] wanted to remember. Obviously I can't read the whole thing with them in the classroom. [Preschool-based educator]*
- *For our circle time I like to print [the lesson] out because I used almost every single book that you listed. And I liked having the questions so I could reference them to help the conversation go on with the kids. [Preschool-based educator]*
- *I printed it out just so that I'd have the prompts and the questions in front of me so I knew what I would want to be asking. I'm definitely a paper person, so having that in front of me was helpful. [Preschool-based educator]*
- *I printed this page here for my own kind of reference. I printed this and then integrated certain of these activities each day. [Preschool-based educator]*
- *I thought it was really easy. Most mornings I would go to it, print out what I needed, I'd make a list of the materials I needed to gather and go and get them. I did have to get a lot of the books from our town library because our library only had a couple. [Preschool-based educator]*
- *What I like doing is printing out the activities. So I carry it in my apron with me wherever I go. [Family childcare educator]*
- *I go to full curriculum and then I print it all out. [Family childcare educator]*

Educators reported that the most useful PEEP tools were the weekly calendars for each of the different themes.

- *It gives you time of day and it takes 20 and 30 minutes to do this activity so [the teachers] can plan for when they have that much time. [Preschool-based educator]*
- *Loved the curriculum schedule. I think for a teacher it's great information, and it can't do anything but be helpful. If you don't use it or get to it okay, but at least if you have a moment and you have a break and you don't*

have something else planned, those are great little things to do.

[Preschool-based educator]

- *The curriculum planner was very detailed and the steps were easy and clear. So this made the whole process easier. [Preschool-based educator]*
- *I do think [the calendar] is helpful because it shows you how it builds on previous skills. So if you're going to jump right to Day 5 you have to look back at Day 1, 2, 3, 4 and see what previous skills are you expecting that they already have mastered or vocabulary they already know. [Preschool-based educator]*
- *I could print out the whole week and pick and choose from there. It didn't just give you a full narrative of everything to do. It gave you bits and pieces, much like how I plan my units and my studies so it looked like teachers had been involved at some point with creating it. I appreciated the layout of the studies and the themes, things like that. Made it seem teacher friendly to me. [Preschool-based educator]*
- *I kind of use it as my guide and go from there. [Family childcare educator]*
- *I really like how it gives you planned ideas and different activities and themes teach about science. [Family childcare educator]*

While educators appreciated the curriculum calendar, all of them used it with modifications, doing some, but not all, activities or altering activities to meet their needs. Overall, educators used the curriculum as a guide and were flexible in how they followed the calendar.

- *Here it tells them what they will be doing at morning circle and it's flexible. I don't say that they have to follow it exactly but it's a very good guideline for what to do. And I also like them to repeat activities. Sometimes children have to see or try things three or four times to really get it. [Preschool-based educator]*
- *They might have a conversation with their class and have the video running and ask the children what did you see, what happened to your bag, why do you think that happened or get them thinking what would happen if we didn't put the water in, what would happen in. So sometimes the children will come up with another experiment that they want to try. [Preschool-based educator]*
- *I always caution the teachers that I like to see a little individuality so they will look at what their children's needs are and they might have to slow it down or speed it up, it's not set in stone. I don't want them to look at the schedule and say, 'I have to follow this and I have to be doing this for twenty minutes and if it takes 27 it's too long.' It's a guide. [Preschool-based educator]*
- *I think that the day by day activities were awesome. I think as a teacher it's so hard to cover those pieces every day and be effective at it, and not do the same things over and over. I think for a teacher who's dealing with*

a [million] other things during the day, I think those steps of what to do throughout the whole day to attach those pieces is awesome. [Preschool-based educator]

- *During circle time we watched a few of the videos. I didn't do exactly everything in your order. Then we would have a group discussion on what happened in the video, what colors that they saw, and different things ... And then we would move on into our small groups for center time where we did a lot of mixing colors. And the water table, we had a large baster with colored water where they were able to mix colors. On my PC we left games open for the children to use the games when they wanted to. So they had free choice to use the games and the videos. [Preschool-based educator]*
- *I've looked at the calendar but I pick and choose different activities. So I didn't follow it to the max but I did pull activities from there. [Preschool-based educator]*
- *I just follow the instructions of the curriculum and I tried to follow all the steps that the curriculum planner was instructing. And of course I made some changes ... Because you know that sometimes it's hard to follow every step and sometimes the outcome will not be the one you wanted. So you have to be flexible with kids. [Preschool-based educator]*
- *That's how I interact. It's not that I necessarily totally deconstruct this Peep curriculum. It's just we have lots of other things to add on to it. [Family childcare educator]*
- *I would look at this and say okay I know Peep and the Big Wide World has certain themes out there and if it comes up in our discussion... I know that Peep and the Big Wide World has shadow play. Let me pull it up. If I'm stuck for ideas or I want something to extend their play then I would probably pull this up as a resource and just pick and choose what my group of kids needs. [Family childcare educator]*

Many of the educators reported that they used the PEEP resources to supplement their existing curriculum. Frequently, educators reported that they already had a full curriculum to follow, so they picked and chose parts of the PEEP website that matched topics they were already planning to cover.

- *We have our themes planned at the beginning of the year, but we also kind of go by the children's interests as well. So we go by a lot of different things. But we do have a plants and seeds theme closer to the spring ... We have a whole unit, a whole week that we do spring, plants, seeds ... this looks great for that. [Preschool-based educator]*
- *Water [will] be great because we have a summer program where we do everything outside. [Preschool-based educator]*
- *I have a 'let's find out about it' time, so that was a great time to introduce the lifecycle and a lot of the things that are talked about in the introduction*

of plants and seeds. We watched the video, "PEEP Plants a Seed." The kids would explore. Observe the different types of seeds. And it really worked very well with the curriculum that I had already set up. [Preschool-based educator]

- Basically we use Creative Curriculum already so I have a general curriculum as well as a handwriting curriculum that I already use. So I was looking as far as the themes that you have what would fit in with what we are studying right now which would be plants. Our curriculum that we use, our study right now is trees so in comparison to the other ones that you have the plant one caught my eye as one I could tie in the best and kind of use bits and pieces of. [Preschool-based educator]*
- I take the experiments that are most impactful ... we'll do more of the what happened to it or planting something or the more hands on ones. Like the shadow one. We go outside and trace shadows. Those are the ones that I've done because they get the kids doing stuff. [Preschool-based educator]*
- We write our curriculum for the whole month and I plugged in a lot of these. I like how it's progressive. It flows really nicely from the introduction all the way to Week 3. I would like a Week 4, take a whole month. [Preschool-based educator]*
- In our school curriculum, we're literature based so I wouldn't be able to do a full week of extensive morning activities, Learning Center and Guided Activities for my whole day. It's just the way that our curriculum works. But, as a supplement it was great. [Preschool-based educator]*
- I'll go through all of them first and I usually just pick out pieces. I don't necessarily follow the calendar. Not at this time anyway. But I like how the calendar shows a progression. So that's been helpful in when to start, a base idea and then developing it into something bigger. [Family childcare educator]*
- For me it's mostly to complement what I already use because right now I rely a lot on the letter of the week. That kind of helps me bring up topics and stuff that we can focus on. [Family childcare educator]*

Several of the educators reported that they shared the Parent Resources with their students' families.

- When I was teaching in the classroom I used the newsletter for the parents because they also have PEEP resources in Spanish and I have a lot of Spanish speaking children. That explained what we were doing and it gives some expansion ideas. [Preschool-based educator]*
- When I first started doing STEM ... we actually did the whole Parent Night and we had different activities from your entire site. All the parents and the kids loved it. I'd actually been able to find PEEP and the Big Wide World books at that point, so all the parents got to take home a PEEP and*

the Big Wide World book. And I sent them home with different activities from [the PEEP] website. [Preschool-based educator]

- I did like this feature because our parents are very involved and they do like to know what we're doing. So I sent out a little message saying hey this is a resource we'll be using this week. I did have a couple of parents at least tell me that they did get on and played the games or looked around. [Preschool-based educator]*
- One child even went home and his mom had to find PEEP and the Big Wide World at home so he could do it. [Preschool-based educator]*
- There's the family science letters that I send home sometimes and those are nice. It's nice too that they're in Spanish. [Preschool-based educator]*
- What I was looking for was printables that I could send home with the families to say, 'This is what we explored today and so and so loved it. So here, if you want to try some things this would be great.' I'll try and send this out now we're just heading into winter break and I've got a lot of parents saying, 'I don't know what I'm going to do with my kids for the next two weeks.' So I'll send them the link and then they can explore it and find some fun activities. [Preschool-based educator]*
- I email, well I send out a newsletter and a calendar monthly but then I email pretty much either on a weekly or bi-weekly basis about things that we're doing. So I would then at the end of the week send something like explore more color with your child and send this link to the parents. That would be a great idea. I always try to do an extended thing at home with the parents. [Preschool-based educator]*
- I have shared the link with them. I put it in the newsletter so I'm hoping that people actually looked at it and checked it out. [Preschool-based educator]*
- I could definitely add this to my weekly newsletter and give the parents an opportunity to work with their children. This is great. [Preschool-based educator]*
- I think it's really friendly. I think it's friendly to teachers but I also think it's friendly to families. I actually refer a lot of families to it. I do STEAM every week at the local library, and it's a nice little website that's very parent-friendly and not scary. Because science, technology, engineering and math is a tough thing to sell parents on. [Preschool-based educator]*
- I have a Facebook page for my parents ... and I will review the science activity on the Facebook page and then sometimes there are a couple of extension ideas or books to read and those kinds of things and so I'll include that for parents if they want to take it further. [Preschool-based educator]*
- I've actually had a couple of parents that are very excited that their girls are talking about science and predictions. [Preschool-based educator]*
- So right now I'm doing 'exploring plants with your child.' So I download that, I print that up and send it to parents. [Family childcare educator]*

- *One other thing that I really like about it is that you guys have family things involved instead of just educators. So that's something that is really, really important for me. [Family childcare educator]*
- *[W]e have a Facebook page for the childcare and so I always share resources on there too and then little snippets of stuff in our newsletter. [Family childcare educator]*
- *I have a computer in my classroom and I have two of my Spanish speaking parents to come over and they were able to see the videos for parents on my computer. [Family childcare educator]*

Other resources that educators found valuable included vocabulary and information for English language learners, although none of the Spanish-speaking family childcare educators reported that they accessed the Spanish version of the website, except to notice that it was there. Instead, Spanish-speaking educators reported that they used the English version of the website when exploring the site and when showing resources to children in their care.

- *I loved how on the side of each activity or during morning meeting activities there was a list for children who are English language learners or for younger children. I thought that was amazing and helpful. I would read it and use any advice that I thought was helpful. [Preschool-based educator]*
- *I love that you also put in there the vocabulary words to use with them. I think that's a great thing. Vocabulary is part of the curriculum that we do, that we have to plan, and I think for a lot of teachers they don't know exactly what the vocabulary is when they are planning something. What words of vocabulary are you teaching them? So I really like that is in there. [Preschool-based educator]*
- *I like too that they've added on vocabulary. That's been really helpful because we've tried a vocabulary wall. [Family childcare educator]*

None of the educators reported using the PEEP event kit, Diary of a Teacher, or the Educator webinar.

Feedback on Website Content

Educators were unanimous in their praise of the PEEP website and reported that the materials and resources were of high quality and very valuable for introducing math and science concepts to pre-school children:

- *I loved the way it gave you the curriculum and I loved that it gave you standalone activities as well.*
- *It is really nicely set up and it shows there must have been some really good early childhood curriculum and theory put into it.*

- *I think it's age appropriate in best practices for kids. [Preschool-based educator]*
- *I really appreciate the read-alouds that you guys included because literacy is also a really big focus at our school right now. [Preschool-based educator]*
- *I liked how colorful everything was. I liked that it was pretty well organized. As an adult I found the characters to be funny ... and interesting and also covered topics that we were talking about. I haven't seen anything quite like this resource. [Preschool-based educator]*
- *I think the content is absolutely fabulous. I think the videos are just at the level we need them to be and it was entertaining so the kids were really watching it. And then they talked about slides outside on the playground that they use that were ramps. So we thought that connection was really good. [Preschool-based educator]*
- *I love it, and I'm going to keep using it. [Preschool-based educator]*
- *[I]t's hard to find age appropriate math and science curricula for the kids. So I do really like the themes that are displayed on the website. [Family childcare educator]*
- *[Th]e directions are very precise. I like that too a lot...And it's easy to add onto also. [Family childcare educator]*
- *Everything is spot on as far as three to five year olds and learning things. [Family childcare educator]*

Educators were impressed with the detailed information and suggestions included in the resources. They reported that the PEEP materials were understandable and thorough, allowing for quick preparation and easy use with their students:

- *Having those questions and those prompts available was really good because sometimes, especially if it's not a unit you do all the time, you don't always think of those questions. [Preschool-based educator]*
- *I like the way it's set up because it tells you what key concepts you're looking for so that's a way that I can look through and see what I want to get at and I can really quickly say okay this one goes to that and this one goes to that. [Preschool-based educator]*
- *I like the way PEEP is set up just because there's so many different levels and they're meant to build on each other. [Preschool-based educator]*
- *One of the things I really liked was that this is grab and go. I can pull it up and it is completely planned for me, and I can tweak activities based upon my class but there was very little outside planning I had to do other than making sure I had the right equipment. So that was a real positive with the curriculum. [Preschool-based educator]*
- *I love how step by step it was. It was really easy to follow and read and everything was clearly listed. I loved how it had its own separate section*

so I knew exactly what materials I needed to get. And how each one was broken up. It kind of reminded me of a lesson, like it was a great lesson plan to follow. [Preschool-based educator]

- *It's a more user friendly format than flipping through a binder of ten years of previous activities. So I did find it helpful. [Preschool-based educator]*
- *I am able to pass things out or share when parent volunteers come in and it's just simpler to say here are some directions that I didn't have to sit down and write up. It's already done for me. [Preschool-based educator]*
- *I found it very easy to find the different things. I found things spelled out really well, very easy to follow and very easy to adapt to my classroom as well and what we can do. [Preschool-based educator]*
- *Even though I printed out the directions, it didn't take up a lot of space on a page. It was still enough to engage with the children in conversation and in the activity but it wasn't so overwhelming. And I felt like these questions were great prompts, but then I could kind of ask the children more beyond just what these prompts were, just with the natural evolution of the conversation as well. So, it was a good balance of materials provided in terms of prompts, but it wasn't so much that it became overwhelming or daunting to try to complete this task with the kids. It was a really good balance of prepared material. [Preschool-based educator]*
- *Because they have it broke down so that you can understand it. Like I said, they don't use big words or, it's very simple to understand... it's short and to the point and simple. [Family childcare educator]*
- *I found it to be very easy to use... Everything is laid out like I said with the progression which I really enjoyed. [Family childcare educator]*

Many educators cited difficulties with teaching math and science concepts to young students. All of the educators reported that the PEEP website was a tool that supported them as they incorporated these “foundational skills” into their lessons by providing practical activities, learning ideas, and simple content explanations:

- *I think when preschool teachers hear science and technology, engineering and math, they're like, 'What? I don't know how to do that.' But you really do. It's not rocket science. It's simple, everyday stuff that you can put in your classroom every single day. You have some sort of ramp in your classroom every day. [Preschool-based educator]*
- *[PEEP] offers another option, another choice, another way of presenting a certain skill. Even a broader base understanding of science in our world, the natural environment. [Preschool-based educator]*
- *It really helped to strengthen and promote the foundational skills. It gives them more options, more to think about, more to see, and things that probably never occurred to them that are science based. Like shadows. Just the fact that we need light to produce shadows. They had never*

thought about things like that. They know they see a shadow but knowing that you know you have to have light to produce this either from artificial light or from the sun. Science is something I don't always do enough of, to be honest. We have a time and I have different experiments and things, but I loved the way that I was able to just pull activities up and it was so hands-on. And the kids really had a good time. It's really changed the way I looked at science. [Preschool-based educator]

- *It helps me to be comfortable in showing the kids stuff to do and that I'm not limiting them. The directions say 'try this, ask this question, what do you predict?' That's not a word that a child hears a lot. But you use those words and then that way the kids are like 'okay there's a new word. What does that mean? Okay let's explore what that means.' And you find out that kind of stuff. So it helps in the sense that it makes me feel comfortable in letting the kids explore and helping them explore and leading them and letting them lead too. [Family childcare educator]*
- *It had a lot more, different angles than what we normally do. For instance, like the white and brighten the colors or deepening it. [Family childcare educator]*

In addition to fostering student learning of math and science concepts, educators reported an increased level of engagement among their students in using the PEEP resources.

- *It allows me to make sure that my activities are engaging, they're appropriate. And when I see the children enjoying them and learning from them I know that I'm doing something well and I've got a reputable resource. [Preschool-based educator]*
- *I really do think the children are engaged and learning math concepts and also science. [Preschool-based educator]*
- *I do feel more confident in their being able to understand what we're doing and why we're doing it and how it works ... gaining the knowledge, the understanding of how things work. [Preschool-based educator]*
- *I liked the science curriculum because I feel like sometimes it's really hard to get the kids engaged in different science activities. So it gave a lot of examples of how you can explore different science components that can be easily added into your science areas. [Preschool-based educator]*
- *And something that is really relative to young children and those animated characters ... what kid would not like that? And the way it was done was very well done. It was a major boon to our curriculum here. [Preschool-based educator]*
- *So my whole actual circle time lasted about 40 minutes, which is 20 minutes longer than it usually does but they were so into it I could keep going. So that was awesome. [Preschool-based educator]*

- *After watching the videos the kids want to try. Like with the ramps that we're using right now, the kids want to try it and see how they can get the top of it and see how fast a car will go or a ball. Which one's faster? Or they turn a car sideways. Does that go any different? They're exploring all this extra stuff all because of the video that we watched. [Family childcare educator]*
- *I've seen a lot of my students exploring more because of it, which is really nice. [Family childcare educator]*
- *[E]ven though my kids are young I was surprised at how much they love doing STEM time, especially science. They really, I mean I know how smart kids are at that age but usually you have to just really spark something in them or they walk away...But they've all been engaged. They've all asked things. They can remember things, especially like water. When we'll do water play other times of the year they can reference back to the activities and talk about them. So you know that they really enjoyed it. [Family childcare educator]*

Experiences with Topics

Educators shared their experiences and perspectives on some of the topics they used in their classrooms, noting what they and their students found especially engaging and educational. They also explained how they had implemented the curriculum and made modifications to meet their students' interests, deal with time limits and make use of the materials they had available.

Highlights include:

- Educators used the curriculum to develop **questions or prompts** for their students around the science topics.
- Educators reported that the curriculum provides an easy way for them to **meet the basic standards** they are required to meet with their students.
- Educators appreciated that the content enabled their students to make **real life connections** to science.
- Educators reported that it was **simple to make adjustments** or accommodations, when needed.

The following quotes are from preschool-based educators. Family childcare educators did not provide any additional comments or feedback (positive or negative) on the curriculum topics.

Ramps

- *I brought siding that I had in my shed and they used those pieces as ramps. It was just a huge hit. Different length of siding. They loved it. And they used cars and small balls and blocks. It was just great.*
- *I gave them tons of different pieces they could use. I gave them cardboard, I gave them tubes. And I wanted them to explore their own ramps and how they could make them. And then this week I gave them specific things that I wanted them to do with the ramps, and how they can make the ball go faster. We did painting with balls and we had a big box, and we'd shift it back and forth to make ramps. One kid had one end, the other kid had another end. How could we make that car go faster? So I gave them really specific rules and areas of ramps and certain things to do with the materials.*
- *I really like the idea of the ramps and the shadows because things like the basic physics standards that we have to cover in pre-K, a lot of that is very hard for teachers to throw in. We do a ball study so this ramps curriculum would really tie in there.*
- *I talked to them about the higher the ramp the further something's going to go. We did that for a while and then we went out to the ramp that's outside my door and we started to test different things, see how they rolled down and see how fast they went or how slow they went or because they piled things on them and they pushed things down the ramp, they pushed things up the ramp.*
- *I love the way the curriculum gave me the words to say, 'Okay I want to move this car from this side to this side. How can I do it?' And they pushed it, and they tried to blow on it, and they did all of that. And I said, 'But what if I want to move it without using my hands?' And I remember reading that in here. I love the way it just gave us the script to do it. Because I used those exact words with the kids and they were able to understand and figure out. And then we built the ramp and then they had a great time figuring out what would roll down the ramp, what would slide down the ramp, and what wouldn't go down the ramp because it was too heavy.*
- *I did the ramps because we had some nice supplies for balls and ramps and it fit in well with one of my books that I was teaching. I talked a little bit about, when you pick up one end what happens to the car, how can you make the car go? And then I gave them free reign. I didn't do the ramp hunter in the classroom but I did have them think about ramps that they see. And we read one of the recommended books that we had in the school library. It was the Roll, Slope and Slide by Michael Dahl we had. So we looked through that book. It's kind of a picture walk rather than*

doing a hunt in the classroom. They liked it a lot and they felt like it was something they could really relate to.

- *They definitely were able to connect to their own real life experiences. So they really enjoyed it ... And especially the conversation really picked up after we watched Snow Daze.*

Plants

- *We used a lot of the Morning Circle, introduced plants and seeds. We actually did a Plant Journal. We did The Carrot Seed. The Experimenting with Seeds. We did the beans, and I think we did the Guided Activities. We did the Plant Needs: Water, and Planting Grass Seeds.*
- *[We tried] PEEP Plants a Seed. They loved it. It just really was an ice breaker for us. We were talking about the early stages of trees and how things grow versus what doesn't grow and things like that. When there's talk about the life cycle of a plant with the seed they actually got really into it which is harder to do in more of a traditional, like with a read aloud it's great but the video really caught their eye. And then we also did plant journals and we did the seeds in the bags, the bean seeds which was their favorite thing by far.*
- *They were so enthralled with the beans and that took long enough to where that whole week we just focused on observing the beans, getting everyone a turn to plant one.*
- *The seed museum we just modified that and we made it more of an art project and incorporated it that way because I just didn't really have the space in our room to actually have those set out. We used the different beans and seeds and stuff and then we had them glue them. One of them was just a free collage and whatnot and then we also had another activity where we glued the seeds at the bottom and we put some brown construction paper down there for dirt and then they made their predictions of where the roots were going to go and where the plant was going to go on to their paper and drew that on there.*
- *The kids kept their plant journals and we sent those home ... and they were able to take home their plants.*

Colors

- *Regarding the color mixing, we didn't do it exactly the way it is here but I made some adjustments or accommodations, based on my class and knowing my kids. So we sat in circle and we introduced all the materials and everything else and the way we were going to work, and we took turns with an eye dropper. I did the Shades of Green, and they took turns and we added one drop of food coloring first and then the next... The*

other one we added two drops, and then three drops, and then based on the results we talked.

- We did the same thing with white paint and the food coloring again. We wanted to see the reaction of mixing the food coloring with water and mixing the food coloring with white paint would give the same results or not, and then we made the comparison.*
- They really enjoyed the activity of Friday with the Shades of our Skin. We used the clay, the multicultural clay, and they made creatures of 'this is me.' They really enjoyed that part. They worked on small paper plates and they brought them home. They were very proud of their creations.*
- I did many of the color activities when I went to the Stand-Alone Activities. I was able to pull out several from Shades of Color and Mixing Colors. The kids did Mixing Colors with food coloring, Mixing Colors with paint, and they were able to create their own color and then they got to name it. They thought it was a blast to do these activities.*
- In the afternoon we usually do a lot of art based stuff but this was nice because I was able to take the science approach to it, but also incorporate some art stuff into it too and the kids loved it. They had so much fun this month learning about color.*
- We were doing a lot of the animals and camouflage. My kids are really into camouflage so that's what I was sticking with. And we did, instead of a snake hide and seek because I unfortunately didn't have enough time to cut out some snakes I just hid some colored paper around the room and they went and looked for it and we called it a camouflage hunt.*
- One of the activities I loved that I never would have thought to do was mixing the shades of color with white paint and doing the shades of color. Where before I probably would have talked about mixing colors and stuff but I never would have approached it by explaining how every color has a different shade and showing the kids so that they could begin to notice that there are many different shades of green or blue. That one really stood out to me. And then I would hear the kids saying to each other, 'Oh look that's a shade of yellow.'*
- They loved the mixing, especially any hands on activity but they loved using the eye droppers to mix, there was the red, yellow and blue. I used liquid watercolors and they loved it. Any chance that they had to explore on their own they enjoyed so much.*
- I did the prompts under the directions about how many children are wearing blue today. So I asked them and I encouraged them to look beyond just like the obvious color of their shirt. But if there was a pattern or anything like that. So that was fun. Everyone looked and most kids had some – even if it was just on their socks or sneakers.*
- It was interesting because it prompted me to ask the children questions, which then prompted them to think in ways and have conversations that*

we hadn't had before about something as basic as color, which is constantly being discussed in preschool.

- *The game of matching colors ... the kids really enjoyed the part when they picked... I just cut some cards from construction paper of different colors, and they were free to pick one, the one that they liked. And they went around the classroom for a color hunt to find something, or more than one item, that would match the card they had in their hands. And then we sat in circle and we sorted all the objects with the cards. It was moving, and they really enjoyed it.*
- *Exploring skin colors was a big hit that I did here in our classroom because we do have such a multiethnic classroom that we used many paint symbols of browns and creams and gold tones. And the children were able to match their skin tone as well as the children in their classroom. We also worked on camouflaging and how colors help animals blend in for safety reasons, so we did that as well.*

Sound

- *We wrote down on a big piece of paper everything that we heard; people in other rooms, footsteps, breathing next to us, people walking on the stairs, the trees and the wind and the birds. We had a whole long list of things and then we talked about, okay what are the things outside and what are the things inside. And then I went through all the questions and all the questions seemed very appropriate. Then when we did it again we said what were the new sounds, and they thought about it and there was the clock and trucks outside that they didn't hear before, and they could hear specific voices of people they knew.*
- *I set the timer for five minutes and paired them up and told them 'you and your partner are going to go around the classroom and make some choices for five minutes without talking.' And they did. It was silent in my classroom for the entire five minutes. And they used hand gestures and facial expressions. And a couple of them started talking for a second but then caught themselves and got right back into the movements of the whole thing. And then after the time was up we came back to circle and I said, 'How did that feel? Were you frustrated? Was it difficult? Was it fun?' And then we talked about sign language and how some people are hard of hearing and so that's how sometimes they have to communicate. 'How would you feel if you had to always communicate like that?' We had that big discussion and of course they were so into it too.*

Shadows

- *[We tried] Me and My Shadow. We didn't take pictures but I had the kids draw their shadows. And then we went on a Shadow Walk. So we walked*

around the school to find shadows and then we walked outside to see where we could find shadows – and again I had them document by drawing what they saw. They thought it was really great. They were very interested to find their shadows. They thought it was funny obviously to find their shadows, and we talked about the way that they moved and why we were making shadows in one place and not in another and what the difference was between shadows inside versus the shadows outside. When we went back into the classroom I had flashlights. And they took the flashlights and sort of explored making shadows on their own. So they took the activity that we did, the planned activity, but then extended further on their own.

Suggestions for Improvement

The overall feedback from educators was very positive, but a few areas for improvement were identified:

Technology

- *I did ramps and one of the videos that I think was supposed to play didn't. So that might be something someone might want to look into. I think they were using marbles and they were taping together the cardboard tubes but it didn't come up as that one, it came up as the one before where they were making ramps with the cardboard boxes. [Preschool-based educator]*
- *Because we don't really have that technology in our classroom, on purpose, we want to keep it really back to the basics. So if there were alternatives to the videos, like, 'Okay, if you're not going to watch this video here's something you could do in place of it.' [Preschool-based educator]*
- *It would be nice if there was like a sitemap. And there might be, I just don't know. But where it all kind of brings it together. So you would see the curriculum planner, the teaching guides, the teacher reflection or whatever they're calling these. Because I could back and say, "Oh we just did this three week thing on ramps and I missed this whole thing because it wasn't all listed together. [Family childcare educator]*
- *[It would be nice to have] some kind of mechanism to inform you when new content has been added or changed. [Family childcare educator]*

Availability of books and materials

- *The only thing that might be hard is getting some of the books that were recommended. [Preschool-based educator]*

- *Some of the materials were kind of hard to come about. So definitely I think some of them you really need to plan ahead to be able to have it all. I needed to make sure I went through and looked at all of the books so that I could order them from the library in time. [Preschool-based educator]*

Topics

- *I wish it was a little bit more broad. We have a theme for every month, so I would really like if I could tie one piece in together for every month. So even though it's great, I'd like to see more. [Preschool-based educator]*
- *We have animals and plants so maybe incorporating something about the human body would be awesome. [Preschool-based educator]*
- *I really like it, except for the games. I feel like it's limited. So like for example our curriculum is about plants, planting seeds. So they have the video. I kind of wish that they have the games that children can do to be planting seeds and watch it grow. [Family childcare educator]*

Links embedded in text

- *If it says something about a particular chart, there should be an indication of what that is or a link to where we could find it. I found it really helpful when the material they were referencing was right there on the page. [Preschool-based educator]*
- *The Teaching Strategies PDFs seemed a little disjointed from the curriculum. If the strategies are here [connected to the Curriculum] I feel like that might be more helpful. I would have found them easier. [Preschool-based educator]*
- *I thought we might have a link [to the relevant videos] that was clickable ... from the calendar. [Preschool-based educator]*
- *So as the teacher when I'm printing out the curriculum plans or planning for it, something that I can, a link that I can give the parents that will bring them to that area so I don't have to search for it. [Family childcare educator]*

Amount of information

- *This was a lot to kind of get through in one day for us. I maybe didn't follow the entire instructions here and there because of the attention span of my children. [Preschool-based educator]*
- *As far as the State standards and my curriculum standards I use it's more about the scientific inquiry skill than maybe necessarily distinguishing a difference between three types of seeds. So for my kids who may really not get how living things work and grow maybe just focusing on the one*

and covering it a little bit more in depth and giving us more time to absorb how one plant is growing may help them grasp the idea a little bit more clearly than having each day doing a different one and then observing all three at once. [Preschool-based educator]

- *Maybe a ‘start here’ area with a brief overview might be beneficial – this is what you’re looking for and this is how you use it. That would be great. [Preschool-based educator]*

Other languages

- *It’s hard if you can send something home in Spanish that hits some of my kids but then I’m leaving out another big chunk. I have 14 languages in my class this year. So almost 90% of my kids are ESL. So some of those science letters if they could come out in any other languages that would be great. [Preschool-based educator]*

Vocabulary used

- *In the Sound curriculum ... [my students] really didn’t understand the quiet versus quieter. I think I would have changed it to quiet or very quiet, vocabulary words. Or ‘sound’ versus ‘no sound’. I definitely think four-year-olds quiet versus quieter just was not the correct terminology for them. [Preschool-based educator]*
- *The only thing that occasionally felt a little tricky was the descriptions for some of these were a little bit vague. Like toy slides versus snowy hills, or sliding PEEP ramps around us up and down. They are very similar terms. So I had to remember, ‘Oh, which one did I want to do? Was it the Day 1 or the Day 3 activity? It was Day 2.’ You know, because it does feel pretty similar. [Preschool-based educator]*

Matching content with science and educator requirements

- *Maybe putting on it what type of science framework this is ... for teachers so they know, ‘Oh, I’m doing that.’ Because when you look at the frameworks under Science I have to make sure I hit all these different types of sciences. It’s nice to be able to say, ‘This activity fills these requirements.’ [Preschool-based educator]*
- *We had the Foundations in Indiana where we have to cover so much science, math, and you know the different skills and what we’re working on and we have to chart it all out. And if they could kind of add a little bit more of that into their wording it would work our goals. [Family childcare educator]*

- *So if you have this self-guided training I think it would be really good for providers or teachers who are taking this training are able to get some training hours. [Family childcare educator]*
- *Add webinars to the ‘teaching strategies’ resources. [Family childcare educator]*

Findings Related to Impacts

We explored in greater depth the summative impact of PEEP resources on English- and Spanish-speaking families in a separate report.³ However, during our user experience interviews with families, there were opportunities to collect additional data related to impacts on parents and children. This section provides a summary of those findings. This section is *not* intended to exhaustively explore the impacts of PEEP, but adds to the already existing body of knowledge we have about PEEP’s impact on families and educators reported elsewhere.

Parents

Impact 1: English- and Spanish-speaking parents will feel more equipped (self-efficacy), and thus more confident facilitating math and science exploration with their preschoolers as a result of using PEEP.

Among English- and Spanish-speaking families, parents reported that PEEP helped them feel **more confident** and **better equipped** to explore math and science with their children.

PEEP helped parents answer their children’s questions about math and science.

Science and math concepts are often abstract and complex, and thus can be difficult for some parents to easily explain in a coherent manner to young learners. As one parent described, “[kids] ask you a question and you try to find the right words to get across whatever you’re explaining, yet proper explanations [are elusive].” Several parents in the study said that PEEP helped them explain science and math concepts to their children:

- *...some things I have a hard time even explaining. (in reference to weight and balancing; bunny balance game)*
- *I didn’t know too much. (in reference to science in general)*
- *So mostly when I try to talk to her about these things she wants me to shut up. The story does it better [than me].*

³ Paulsen, C.A. (2016). *Evaluation of PEEP and the Big Wide World Resources for Families*. In support of NSF Grant No.: NSF DRL 1222607. Concord, MA: Concord Evaluation Group.

- *I was having a hard time explaining how shadows are made. When we watched the video, he got it right away.*

PEEP helped parents feel more confident exploring math and science with their children.

As a result of using the PEEP resources, parents also reported that they felt **more confident** in teaching math and science to their preschoolers. They reported that they appreciated the easily understandable content, interesting videos and games, and creative aspects of the PEEP resources and they used PEEP to help their children explore science and math concepts.

Parents reported that PEEP resources were a “launching pad for learning” that provided a starting point regarding their child’s math and science education:

- *[Since using the website] I have shown my children geometrical shapes they find in everyday life like in walking around the neighborhood.*

PEEP gave parents ideas for exploring math and science with their children. Parents reported that PEEP helped them learn **creative, simple strategies** for science and math exploration; provided interesting videos, activities and games; and introduced them to new, easily understandable science and math ideas to explore.

- *It’s cute for kids so they can learn but it’s also good for parents as it provides them explanations as to how to use the website as well as other things to do to incorporate some of the points that they’re trying to get across on the website...So it’s kind of a launching pad for learning.*
- *Many of the activities are set up so that the instructions are clear, which makes it easy for me to explain to my child.*
- *[PEEP is] so creative in the ways that they teach basic concepts whether they’re science concepts or math concepts, [for example] light and shadows or measuring and even the rolling the apple down the hill.*
- *These activities are really interesting. They not only keep the kids interested but also keep us really engrossed. I love those investigation and discovery kind of activities.*
- *[The website] prompted me to think [that] we could be talking about things we aren’t already talking about.*
- *The activities on the web narrows the topics I can teach my kids and gives me practical and easy ways to explain with hand on activities.*
- *[The website contains] very creative things that I wouldn’t have thought of on my own.*
- *[The website] gives me more ideas for how to do [science].*
- *I think [PEEP] does help because I would have never thought of [games like] the flashlight game.*

Impact 2: English- and Spanish-speaking parents will feel more inclined to facilitate math and science exploration with their preschoolers as a result of using PEEP resources.

Many parents reported that the PEEP activities have helped them learn how to do educational activities at home.

- *[After using PEEP] I feel more open to trying simple scientific experiments at home.*
- *When we are outside playing in our yard we explore more than we used to.*
- *I get ideas from the website, we play and practice the activities at home.*
- *I like to get new ideas from the website.*

English- and Spanish-speaking parents reported that PEEP reaffirmed for them the importance of helping their children learn math and science.

- *Math helps [my daughter] relate to adults in the way we think and operate in the world. And science is surrounding her all the time. I just think PEEP gives [kids] a better understanding of the world around them or makes them better equipped to investigate and to talk about or to understand the world around them. Math and science are just naturally important topics. And I do think it's my job to teach them.*
- *[Our children are] our future. We have to teach them everything we know [about math and science] plus more so they can do better.*

One parent spoke specifically about the importance of STEM learning for her young daughter and females in general:

- *Not enough women are involved in science and math. It's always been kind of a man's world. The more that we can get our little ones involved in STEM, the better...especially for girls. I'm a medical professional and so I've seen the difference between how I can get treated compared to how a man gets treated. They assume that I'm not going to know as much. And I think it's important for girls to explore and share that they can learn and know just as much about math and science [as boys].*

Children

Impact 3: Preschoolers will more effectively apply inquiry process skills, including prediction, observation, problem-solving, and exploration as a result of using PEEP.

English- and Spanish- speaking parents reported that PEEP helped their child **make connections and apply new concepts** acquired from the PEEP resources to the real world:

- *[PEEP] helps [kids] to have a disposition of a scientist – exploring, asking questions, experimenting.*
- *When we go to the grocery store, we try to integrate the things that we've learned from the site, especially with numbers...So it just doesn't stop at home. She definitely keeps going when we're outside.*
- *I also think it's good because we'll watch something like mixing paint colors and then we'll discuss those kinds of things when we're outside and in the wild.*

English- and Spanish-speaking parents reported that their children were **interested in math and science** and were **more curious about their world** as a result of using PEEP resources:

- *[My daughter is] very involved in the games and likes to play them and try to figure out how to solve the problems. And now when she watches the show, she gets more involved in talking back to the TV and answering the questions.*
- *[For example with] the patterns...she just grows and learns with every step she does.*
- *It's definitely helped her learn about math and learn about some science, facts or issues much more than other shows and more than I would have [taught her] on my own. She's learned more and it makes her more inquisitive because she's interested in these activities.*
- *I see that she's more engaged in learning about science and math and she doesn't shy away from math. Whereas she used to be a little bit afraid of it. I'd also say that it develops a comfort level with computers.*
- *Her curiosity has grown much more...especially about the shapes and the shadows. She really loves that and she asks to do that all the time. And then we started growing little flowers in a little pot for her, so she'll always ask about that as well. So she's definitely getting more involved in what her surroundings are and how things are working, and living. And I think a lot of that has come from watching PEEP.*

Even though the preschool children taught by the educators in our study were *not* included in the data collection effort, educators in our sample did share some interesting observations related to the impacts of PEEP on their students. These observations are included below:

Educators reported that children enjoyed the materials and were engaged by the activities.

- *The students loved it. Even the parents commented about it and had children watch from home. And they were able to come back and report to us what they had seen. So they were very much excited about it. [Preschool-based educator]*
- *The kids most definitely learned. Especially with ramps and shadows as well. Those were the two favorites. [Preschool-based educator]*
- *The kids really liked the characters. I think that was the biggest thing for me. [Preschool-based educator]*
- *I really enjoyed it. I noticed that my children were very engaged in most of the activities that we were doing, and it went up right along with the curriculum that I was planning so it just blended wonderfully and I found it very helpful for the children. [Preschool-based educator]*
- *There's some that require less answering, less verbal which is good because like I said half my kids do have special needs and they have some verbal challenges but there's also some that really, my chatterboxes who can talk all day long it kind of makes them think about what they're saying instead of just chattering. [Preschool-based educator]*
- *They really liked it. They thought about the colors and they were happy about it and they were excited. They always come in and they're like, "Are we going to do that PEEP website again?" [Preschool-based educator]*
- *For the activities that allow me to, we'll sit in a circle and we'll have turns. They love taking turns and discussing it. So they really loved the activity. [Preschool-based educator]*
- *They're very easy topics. They're very engaging topics. Kids love shadows and the ramps and colors are all things that are very engaging for them. So I thought it was a great website. [Preschool-based educator]*
- *Throughout the whole talking about what they were wearing and the crayons and everything, that whole conversation was about a 10-minute discussion. And it was definitely a discussion. I kind of guided it but it was definitely a lot of the children putting in their thoughts and opinions. [Preschool-based educator]*
- *And most of the Peep videos are funny anyways. They [students] really like them. [Family childcare educator]*

Some of the educators commented on the children's reaction to seeing the information on a computer or iPad:

- *The kids were really, really engaged and I like the fact that they can see it ... because it's on the iPads I think they were more interested in seeing the steps. [Preschool-based educator]*
- *We have a couple different programs on the iPad and this has definitely been their favorite so far. [Preschool-based educator]*

- *So my three year olds and my younger ones who don't have as much computer exposure probably gravitated more towards the videos but everybody enjoyed the videos. And then my ones who really can manipulate those games and computers really well and have that hand-eye coordination with the mouse they were able to get into the games and they spent a lot of time on those. [Preschool-based educator]*

Educators

Impact 4: Preschool educators will feel more empowered and confident to incorporate science into their curricula as a result of using the PEEP educator resources.

All of the educators indicated that the PEEP website helped them feel empowered or more confident to incorporate math and science into their curricula.

For new educators, PEEP and the Big Wide World also included resources that were especially helpful to new educators who may not have had the experience or background to incorporate of math and science into the classroom:

- *For a very new teacher coming in it's a great resource because they haven't had experience. They can get the ideas, they can fill out their lesson plan and then try it and they can see what works and what doesn't work and they can tweak it to their own liking. I think there are even some very experienced teachers who are uncomfortable teaching science. They're in their element when they're doing the alphabet and when they're reading books and when they're doing shapes and when they're doing numbers but when it comes to science they freeze. So for those teachers I think it's wonderful for them to be able to go on and see the science of life and these are very easy activities to do and you can draw a lot of information about what the children are learning from these. And I think it makes them feel more empowered and more comfortable with the idea of teaching science. [Preschool-based educator]*
- *I had never done science in terms of a lesson plan, where we did a circle. And so the information and the hows and the whys was I think what I was not doing as well, and this really gave me the opportunity and the right words to use to explain it to the kids at their level. And I liked that. [Preschool-based educator]*
- *The books were actually a good addition ... being able to have some examples of shadows without necessarily knowing book titles right off the top of my head. [Preschool-based educator]*

- *It really does make me feel more empowered. I mean there were things that I learned through it that I would have never thought to develop on my own. The curriculum is broken down really nicely. We had to make predictions and things like that. I love that. [Family childcare educator]*
- *[P]eople think, 'Oh my gosh science and technology and math. It's so overwhelming.' And yet it's not. It's so basic and it's everywhere. And if you concentrate on the particular area of focus you know you'll and people think, 'Oh shadows. I can only do shadows for a few minutes.' But no they give you the opportunity to do shadows for a full week. So I think it makes it really an easy and accessible for everybody. [Family childcare educator]*

Peep and the Big Wide World resources also gave more experienced educators the **confidence** they needed in order to include science and math in their classrooms:

- *PEEP did make me feel like I knew what I was doing. It did empower me because that was the first place that I went to when I started doing STEM. And it gave me ideas but it also backed me up. Like, 'I could do that.' [Preschool-based educator]*
- *I think it is very empowering. And, if you can't figure something out, then look at the website. There are plenty of activities or explanations that will back you up. [Preschool-based educator]*
- *[I am] much more confident. I feel like the more options they're given, the more they'll enjoy it. So this is a different way to present it to them. I think it's worked great. [Preschool-based educator]*
- *I absolutely loved it because in our afternoon program we do a lot of art-based [activities] and a lot of letting the kids explore different materials and stuff and I never would have thought to approach it in a science way. [Preschool-based educator]*
- *Ramps and shadows and all of those things they're like, 'Oh that's so cool.' It's stuff they already do but they just don't realize it. The other thing it gives which I didn't talk about earlier is it gives us key terms and it gives the language. So when the teachers are given the vocabulary and able to model it in real life then the kids start using that language. [Family childcare educator]*
- *I've been doing this for 30 years and you seem to do the same basic things with each group but this had lots more spectrum of things to pick from to add to what we always do. [Family childcare educator]*

Impact 5: Preschool educators will have new ideas for incorporating science activities as a result of using the PEEP educator resources.

Many educators, new and experienced, indicated that the PEEP and the Big Wide World resources **inspired them to have new ideas** for incorporating math and science into their classrooms:

- *I never ever do too much in the water table besides the basic cups and strainers, but I actually incorporated the science by adding the colored water, by adding the droppers for them to mix the colored water. So it's enabling me to put it in different areas of the classroom and not just keeping it at the science table. [I am] incorporating it everywhere. [Preschool-based educator]*
- *What appealed to me was having them take a look at what water does on different surfaces, like a piece of wax paper verses a paper towel verses putting it on a sponge even. Just giving them different things to drop water onto and then having them describe what they see happening to the water. That means then they really need to use their vocabulary and their language to describe what they see happening, and why do you think it does this on this surface and not that on the other surface? [PEEP] really got their minds going... [they really got] to theorize why one thing works on one surface but not on the other. [Preschool-based educator]*
- *I think it can give me a good base and resource to enhance the math and science part that we have to provide for the children. It gives us a better resource and helps to provide the children with the visual observation. [Preschool-based educator]*
- *It's hard sometimes to find science activities to use in the classroom, and I found some really good ones here. [Preschool-based educator]*
- *I absolutely think it's inspiring. And it gives you new activities, new ideas, more questions that are right there for you. Because we don't have a lot of time to think about all these questions and all these things and do all this researching. And when it's right there it's so easy to just, 'Okay, print it out. It's here. I can implement it. We're good to go.' So it definitely cut out time for me researching for projects. [Preschool-based educator]*
- *It was interesting and it provided me with prompts that stretched my thinking. [Preschool-based educator]*
- *By using this it gave me all these great ideas about water. I did them with the kids and they were so enthralled with it, and they really got into it, and of course kids love to play with water. [Preschool-based educator]*
- *But it really opens up my eyes to not narrowing science to only a few certain topics. I'm really looking forward to implementing it in a couple weeks. [Family childcare educator]*
- *This website gives me more ideas. I'm the type of person if I have a set of ideas then it helps me to build some type of structure. Everything is organized so it makes me want to go through it and follow through with*

the kids and do some observations and stuff like that. It does open up doors for science. [Family childcare educator]

Impact 6: Preschool educators will feel more inclined to incorporate science into their curricula as a result of using the PEEP educator resources.

Several educators indicated that they are more “aware”, and thus **more inclined to incorporate math or science into their curricula** as a result of the PEEP website:

- *I certainly hope that it remains a part of every science and math based curriculum [at my school]. It's just wonderful. It's a new way of introducing many different math and science situations. [Preschool-based educator]*
- *A lot of times you feel like you might be slacking in some areas of expertise ... so it really gave us more that we could all build upon as a classroom. It gave us more of an understanding that science is really seen throughout your everyday and that they could find it in all kinds of ways. [Preschool-based educator]*
- *That [ramp activity] was great and it was really easy for me to just plug in and say, 'Oh, I need a science activity today. Here I go.' And that was, I think, the best part of that. [Preschool-based educator]*
- *I don't know that I would have pulled ramps as a theme if I hadn't seen it pulled out as a PEEP theme. [Preschool-based educator]*
- *I do appreciate and feel like this does give me some 'go to' activities that I can sneak in that are related to whatever we're studying but they have meaning, they're thought out, the materials are all here on the website for me. So I would say yes it does help me feel more empowered to increase the science that we do. [Preschool-based educator]*
- *Peep inspires me to continue to use these activities as well or these curriculum ideas as well and kind of getting more ideas from science and math and kind of fitting it in the schedule every day. [Family childcare educator]*
- *I think Peep raises awareness more in science. I like teaching them how to write and I go to literacy activities and math, but this really helps give me a focus on what we're going to study in science. And I think it does help bring that awareness more. [Family childcare educator]*

Appendix A: Family Interview Script

PEEP User Experience Study: Families

As you know, we are interested in learning about how families use the PEEP and the Big Wide World website. So, during our interview I am going to let you control the mouse on my own computer. We are going to visit the PEEP website and I will ask you to show me the parts of the website you like to visit. To help me with note-taking I am going to record the interview. The recording will only include the website, your mouse movements, and our discussion. We will not be able to see you and your child. Do I have your permission to record the session? [If not, turn it off and end the session. We must still pay them.]

I'm going to share my screen with you now. [Share screen – Make sure they can see it]

Now I am going to give you control of my computer. [Verify that they can use the mouse]

You'll notice that we are currently on the Google search page. We'd like you to get to the PEEP website now. How would you typically get there from here? Please go ahead and show me.

Before I jump in with a few questions, can you please show me which areas of the website you or your child typically uses? Feel free to use the mouse or keyboard to get where you want. If you would normally let your child do the navigating, feel free to let [name] to do it.

During the walkthrough, use the following prompts and questions:

1. Where do you typically start? What do you do on those pages?
[Observe whether they use the Pathways or search by type of resource]
2. [To child] What do you like to do on the PEEP website? Can you show me?
3. What made you interested in using the PEEP website to begin with?
4. When your child uses the PEEP website, do you help him/her, or direct him/her to specific areas of the website? Can you show me how you do that?
 - a. [If yes] In what situations do you help or intervene? (Do you ask questions, comment on what they are doing, explain concepts or help them learn?) What areas of the website do you direct your child to?
 - b. [If no] How does your child typically use or click through the PEEP website? Does he/she enter through the themes (e.g. sounds, light and color, etc.), games, videos, or some other way?

5. Are there situations where you think your child learns more from using websites, TV, or apps alone, and situations when you think your child learns more from using websites, TV, or apps with you or other adults?
6. [For Spanish-speaking families] Do you use the Spanish version of the website or the English version? Do you tend to stick with one language, or do you switch back and forth between languages?
7. What are your opinions of the PEEP website content/resources?
 - a. What did you like?
 - b. What did you dislike?
8. [If they don't navigate there] Have you ever used any of the hands-on activities from the parent portion of the PEEP website?
 - a. [If no, and there is time, direct them to the section] Please take a moment to see what's offered here [then ask questions below].
 - b. [If yes] Do you feel like you could use the parent resources at home as they are now?
 - i. [If no] What challenges do you think you would face if you tried to use these resources at home to help your child learn?
 - ii. What supports might help you overcome these challenges?
 - iii. What would you change or add to make them work for you and your child at home?
9. To what extent, if at all, does the PEEP website help you feel better equipped to teach your child math or science? Do you have any examples?
10. To what extent, if at all, does the PEEP website inspire you to explore math and science with your child? Do you have any examples?
11. Do you notice any changes in your child as a result of using the PEEP website? Do you have any examples?
12. The goal of the PEEP website is to teach science and math concepts to kids. Do you think these concepts are important for young children to learn? If so, why?

a. Can you think of any activities you do, or could do, at home to help children learn concepts like these?

i. [If yes] What support would you want to have in order to do those activities?

13. Are there any activities you already do at home to help your child learn things he/she might learn in a school setting?

a. [If yes] What are some examples, and when do you do those activities?

b. [If no] Would you like to do more activities like that? If so, what would help you to do that?

Appendix B: Educator Interview Script

PEEP User Experience Study: Educators

As you know, we are interested in learning about how educators use the PEEP and the Big Wide World website in their classrooms. So, during our interview I am going to let you control the mouse on my own computer. We are going to visit the PEEP website and I will ask you to show me the parts of the website you like to visit. To help me with note-taking I am going to record the interview. The recording will only include the website, your mouse movements, and our discussion. We will not be able to see you. Do I have your permission to record the session? [If not, turn it off and end the session. We must still pay them.]

You'll notice that we are currently on the Google search page. We'd like you to get to the PEEP website now. How would you typically get there from here? Please go ahead and show me.

During the walkthrough, use the following prompts and questions:

1. Where do you typically start? What do you do on those pages?
[Observe whether they use the homepage, parents section, or games and videos section to find materials.]

[If they go to the educator section, where do they click first? If they are looking for activities, do they click on a curriculum unit or search by type of resource] [For Web Team]
2. Have you been to the educator section before? Which of the educator resources have you used in the past? (e.g. curricula, stand alone activities, teaching strategies)
3. Which parts of the curriculum do you use?
4. How do you get to the parts you want to see?
5. What are your opinions of the PEEP website educator content/resources? [For Web Team]
 - a. How do you use the resources available? (print the pdf files, use a projector, use an active board/smartboard with the website, etc.)
 - b. Do you use the website or the resources on a mobile device (tablet, phone, etc.)?
6. What do you like or dislike about navigating through the PEEP educator resources?
 - a. When you get to a curriculum unit, does the interactive calendar format work for you as a way to move through the activities in the unit?

7. Have you used the Teaching Strategies before? (Either the PDFs or the professional development videos)
 - a. What did you think of them?
 - b. Were they easy to find?
 - c. Did you find what you expected to find when you clicked on the button?
8. What opportunities or challenges do you think you would face in implementing these resources?
9. To what extent, if at all, does the PEEP website help you feel empowered or more confident to incorporate math or science into your curricula? Do you have any examples? [Impact 4]
10. To what extent, if at all, does the PEEP website inspire you with new ideas for incorporating math or science into your curricula? Do you have any examples? [Impact 5]
11. To what extent, if at all, does the PEEP website make you feel more inclined to incorporate math or science into your curricula? Do you have any examples? [Impact 6]

Appendix C: Family Survey

Family Survey

1. Does your child typically use the PEEP website or PEEP apps?
2. Do you use the Spanish version of the website or the English version?
3. Do you tend to stick with one language, or do you switch back and forth between languages?
4. Have you ever used any of the hands-on activities from the parent portion of the PEEP website? <http://PEEPandthebigwideworld.com/en/parents/>
5. Do you feel like you could use the parent resources at home as they are now?
6. What challenges do you think you would face if you tried to use these resources at home to help your child learn? What would you change or add to make them work for you and your child at home?
7. To what extent, if at all, does the PEEP website help you feel better equipped to teach your child math or science? Do you have any examples?
8. To what extent, if at all, does the PEEP website inspire you to explore math and science with your child? Do you have any examples?
9. Do you notice any changes in your child as a result of using the PEEP website? Do you have any examples?
10. Are there situations where you think your child learns more from using websites, TV, or apps alone, and situations when you think your child learns more from using websites, TV, or apps with you or other adults?
11. The goal of the PEEP website is to teach science and math concepts to kids. Do you think these concepts are important for young children to learn? Can you think of any activities you do, or could do, at home to help children learn concepts like these? What support would you want to have in order to do those activities?
12. Are there any activities you already do at home to help your child learn things he/she might learn in a school setting? [If yes] What are some examples, and when do you do those activities? [If no] Would you like to do more activities like that? If so, what would help you to do that?