Grantee Program Evaluation Report

Prepared for

tpt

Knight Williams Inc.

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# Table of Contents

INTRODUCTION .................................................................................................................................................. 3

METHODS .......................................................................................................................................................... 6

PART 1: PRE-TRAINING FINDINGS .................................................................................................................... 8

PART 2: POST-TRAINING FINDINGS .................................................................................................................. 17

PART 3: PROJECT IMPLEMENTATION AND IMPACT FINDINGS ...................................................................... 35

PART 4: MINI CASE STUDY FINDINGS ............................................................................................................ 51

SUMMARY OF FINDINGS ................................................................................................................................... 69

IMPLICATIONS FOR FUTURE WORK ............................................................................................................. 81

EVALUATION TEAM ......................................................................................................................................... 85

ACKNOWLEDGEMENTS ..................................................................................................................................... 85
Introduction

Produced by Twin Cities Public Television (tpt), the PBS affiliate station in St. Paul/Minneapolis Twin Cities, and supported by a grant from the National Science Foundation’s Program for Gender Equity, SciGirls is a national outreach program designed to encourage girls’ interest in science by building capacity among outreach professionals in the area of gender-equity teaching and learning. Starting in 2005, tpt awarded 24 organizations (“grantees”) with outreach grant awards, multimedia resources, and training to help outreach staff implement SciGirls initiatives in their local communities. These materials were developed from tpt’s PBS series, DragonflyTV, and included videos featuring girls engaged in scientific inquiry or in engineering projects and companion activity guides.¹

Beginning in 2008, tpt then expanded its program offerings to include SciGirls en Español, also funded by the National Science Foundation (NSF). Created to address the chronic underrepresentation of Hispanic women in STEM fields, SciGirls en Español was based on the premise that Hispanic girls and women can succeed in and contribute to STEM fields, but many never realize this potential. ² With the growing importance of science and technological literacy, and with the growing population of Hispanic Americans, the SciGirls team determined it was imperative to spark and strengthen Latina girls’ engagement, interest, and confidence in STEM subjects in middle school, before they make the critical choices in high school that will either open or close doors to postsecondary STEM studies and careers. SciGirls en Español awarded 9 existing Latina-serving organizations with Spanish-language print and video resources, leader training, and small grants to help fund outreach projects they proposed in response to a Request for Proposals (RFP).³

As the SciGirls en Español project developed over time, one theme was repeatedly emphasized as grantees provided feedback on their projects: the importance of family and parental guidance in Latino culture. Starting in 2010, tpt launched SciGirls en la Familia as a new diffusion initiative, which again received NSF funding. In this case tpt’s vision was to provide community educators with resources and training in best practices to engage not only Hispanic girls in STEM, but also their families. In response to another tpt generated RFP, 10 SciGirls en la Familia grantees were selected to develop outreach projects and that would deliver programming and materials to girls and their families in local communities.

Project goals

Since the creation of the original SciGirls project in 2005, the project has seen an evolution in its programmatic goals with the subsequent development of SciGirls en Español and then SciGirls en Familia.

The original SciGirls program was created to meet the following goals:

- To foster a greater interest in science and scientific inquiry among girls age 9 to 14, making special effort to reach girls of color;

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¹ The videos were also provided with a lip-sync Spanish audio track, and the activities were published in a bilingual guide. In 2010, tpt premiered a new SciGirls TV series, which is based in part on the outcomes of the SciGirls outreach efforts. However, the TV series and it companion outreach activities are not included in this evaluation.


³ Originally tpt received a total of 14 proposals, of which 9 were ultimately funded.
• To provide informal science educators with research-based training, video resources and complementary print materials modeling authentic explorations of science that all girls can do; and
• To increase both the quantity and quality of girls’ science encouragement programs nationwide, through partnerships with PBS stations and community groups.

With SciGirls en Español tpt added the following objectives:

• To provide Latina-serving organizations with Spanish translations of SciGirls resources and the funds to support science-encouragement programs;
• To enhance and repackage existing SciGirls material to best engage Latina youth, including strategies appropriate to this audience, drawn from current research;
• To explore the SciGirls resources for Latino parents with a series of Family Science Pages distributed through more than 100 Spanish language newspapers and bilingual brochures introducing the SciGirls program objectives; and
• To evaluate project results and share lessons learned with the research community, informal science educators, and community outreach practitioners.

With SciGirls en Familia, the objectives then became:

• Offer substantial hands-on, inquiry-based science experiences to Hispanic/Latina girls in the 8-14 year-old age range;
• Involve these girls’ families in a significant way, helping them to support their daughters’ interest in STEM;
• Rely heavily on the Spanish-language components of the SciGirls en Español video and print resources;
• Employ bilingual or Spanish-speaking staff as the key program implementers.

This report focuses on the 10 SciGirls en Familia grantee projects, and in particular the extent to which this final set of objectives was met.

Evaluation approach

To assess the impact of the SciGirls en Familia grantee program, tpt contracted with our independent evaluation firm, Knight Williams Research Communications (Knight Williams Inc.), as we specialize in the development and evaluation of informal science education media projects targeting diverse audiences. We evaluated the first three years of the SciGirls program, as well as SciGirls en Español, the results of which are available online http://tpt.org/science/evaluations.

While the evaluation questions driving the three evaluations have differed to best meet the needs of each project, the methods have been similar, with each evaluation relying on a mixed methods approach that has involved both: i) reviewing a wide range of secondary data sources, and ii) gathering direct accounts from the principal staff responsible for administering and implementing the grant activities at various time points.

In the case of SciGirls en Familia, the evaluation had two distinguishing features. First, we conducted a baseline evaluation prior to the grantees receiving training to provide tpt with formative feedback relating to grantees’ initial expectations, as well as a summative comparison with actual project outcomes. In addition we developed mini case-studies of three grantee projects to more deeply explore the initiative’s additional focus on families and use of bilingual resources.
**Grantee Selection**

Grantees were selected by tpt with project advisors, who reviewed the following criteria:

- Number of girls to be reached by the activities, including number of Latinas;
- Mechanisms for incorporating families into the programming;
- Target age group and suitability of the SciGirls resources, which are targeted to upper elementary and middle school;
- Use of bilingual resources;
- Structure of proposed activity: term, number of engagement hours per girl;
- Outside partners or resources involved in the grantee’s activities;
- Qualifications and experience of the instructors or group leaders;
- Experience of the organization in programming for girls; and
- Proposed budget.

The grants were not limited to organizations that only served Hispanic audiences. Established STEM-education organizations that wished to expand their services to Latinas were also eligible to apply. Grants were available to ten organizations in the amount of $7500 per organization. The screenshot below provides a brief overview of the SciGirls en Español program as described by TPT, including brief descriptions of the grantees ultimately selected for participation.
Methods

Our evaluation approach relied on a mixed methods approach that included: secondary data review and analysis, surveys of grantees before and following their tpt training, and in-depth case studies of three grantee projects, as outlined below.

Secondary data review
We compiled and reviewed all pertinent secondary data sources for the purpose of documenting the outreach program as a whole and informing the data collection about each project. Secondary data sources included: the grant proposal submitted to the NSF; the RFP on which the proposal was based; the training agenda; the 10 grantee proposals; the 10 grantee final reports; photographs and other examples of grantee project activities provided by the grantee organizations; the SciGirls en Español activity guides and DVDs; and the project evaluations conducted by the grantee organizations.

In their final reports, grantees were asked to address a wide range of issues, including:

- Did the project have a lasting and meaningful impact on Latina/Hispanic girls, increasing their confidence, skills, and interest in STEM. Did the project enhance the ability of their families to support these girls’ continued engagement in STEM.
- How significantly did the SciGirls en Español training, DVD, and Activity Guide benefit their program.
- The number and demographics of the people their projects served and an explanation of any costs they incurred for participating.
- How they recruited girls and families from Spanish-speaking households and how successful their recruitment was.
- When and how the Spanish-language versions of the SciGirls print and video resources were used and how the project benefitted from the SciGirls bilingual resources.
- How impact was gauged and what impact the project had on the target audience.
- Which project expenses the SciGirls en Familia grant money did not cover and which funding sources made up this difference.
- How the SciGirls en Familia funding, educational resources, and professional development training shaped and were of benefit to their program.

All 10 grantee organizations completed a final report by the end of the grant period.

Pre- and post-training surveys
As a condition of funding, tpt stipulated that at least 2 staff from each of the 10 grantee organizations complete a set of online training activities and two surveys, a pre-training survey and a post-training survey. The staff completed these activities between August 2010 – January 2011. The survey completion schedule spanned this six month period as the grantee organizations had different timelines for hiring staff, coordinating partnerships, and implementing their projects. By January 2011, a total of 30 staff had completed these requirements, with most grantee organizations making available at least three staff persons for this purpose. The basic components of the two surveys are described below:

- Pre-training survey: We prepared in-depth online evaluation form that was divided into 3 parts. Part 1 asked about the grant application process and how the grantee staff learned of the SciGirls en Familia grant opportunity. Part 2 asked about their experience as part of the grantee program to date. Part 3 asked for general information to help the project team better understand the background and diversity of
participants helping to conduct the grantee projects. The link to the survey follows:

- **Post-training survey:** After the SciGirls en Familia training the grantee staff were asked to complete an in-depth evaluation form that was again divided into 3 parts. Part 1 asked them to reflect on the webinar training, Part 2 asked them to reflect on the Ning training, and Part 3 asked for their feedback on the training experience overall and to look ahead to their projects. The link to the survey follows:

In addition to these surveys, we conducted follow-up calls and had email exchanges with grantees as needed to clarify or elaborate on themes identified in their surveys, as well as in their final reports. The staff was informed that their feedback was confidential and would help guide the direction that tpt takes in planning future outreach activities. To preserve grantee confidentiality in the reporting, where quotes are provided by grantees, unique identifying information was removed.

We analyzed the survey responses using basic descriptive statistics. We performed content analyses on the qualitative data generated in the open-ended questions. The content analysis was both deductive, drawing on the SciGirls en Familia grantee program objectives, and inductive, by looking at the participants’ responses for overall themes, keywords and key phrases. All analyses were conducted by two independent coders. Any differences we encountered in coding were resolved with the assistance of a third coder.

**Mini case studies**
Finally, we conducted mini case studies with 3 grantee projects to more deeply explore the implementation of individual projects, with a special focus on the role of families and the use of bilingual resources. We relied on each project’s secondary data sources listed on page 6, as well as interviews and follow-up email correspondence with project staff to clarify or elaborate on any information provided as needed.

As the grantee projects fell into three major types (science center/museum projects, school/after-school projects, and girl-focused projects), we separated the projects into these three categories, and then narrowed the choice of projects to those that had collected and reported information relating to their: overall project impacts, use of bilingual resources, and successes and challenges of incorporating family involvement.

Relating to the family involvement component, although we initially planned to speak with one or two parents involved in each program to provide feedback on their experience, this proved unworkable given: challenges in locating parents who participated in the program, parents not feeling comfortable speaking to an “outsider,” and parents not having sufficient familiarity with evaluation to understand the purpose of the interviews to “trust” the process and what was involved in them. These issues are discussed in the report, with suggestions for future evaluations in the section on Future Implications.
Part 1: Pre-training findings

1.1 Grantee demographic information

Among the 30 grantee staff that participated in the training, most were female (86%) and ranged in age from 21-64, with an average age of 35. As Table 1 further shows, most were of Hispanic origin (82%), with one-fifth reporting they were White (7%), Asian (4%), or of a multiracial background (7%).

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Grantee demographic information</th>
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<tbody>
<tr>
<td>Demographic factor</td>
<td>Categories</td>
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<td>Gender</td>
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<td>Age</td>
<td>Age range</td>
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<td>Race/ethnicity</td>
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<td>White/Caucasian</td>
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<td>Asian</td>
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<td>Multiracial</td>
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</table>

1.2 Reasons for applying for a grant

When asked to rate the importance of six factors in their organization’s decision to apply for a *SciGirls en Familia* grant on a scale from 1 (not at all important) to 7 (extremely important), the staff consistently indicated that it was extremely important to their organization to apply for the grant to: 1) start a science program focused on families; 2) expand or build on an existing science program focused on families; 3) continue working with existing community partners; 4) form new community partners; and 5) continue having a positive history of working on projects with TPT. As Table 2 shows, for five of the six reasons, the median ratings were a 7 (extremely important). The final reason, incorporating the *SciGirls en Familia* materials into another more general educational program, was deemed a slightly lower priority overall, with a median rating of 6 (important).

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Reasons for applying for a grant (median ratings, n=30)</th>
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</thead>
<tbody>
<tr>
<td>Reasons:</td>
<td>Not at all important</td>
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<tr>
<td>We wanted to start a science program focused on families</td>
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<tr>
<td>We wanted to expand or build on an existing science program focused on families</td>
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<tr>
<td>The <em>SciGirls en Familia</em> grant enables us to continue working with existing community partners</td>
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<tr>
<td>The <em>SciGirls en Familia</em> grant enables us to form new community partnerships</td>
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<tr>
<td>We have a positive history of working on projects with TPT</td>
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<tr>
<td>We wanted to incorporate the <em>SciGirls en Familia</em> materials into another more general, educational program we were already implementing/planning to implement</td>
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</table>
Many staff also pointed to three additional reasons for applying to the grantee program, including: the opportunity to provide STEM programming to Hispanic girls and their families, the chance to serve girls and their families together in an integrated fashion, and the opportunity to continue their involvement in a *SciGirls* program. Each of these themes is described in greater detail below.

**Opportunity to provide STEM programming to Hispanic girls and their families (63%)**

Two-thirds of the staff pointed to the opportunity to provide STEM programming to Hispanic girls and their families. Several staff touched on the expected added value that could come from engaging parents in their children’s education, and STEM education in particular, as follows:
- *We want to teach the importance of science to our Hispanic families.*
- *We understand the Latino community is very family oriented and our mission is to serve girls, so this is a great opportunity to do both and have a better opportunity to succeed in the Latino community. Also, science and technology is a major component of our programming for girls.*
- *The program SciGirls en Familia helps us to participate more with the parents and families. This way children can be more successful in class.*

**Opportunity for integrated family-student programming (20%)**

Several staff additionally mentioned the opportunity to provide and explore the effectiveness of youth and parents working together rather than be targeted in separate programs, as in:
- *The after-school program has a long successful parent involvement component. For the last twelve years we have been enhancing the parent’s involvement in science related activities and we will like to have a program integrating students and parents learning together. This program will enhance the quality of services we provide the after-school students and will ensure parents participation and involvement in their kid’s education.*
- *This is a good way to learn more about the families in this area. We want to see if the approach we take through SciGirls will be successful and we also want to know where there may be challenges. We already know logistics will be tricky for working parents but we don't know how much parents will take away from the experience itself; if we will continue to teach parent and student workshops separately as we've planned or if we will eventually find that having parents work alongside their children will be more effective and fun. This project will help us learn a lot about what our community wants.*

**Opportunity to continue SciGirls involvement (17%)**

Staff that had participated in *SciGirls en Español* grant expressed a desire to participate in another *SciGirls* project having just having finished and having had a positive experience with (17%). For example:
- *We had a very positive experience with SciGirls en Español. It was a significant impact on the impoverished communities that we worked with and as we finished the program, the kids were asking us to come back. Also, our college student staff was moved by the opportunity and the professional development and experience that they received was something that we hoped to continue with additional and new staff.*
- *After having worked with this program for one year, and having seen the very positive feedback from participants, their family members and teachers it indicated that the success of the program was being seen outside of our scheduled activities—this success had to be repeated again!*

**Other**

Several staff identified other reasons that were more specific to their program circumstances, such as the opportunity to: bring outreach to an impoverished community, affect the culture of their local community, increase membership of Hispanic girls, strengthen their organization’s STEM education focus, learn more about *SciGirls*, use the hands-on *SciGirls* curriculum, and/or gain experience in the STEM field.
1.3 Prior experience with key *SciGirls en Familia* project features

The grantee staff was asked to rate how much experience they had working on projects that involved specific components related to the *SciGirls En Familia* grant, using a scale of from 1 (no experience) to 7 (extensive experience). As indicated by the median ratings in Table 3 and the staffs’ explanations of their ratings, the staff as a whole reported considerable experience: working with families of Hispanic, Latino, or Spanish origin (7.0), engaging girls in science learning (6.0), and promoting inquiry science (6.0). The staff tended to indicate somewhat less experience engaging families in science learning (5.0), participating in online social network platforms like Ning (3.5), and completing an online professional development training (3.0).

<table>
<thead>
<tr>
<th>Prior experience with key <em>SciGirls en Familia</em> project features (median ratings, n=30)</th>
<th>No experience</th>
<th>Extensive experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working with families of Hispanic, Latino or Spanish origin</td>
<td></td>
<td>7.0</td>
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<tr>
<td>Engaging girls in science learning</td>
<td></td>
<td>6.0</td>
</tr>
<tr>
<td>Promoting inquiry science</td>
<td></td>
<td>6.0</td>
</tr>
<tr>
<td>Engaging families in science learning</td>
<td></td>
<td>5.0</td>
</tr>
<tr>
<td>Participating in online social network platforms like Ning</td>
<td></td>
<td>3.5</td>
</tr>
<tr>
<td>Completing online professional development training</td>
<td></td>
<td>3.0</td>
</tr>
</tbody>
</table>

Staff from four of the organizations also offered that while they incorporated parents in their programs, they had not previously conducted family specific science programs, as in: *We provide many science programs each year that engage girls through hands-on activities. We have less experience providing family, hands-on programs. Through the strategic learning process, we are placing greater emphasis on STEM events that target Hispanic families.* When asked to elaborate on the types of family-oriented programming in which they had been involved, the staffs’ responses indicated that each of the 10 organizations had previously conducted 2 or more types of family-oriented events or programming. The types of programming varied widely, and included:

- monthly family programs where families create hands-on crafts and projects such as herb gardens;
- family science festivals that takes hands-on activities to local schools;
- family astronomy events focused on hands-on activities and exploration stations;
- take-home activities made available through an afterschool program;
- open houses designed to bring together families to conduct hands-on science activities, offer star gazing nights, and lectures and meet and greet with scientists;
- An overall family-orientations when hosting exhibits, events program and floor demonstrations;
- science enrichment programs designed to help students, families, and volunteers prepare for students’ annual science projects.
1.3a Prior experience implementing family-focused STEM programs

The staff was asked to describe any prior experience they had implementing science programs geared specifically to families prior to the SciGirls en Familia grant. The staff from all 10 organizations identified at least one family-focused STEM program, which most often included: open houses, workshops, exhibits, floor demonstrations, retreats, monthly programs, festivals or training, as follows:

- Open houses designed to bring together families to conduct hands-on science activities, star gazing nights, and lectures and meet and greet with NASA speakers and astronauts;
- Weekend workshops on science topics, and in general is family-oriented when hosting events program and floor demonstrations;
- Monthly family program where families created hands-on projects such as herb gardens and coordinated a family science festival in partnership with another science museum that took hands-on activities to local schools;
- Family astronomy events focused on hands-on activities and exploration stations;
- Overnight family science retreats and take-home activities made available through an afterschool program;
- A gardening program involving families gardening with only native plant species;
- A family science training in partnership with another organization and planned family-oriented science exhibits at local community events; and
- A science enrichment program designed to help students, families and volunteers prepare for students’ annual science project.

The staff described their programs as follows:

- Our organization has held weekend workshops for families on a number of topics including catapults, robots, etc. The institution is constantly thinking and implementing different activities geared to families. Since there are multiple departments within the institution they all offer different activities in formal and informal ways.
- …I attended workshops and trainings to coordinate family astronomy events. The main goal is to engage all family members in hands-on astronomy activities. The program has built-in activities to set up as exploration stations. These work very well and we have a large participation from families.
- The after school program has incorporated parents in all of its science activities through ongoing participation in classroom activities and providing them with literature and science activities to conduct at home with the families. Parent-child specific activities include: The Colorado University Research, a three year longitudinal research with Urban Latino families to investigate the Latino population aptitude towards wildlife and nature. It aims to improve their understanding and perceptions in wildlife activities and improve the family’s participation in such activities. In addition we’ve implemented the heroes in Conservation program which integrates parents in multiple activities. Some of the activities include the revitalization of the Bronx River, and an overnight family science retreat and presentation, at Goshen NY.
- Gardening program based out of a NYS National Park, we designed and planted a garden using only native plant species. [Our organization] developed a science enrichment program that targeted at risk students in grades 3, 4, and 5. This was done to give the time and space for students, families and volunteers to complete each student's mandatory annual science project.

1.3b Prior experience with SciGirls materials

The staff was also asked about prior experience with SciGirls materials (videos and activities). Just over half of the staff (52%) indicated no prior use of the SciGirls videos or activities, while the remaining staff variously reported a little, some, moderate, or extensive use of each.
1.4 Expectations for participating in the SciGirls en Familia training

When asked to identify their main expectations for the training, the staff most often indicated wanting to learn more about three issues: Engaging/serving Latino families in science, the SciGirls program and resources, and the grant expectations. Each theme is listed in Table 4, and described in greater detail below.

**Learn how to engage Latino families in science (60%)**
Nearly two-thirds of the staff said wanted to learn more about engaging girls and their families in getting excited about/engage in science, understanding the needs of local Latino communities, and learning techniques for recruiting, engaging, and maintaining Hispanic and bilingual families into science programs, as in:
- I expect to be able to take science education to families in low income Hispanic communities…I expect to gain a better understanding of roles of different members of the family and how they influence the family’s participation. I expect our college student staff to grow professionally from the experience and for it to have a positive impact on their future.
- It will be my first time participating in a program that is not only targeting families but bilingual families. I feel confident in interacting with families while speaking the English language but I believe this training will help me be able to engage and interact with people in the Spanish language.
- I hope to learn how to engage families, and various techniques on how to get them involved on a consistent basis… I hope how to learn to work with Hispanic families, and get them more involved in volunteering opportunities with their child’s school. I also hope that we can bring girls and their families closer together through educating them on science that they can use in their day to day lives.

**Learn more about the SciGirls en Familia program/resources (23%)**
Just under one-quarter of the staff pointed to a desire to learn more about the SciGirls en Familia SciGirls program and resources, and how to integrate them into their existing programming, as in:
- Because of the set-up of our Family Science Festival program, I hope to gain fluidity in applying the SciGirls 7 to the frenetic pace of the activities we present. I also expect to find some interesting components to include in the development of the Science Project Workshop we will present in the second phase of our project.
- I expect and hope that I will learn more about the SciGirls program as well as learn ways to use SciGirls resources in my lesson planning. I also hope to learn more about the technology being used.

**Learn how to address grant expectations (10%)**
A few staff indicated they hoped to learn about the grant expectations and what information and documentation would be need to complete the grant and final report, as in: I hope to understand exactly what documentation is needed to complete the grant

**Other (7%)**
Finally, a couple of participants (7%) planned to go into the training with an open mind or were looking forward to seeing any attending parents gain empowerment and confidence, as in:
- My expectation for participating in the training is to provide a group of parents from the School Council the experience to participate in the training. In this way they would gain some empowerment and confidence. Parent participation will be a very important component for SciGirls en Familia.
- I am going in with an open mind, hoping to gain anything I can from the experience.
1.5 Expectations for SciGirls en Familia projects

The staff were asked to rate their level of agreement or disagreement with a series of statements about their expectations for their SciGirls en Familia projects, using a scale of 1 (strongly disagree) to 7 (strongly agree). Table 5 presents the median ratings for each statement.

<table>
<thead>
<tr>
<th>Expectation</th>
<th>Strongly disagree 1</th>
<th>Disagree 2</th>
<th>Somewhat disagree 3</th>
<th>Neutral 4</th>
<th>Somewhat agree 5</th>
<th>Agree 6</th>
<th>Strongly agree 7</th>
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<tbody>
<tr>
<td>I’m confident that our project will advance the goals of the SciGirls en Familia</td>
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<td>7.0</td>
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<tr>
<td>I feel positive about the benefits my organization will receive from participating in the SciGirls en Familia program</td>
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<td>7.0</td>
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<tr>
<td>Participating in the SciGirls en Familia program will enable my organization to form beneficial partnerships with local</td>
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<td>7.0</td>
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<tr>
<td>I think our SciGirls en Familia project will get families in my community excited about science</td>
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<td>7.0</td>
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<td>My supervisor/advisor at my organization is supportive of my participating in the SciGirls en Familia project</td>
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<td>7.0</td>
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<td>I feel I have a good understanding of the goals of the SciGirls en Familia program</td>
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<td>6.0</td>
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<td>I feel the SciGirls en Familia online training will be a valuable learning experience</td>
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<td>6.0</td>
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<tr>
<td>I already feel well prepared to begin implementing our SciGirls en Familia</td>
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<td>6.0</td>
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<tr>
<td>I prefer the SciGirls en Familia training occur in person rather than online</td>
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<td>6.0</td>
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<tr>
<td>I expect to need little assistance from TPT once our SciGirls en Familia is underway</td>
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<td></td>
<td></td>
<td>5.5</td>
</tr>
<tr>
<td>I’m concerned that TPT is expecting too much from my organization’s SciGirls en Familia project</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>3.0</td>
</tr>
</tbody>
</table>

As indicated by the median ratings in each case, the staff generally agreed to strongly agreed that the grantee program would reap beneficial positive impacts on their organization, that they understood the project’s goals, were confident their projects would advance these goals and were ready to implement their projects, and expected that their projects would excite their community families about science. The staff also indicated that
tpt's expectations were reasonable and that they would need little assistance from TPT when conducting their projects. Although looking forward to the online training, some indicated a preference for an in-person training in place of or in addition to the online platform. Additional details for each theme follow below.

Perceived organizational impacts
The staff as a whole strongly agreed that the supervisor/advisor at their organization was supportive of their participating in the SciGirls en Familia program and that their organization would both benefit from participating in the grantee program and accrue beneficial partnerships with local community groups. The median ratings in each case were a 7.

Understanding and advancing the goals of SciGirls en Familia:
The staff also generally agreed to strongly agreed that they: had a good understanding of the goals of the SciGirls en Familia program (6), were confident that their project would advance the goals of the SciGirls en Familia program (7), and felt prepared to begin implementing their SciGirls en Familia project (7). Staff explained their preparedness as function of their prior experience working with Latino families or having participated in SciGirls en Español: Having done SciGirls en Español, we are familiar with the curriculum and ready to bring it to families. We have a staff person whose primary focus is engaging Hispanic families. A few staff indicated they expected to have a clearer send of the goals and expectations after training, as one staff explained: I want to go through the SciGirls training to get a clearer sense of the goals and expectations. Once that is done, I am confident I will feel prepared.

Exciting families about science
The staff generally strongly agreed that their projects would excite families in their communities about science (7).

Perceived value of online training:
The staff as a whole strongly agreed that the SciGirls en Familia online training would be a valuable learning experience (median rating 7) and tended to agree that they would prefer the training occur in person rather than online (median rating 6). When invited to explain their ratings, a few staff explained that while they found the online training to be a useful and convenient remote training mechanism, in some contexts there is no substitute for in-person interactions, taking into account both cultural and institutional factors, as one staff explained: Although I do appreciate the initiative to move trainings as something remote that can target more than one site at a time as convenient to the program, I don't think it's the best for the cultures of all programs. [Our institution] is a site that is known to be very interactive and physical interactions between community members are greatly valued. I am not sure if having had a training done in person, could have had a greater impact on those invested in the program. However, since we were a site that had one-on-one training last year, I will be able to give feedback that can compare both types of training after this webinar.

tpt anticipated role in grantee projects:
In general, the staff expected to need little assistance from tpt once their SciGirls en Familia project was underway (median rating 5.5), as one staff explained: I already feel well prepared to begin the SciGirls en Familia project because we have conducted workshops for Latinos and because I have managed a SciGirls summer camp. However, because I am the manager of the project there is the need to ensure the facilitator is in place in time to ensure the actual implementation is fully understood. At any rate I feel I am equipped enough from previous experience to begin and manage process with a small amount of assistance (communication) from tpt. The staff also generally indicated that tpt was not expecting too much from them (median rating 3.0), as one staff explained: I am not at all concerned about the SciGirls expecting too much from our organization, because we are always prepared to teach. It is going to be a great pleasure.
1.6 Organizational factors likely to contribute to project success

When asked to identify any organizational factors that were likely to make their projects stand out and be successful, the staff from the 10 grantee organizations collectively identified seven key factors. As listed in Table 6 in order of descending frequency, these included:

- A prior rapport with the families to be served (n=7);
- A specialty in making science accessible to underserved populations (n=6);
- An established/trusted presence in the Latino community to be served (n=4);
- Passionate and dedicated staff (n=4);
- A strong history in serving girls (n=3); having Spanish speaking/bilingual staff; and
- Strong partnerships with organizations that serve youth and/or families (n=2).

Examples of the staffs’ comments on each of these themes follow:

**Prior rapport with families to be served**
- We also have good communication with the families in our program and they are really involved in our events and activities.
- Our organization will be working with a group of girls and their families closely for a few months. During this time we will be able to establish a relationship with these families and use them as a resource to help us determine future programs.

**Specialize in making science accessible to underserved**
- Our organization takes pride in bringing science to everyone, especially those underrepresented in the field.
- We want to emphasize that science is a unisexual thing. We want to help our young girls understand that science is not a "boy thing", but for everyone that wants to do it.

**Established/trusted community presence**
- ...has an established and trusted presence in the Latino communities or our region.
- We have extensive experience within the Latino community in providing culturally competent programming. Given our history, we are successful in reaching out to the Latino community, meeting their needs and fully engaging them in the planning, implementation and evaluation of our programs.

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4 These factors were determined by sorting the 30 staff responses by grantee organization to generate a list of factors that represented the 10 participating organizations rather than individual staff members.
History of serving girls

- We have a strong Hispanic "girl" membership and we are always looking for means to engage the whole family. Even if girls are interested in science, for some girls, their science education stops when they leave the school. We believe if families, especially Hispanic families, are engaged in their daughter's science education, she will have a better chance of pursuing a college education and will be prepared for a STEM career. We also included in our grant proposal that families will participate in a school-wide event and facilitate some of their favorite activities for the other families of the school.
- From what I understand, the history of the [program] has an incredible record. The improvements and help it has brought to the community and girls of many races and backgrounds speaks for itself.

Passionate, appreciative, hard-working staff

- We have a dynamic and passionate staff who are ready to provide more science based programming.
- It is likely to be successful because everyone here cares and is always looking for ways to progress further.

Ability to communicate in Spanish

- We feel that our ability to communicate in Spanish, and our plan to visit to several Spanish-speaking low-income communities, makes our proposal a significant one in terms of looking at family interactions in the Hispanic community
- We have an excellent bilingual bicultural staff

Strong partnerships

- We have the support of the schools that we are going to work with that are in large Hispanic populations….We also want to use this program to encourage the teachers from the schools we will work with, as an opportunity to learn about science programs that they can incorporate into their own curriculum. With establishing a relationship with teachers, we will be able to mutually benefit from crossing ideas and different perspectives
- ….has a strong community presence and involvement that has brought partnerships on board.
Part 2: Post-training findings

The SciGirls en Familia online training comprised an online Webinar and Ning. The Webinar was held on August 4, 2010 and lasted for one hour. The agenda presented to the grantee staff is provided below, which included information on SciGirls, the SciGirls Seven Strategies to Engage Girls in STEM and Practical Tips for Implementation, the SciGirls resources for parents, leaders, and girls, and an introduction to the Ning.

<table>
<thead>
<tr>
<th>Time</th>
<th>Agenda Item</th>
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</thead>
<tbody>
<tr>
<td>3:00</td>
<td>Overview of SciGirls</td>
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<tr>
<td></td>
<td>- Introductions &amp; Welcome</td>
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<td></td>
<td>- SciGirls, the new television series</td>
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<tr>
<td></td>
<td>- Evolution of SciGirls en Familia from Dragonfly TV</td>
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<tr>
<td>3:10</td>
<td>Review training plan for SciGirls en Familia</td>
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<tr>
<td></td>
<td>- Webinar</td>
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<tr>
<td></td>
<td>- Ning</td>
</tr>
<tr>
<td></td>
<td>- Follow-up calls</td>
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<tr>
<td></td>
<td>- Evaluation</td>
</tr>
<tr>
<td>3:20</td>
<td>SciGirls Seven: Strategies to Engage Girls in STEM and Practical Tips for Implementation</td>
</tr>
<tr>
<td>3:50</td>
<td>SciGirls resources for leaders</td>
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<tr>
<td></td>
<td>- Activity Guide &amp; DVD</td>
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<tr>
<td></td>
<td>- Scientist Profile video</td>
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<tr>
<td></td>
<td>- Working with Latino Families piece</td>
</tr>
<tr>
<td></td>
<td>- SciGirls Seven &amp; Tips</td>
</tr>
<tr>
<td>4:00</td>
<td>SciGirls resources for parents</td>
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<tr>
<td></td>
<td>- Newspaper inserts</td>
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<tr>
<td></td>
<td>- Parent Brochure</td>
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<tr>
<td>4:10</td>
<td>SciGirls resources for girls</td>
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<td></td>
<td>- T-shirts</td>
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<tr>
<td></td>
<td>- Bilingual ClubKit</td>
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<td></td>
<td>- Project pages</td>
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<tr>
<td>4:20</td>
<td>Introduction to the Ning</td>
</tr>
<tr>
<td>4:25</td>
<td>Q &amp; A</td>
</tr>
</tbody>
</table>
The online Ning consisted of the six lesson components outlined below. The grantee staff was generally asked to review and discuss: the science inquiry process, a case study of engaging girls in STEM, video and print materials about working with Latino families, issues involved running a bilingual program, and successes and challenges their institutions faced in involving Latino families in their programs.

### Ning Online Training Lessons

1. **Webinar – Welcome and SciGirls Seven**

2. **Science Inquiry Process**
   - Inquiry 101 video
   - Inquiry in Action video (Forecasting Icebreaker)
   - PDF of Forecasting Icebreaker activity
   - PDF of steps of inquiry (from Español book)
   - Watch SciGirls episode (Double Dutch)
   - Blog about 1 of the inquiry steps you saw modeled in the video

3. **Case Study (engaging girls) – Choose 1 case study and participate in an online forum to discuss how this relates to their organization/comments/reactions, etc.**
   - 4 PDFs of cases studies and reflection questions from Liesel’s book
   - PDF of SciGirls Seven and Tips in English and Spanish

4. **Working with Latino families**
   - Working with families video
   - PDF of tips for working with Latino families
   - Read 2 articles on Latino family involvement in science learning.
   - Participate in a forum discussion on what you earned/reactions/comments/how this meshes with your own experiences, etc.
   - Video of tree rings activity
   - PDF of tree ring activity
   - Video of scientist profile: Nalini Nadkarni
   - Forum on how you would incorporate families into this activity at your institution.

5. **Running a bilingual program**
   - PDF from Maddie on why and how to use Spanish in an activity.
   - Video of Lip Gloss activity
   - PDF of Lip Gloss activity
   - Participate in a forum. When are working with your girls, how will you incorporate Spanish? Using the video as an example, brainstorm ways you could incorporate Spanish in your teaching (vocabulary? take homes for parents?)

6. **Successes and challenges**
   - Moderated online chat at 2 (or 3) different, predetermined times to discuss the successes and challenges your institution has experienced trying to involve Latino families.
2.1 Overall perceived value of the training

The staff was asked to indicate how much they agreed or disagreed with a series of statements relating to the overall appeal and educational value of *SciGirls en Familia* training, taking into account what they experienced in both the webinar and Ning. Based on a scale of 1 (strongly disagree) to 7 (strongly agree), with 4 being neutral, the median ratings for each statement are presented in Table 7.

<table>
<thead>
<tr>
<th>Table 7</th>
<th>Overall perceived value of the training (median ratings, n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree 1</td>
</tr>
<tr>
<td>The training was well run and organized</td>
<td>6.0</td>
</tr>
<tr>
<td>I received sufficient information about the training requirements before participating</td>
<td>6.0</td>
</tr>
<tr>
<td>I feel I have a good understanding of the goals of the <em>SciGirls en Familia</em> program</td>
<td>6.0</td>
</tr>
<tr>
<td>I learned a lot from the training about how girls learn, experience, and enjoy science</td>
<td>6.0</td>
</tr>
<tr>
<td>I would have preferred the training occur in person rather than online</td>
<td>5.0</td>
</tr>
<tr>
<td>I would have preferred that the training give more attention to issues relating to Spanish speaking audiences</td>
<td>5.0</td>
</tr>
<tr>
<td>I wish the Ning site would be moderated by <em>SciGirls en Familia</em> staff for more than 2 weeks</td>
<td>4.0</td>
</tr>
</tbody>
</table>

The staff generally found the training to be of value, although they tended to find some aspects more valuable than others as detailed below:

**Training organization, goals and learning value (median ratings 6.0)**

The staff generally agreed that: the training was well run and organized, that they received sufficient information about the training requirements before participating, that they had a good understanding of the goals of the *SciGirls en Familia* program, and that they learned a lot from the training about how girls learn, experience and enjoy science.

**Presentation format and focus on Spanish speaking audiences (median ratings 5.0)**

The staff generally somewhat agreed that they would have preferred the training occur in person rather than online. Those who commented on this preference indicated an awareness of the pros and cons, as one staff member explained: *We had Maddie come out to train staff for *SciGirls en Español*; while I prefer that method, I also understand the limitations inherent in that and the logistical difficulties. Overall, I think the training was valuable, not in the least for creating a sense of shared community and being part of a bigger, and important, mission to reach girls all over the United States with exciting science experiences.*

The staff also tended to somewhat agree that the training could have given more emphasis to issues relating to Spanish speaking audiences.
length of ning moderation (median rating 4.0)
finally, the staff tended to be neutral about the whether they would have preferred the ning site be moderated by staff for more than two weeks, with just one staff commenting: as an educator the training was very basic and somewhat insulting.

2.2 whether the training met overall expectations
most staff indicated that the training met their expectations, although some felt something about the training fell short. the major themes in their responses are outlined below, and includes a sampling of quotes.

met expectations (83%)
more than four-fifths of the staff felt that the scigirls en familia training generally met their expectations. these staff praised the fact that they gained knowledge about the expectations of the program and how to best implement their projects in their local settings, as in:

- the training did a great job of helping me to understand things to keep in mind while running the programs - inquiry, working with families, working with bilingual audiences.
- scigirls en familia training met my expectations. i've learned a lot through the readings and videos. i will take these experiences that i have learned and try to do my best on passing them on to my students and their families.
- yes, it was nice to have everything online so that i could view it as many times as i wanted to. it gave a good explanation on what the expectations of the program are, and gave great examples on how to get girls excited about science. i believe i learned a lot and from the trainings and now feel comfortable in working with girls and their families.
- this is my second time taking the training. once in person and now via the internet. i felt that they both gave a very clear vision of how the program is facilitated and how the activities are taught.

did not meet expectations (17%)
not quite one-fifth of the participants were of the view that the training did not meet their expectations. their comments focused on: issues of redundancy and the training’s focus on material with which they were already familiar; a desire for more discussion and interactivity; and a preference for additional emphasis on understanding grantees’ target audiences, and in particular engaging and working with spanish-speaking and bilingual audiences. their comments included:

- i would have gained more out of this training if it gave more insight to targeted audience.
- i'm not sure what i expected, but what i found was a program of training that was aimed more at an audience new to teaching to diverse communities. seemed a bit redundant at times for me, however, the enthusiasm of staff and videos of the girls were enjoyable to watch.
- i expected a lot more overall participation within the discussions. however, the discussions and participations did create a very valuable time for us to examine issues that may come up within our programs.
- a lot of what was discussed in the training is what we at our organization (as i am sure at others) have learned through working with the girls over the years. the training was a good "refresher" course.
- i would have like a little more training on working with spanish-speaking audiences, both parent and students, however. still, i don't feel underprepared by any means and i am excited about getting started!
2.2 Most valuable aspects of the training

When asked to describe the most valuable aspect of the training, the staff most frequently pointed to the: shared community/interactions with other grantees, the SciGirls activities, the SciGirls Seven strategies, the convenience of the online format, and the information gained about engaging families in science activities. These themes are presented in order of descending frequency in Table 8, and described in greater detail below.

**Interactions/sharing with other grantees (27%)**

More than one-quarter of the staff particularly enjoyed the interactions/sharing they experienced with other grantee staff through the training and Ning site, as in:

- Being able to contribute our real life experiences, what worked, what didn’t work with others and vice versa.
- I think that the interaction among grantees sharing experiences is very valuable. Different experiences from different perspectives enrich my own perspective of the program.
- I have enjoyed that sense of shared community, of being part of a movement.
- The most valuable aspect has been the exchange of ideas and experiences between other SciGirls Ning site members. There is a wealth of knowledge and experiences there! I have loved hearing about how different organizations are approaching the program or marketing it or structuring it. This has been a great feature for me since almost each time I log in to see discussion forums I often leave with a really good idea to keep in mind, a new approach or a great tip.

**SciGirls Seven strategies and activities (20% each)**

Two slightly smaller groups of staff pointed to the SciGirls Seven strategies and activities as the most valuable aspects of the training. Those who praised the activities variously described them as being fun, inspiring and informative, as in: I liked the activities, they were fun and were very informative. I think the girls would find them as interesting and may inspire them to perform experiments of their own.

Those who commented on the SciGirls Seven tended to appreciate the educative value of the strategies, both in terms of what they learned as professional educators and what the strategies offered to the girls they would be working with. As one staff reflected: I think learning about the SciGirls Seven really put things into perspective. Having the girls understand that half of what is involved with science is trying things and having no such thing as a “wrong” answer put me at ease. I think that this will let girls go through trial and error without getting nervous science.

**Convenience of online training format (20%)**

Another slightly smaller group appreciated the convenience and availability of the online training format, as in:

- Online continuous access to the training. I like that the information is always there and we can refer back to it.
- Having everything available when I need it. Not having to follow a strict schedule made it easier to finish the training.
- The most valuable aspect of the training was the convenience of doing it when I had time because I work at least 10 hours a day.

<table>
<thead>
<tr>
<th>Table 8</th>
<th>Most valuable aspects of the training</th>
<th>(n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared community/interactions with other grantees</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>SciGirls activities</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>SciGirls Seven strategies</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Convenience of online format</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Information about engaging families in science activities</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Videos</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Reading material</td>
<td>7%</td>
<td></td>
</tr>
</tbody>
</table>
**Information on how to engage students and their families (13%)**
Several participants felt they most benefited from the information about how to engage students and their families, as follows:

- The most valuable aspect of the training experience was the learning process and all the methods they use to invite the families to participate in these activities. All the different ways for the students to get involved and use their creative minds.
- Learning how to engage both the students and their families in a way they'll feel comfortable. The reason being because I was having a bit of issues having the parents showing up to our event.
- I liked the advice on how to get the families involved in science activities.

**Other aspects (7% each)**
A few staff pointed to the SciGirls videos or journal article reading material as most valuable, as in:

- I'd have to say that the videos were the most valuable to me. It's always nice to watch kids exploring and discovering. I always learn something watching how kids solve problems.
- I really enjoyed reading the journal articles. It will be my first time working with bilingual family programming and the articles helped me connect and make things more personable. While reading these articles I felt I really related to them personally. Putting myself in the shoes of the participants will help us create a program which will be fun and enjoyable as well as educational.
2.3 Least valuable aspects of the training

When asked to describe the least valuable aspects of the training, the staff most often cited: time constraints, the lack of a hands-on/interactive approach, scheduling conflicts, or the training being too basic or redundant. A few staff said they experienced online access issues with the training site or Ning or took issue with the usefulness of the online chats and expectation of commenting on the modules. These themes are presented in order of descending frequency in Table 9, and described in greater detail below.

<table>
<thead>
<tr>
<th>Least valuable aspects of the training</th>
<th>(n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All was valuable</td>
<td>32%</td>
</tr>
<tr>
<td>Time constraints</td>
<td>23%</td>
</tr>
<tr>
<td>Lack of hands-on/interactive</td>
<td>16%</td>
</tr>
<tr>
<td>Scheduling conflicts</td>
<td>13%</td>
</tr>
<tr>
<td>Training too basic/redundant</td>
<td>10%</td>
</tr>
<tr>
<td>Expectation of commenting on modules</td>
<td>6%</td>
</tr>
<tr>
<td>Online chats not useful as organized</td>
<td>6%</td>
</tr>
<tr>
<td>Online access difficulties</td>
<td>6%</td>
</tr>
<tr>
<td>Training organization/administration</td>
<td>6%</td>
</tr>
<tr>
<td>Other aspects</td>
<td>20%</td>
</tr>
</tbody>
</table>

All was all valuable: (23%)

One-third of the group indicated that there was no least valuable aspect and instead praised various aspects of the training, as in:

- To be honest, there wasn't anything that was so bad that I didn't need to learn it. Every piece of information was helpful whether I know it or not. Since the modules are online I can reference them before and even after I do the SciGirls activities that I think will help me. Even the little things are valuable.
- It was all great. I knew how to facilitate the activities since we had a few SciGirls programs last year. It was nice to review, especially for those who are new to SciGirls.

Time constraints (23%)

Nearly one-quarter of the group indicated time constraints limited the amount of time they had available to devote to the training due to other work responsibilities, as in:

- Limited training time, I was just hired for this job, and have other jobs to juggle. The limited windows of time were sometimes difficult for me, particularly the online chats.
- Well I was busy with work and other responsibilities that it was hard for me to find time to sit down and focus on the training. However it was nice that I could come back to the online training at any time so I could finish it.

More hands-on/interactive training (16%)

Several staff indicated the training experience lacked sufficient hands-on/in-person training or at least an element of dramatization, as in:

- I wish that the training had been in person. There is a nice bonding between all of our staff when they all learn and ask questions together.
- Specific activities are hard to train on; it seems that the real-life experiences are more valuable for staff - whether it's making a model or struggling with content, and of course, during this training, there were no real-life experiences.
- While I wouldn't say there was a least valuable part, the webinar felt a bit cold without seeing a person for most of it. It is very difficult to do such a big training with people from so many locations, but I feel the in person interaction would've improved it.
- There were times that the information felt long, like a lecture. Perhaps some dramatizations would help emphasize some points?
**Scheduling conflicts (13%)**
Several staff identified specific scheduling issues such as scheduled vacations or other projects that were beginning at the same time that interfered with their ability to focus on and address the training, as in:

- The training was during the summer, so I had a vacation already planned. This didn't allow me to complete the training by the first deadline. I was grateful we got an extension of the deadline!
- Yes, I was not able to complete the training by the original date, due to work. It was the beginning of the school year, where we were right in the middle of our recruitment season. I was unable to do any of the chats because I was out of the office during most of the day and had no access to the internet.

**Training too basic/redundant (10%)**
Several felt that the training or was too basic or redundant to previous training they had received from SciGirls, as in;

- This training seemed to be geared to first time educators
- I understand why we need to talk about aspects of a session such as icebreakers, for those who have led this type of activity for many years’, some of what we sat through was redundant.

**Other (20%)**
A few other grantees pointed to technical difficulties accessing the Ning, suggested the online chats weren’t organized in a way to be useful, indicated that they didn’t find the experience of commenting on each module to be a useful activity, or felt some aspect of the training organization or administration could be improved (6% each). A sampling of their comments on these themes follows:

**Reviewing/commenting on modules**
- Having to comment after every module.
- After commenting on the trainings, I was bombarded by flurries of other people's email responses. Although I am interested in their comments, the emails flooded my mailbox.

**Organization of online chats**
- The least valuable aspect for me has been the chats. I think it's because it moves so fast that it can't accommodate all members. Like any chat room, some folks just get a lot more airtime which leaves plenty of room for other folks to simply check out. It was suggested (during a chat) that some discussion topics be set up ahead of time so at least those who check in but don’t necessarily "chat" a lot can log in if the topic is of interest to them. They can then simply pay attention to the conversation and take useful ideas. This doesn't mean I think we should do away with them at all. They just didn't contribute as much to my training in contrast to other stuff like videos, articles or discussion forums.
- The chats were a good idea but personally it was a bit hard for me to follow because my staff was around and it was hard for me to focus fully on it. It would have been helpful if maybe after the chats we could have some kind of documents on the Ning with a transcript of the chat that we can refer back to and read prior to the next one.

**Online access difficulties**
- Yes, the website was considered violation of my company's internet usage. Perhaps changing the host to something more acceptable would result in more participation.
- At some point we were experiencing difficulties with the internet and that created a problem. Also, the timing was not good being that some of the staff was not yet hired to work for the program.

**Training organization/administration**
- I was confused as to the completion date because two separate dates were mentioned
- I think that it was a great idea, and perhaps with better planning and communicating to program participants, we can increase participation that will serve as a way to enrich our programs.
2.4 Reactions to the Webinar

2.4a When the webinar was viewed

About one-third of the staff (37%) participated in the webinar when it was held live, on August 4th. The remaining two-thirds (63%) subsequently viewed the webinar as part of Module 1. The staffs’ reasons for not participating in the webinar on the original date variously included that: they were part of a previous in-person training held at NYSC, they weren’t yet hired, they had scheduling constraints, or had technical difficulties.

2.4b Perceived value of the webinar

When asked to rate the value of five different aspects of the SciGirls en Familia webinar using a scale of 1 (not at all valuable) to 7 (extremely valuable) as shown in Table 10, the staff generally found four aspects to be extremely valuable (median rating 6): 1) the SciGirls overview 2) the SciGirls Seven: Strategies to Engage girls in STEM, 3) the SciGirls resources for leaders, parents, and girls, and 4) the tour of the Ning website. The review of the training plan was generally rated as somewhat less valuable (median rating 5).

<table>
<thead>
<tr>
<th>Table 10</th>
<th>Perceived value of the webinar (median ratings, n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Webinar aspects:</td>
<td>Not at all valuable 1</td>
</tr>
<tr>
<td>SciGirls Overview</td>
<td>6.0</td>
</tr>
<tr>
<td>SciGirls Seven strategies</td>
<td>6.0</td>
</tr>
<tr>
<td>SciGirls resources</td>
<td>6.0</td>
</tr>
<tr>
<td>Tour of the Ning website</td>
<td>6.0</td>
</tr>
<tr>
<td>Review of training plan</td>
<td>5.0</td>
</tr>
</tbody>
</table>

A sampling of the staffs’ comments on their ratings follows:

**Multiple aspects**

- I think that the webinar was great. I thought it did a great job of explaining SciGirls and how this program is different from the original. I also learned a lot through the SciGirls Seven. It was great that they explained this in a way that made you think beyond science, into everyday life.
- All of the aspects of the webinar were necessary and did not seem redundant in any way. I think this was a very well put together training that took the trainees well into account. Even the Ning site was chosen for its similarity to popular social networking sites with which we were likely to be familiar. I enjoyed it very much. The only thing better would have been an in-person conference. Although the fact that it’s all viewable on the web makes it accessible and great for refreshing our knowledge.

**Resources**

- It would be great to already have access to the resources for leaders, parents and girls. Anxiously awaiting its arrival.

**Ning**

- I rated the tour of Ning website a "5" because I don't know the value the website will have beyond the training portion of the program.
2.4c Reactions to the webinar approach

The staff were also asked to rate how much they agreed or disagreed with several statements pertaining to the SciGirls en Familia webinar, using a scale of 1 (strongly disagree) to 7 (strongly agree). As indicated by the median ratings of 5 in Table 11, the staff somewhat agreed that: It was helpful to hear the presenters talk through the SciGirls Seven strategies for engaging girls in STEM; The presentation format of having two presenters (rather than just one) effective; They liked how the webinar used media; and They appreciated the opportunity to ask questions at three different time points rather than just at the end. The staff also tended to somewhat agree that the webinar was a good use of their time (median rating 5). The staff was generally neutral about whether: the webinar was too long; should have included more Spanish translation; and should have allowed for more audience participation (median ratings 4).

<table>
<thead>
<tr>
<th>Table 11</th>
<th>Reactions to the webinar approach (median ratings, n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree 1</td>
</tr>
<tr>
<td>It was helpful to hear the presenters talk through the “SciGirls Seven” strategies for engaging girls in STEM</td>
<td>5.0</td>
</tr>
<tr>
<td>The presentation format of having two presenters rather than just one was effective</td>
<td>5.0</td>
</tr>
<tr>
<td>I liked how the webinar used media (video, pictures) to help present the training information</td>
<td>5.0</td>
</tr>
<tr>
<td>I appreciated the opportunity to ask questions at 3 different time points rather than just at the end</td>
<td>5.0</td>
</tr>
<tr>
<td>Participating in the webinar was a good use of my time</td>
<td>5.0</td>
</tr>
<tr>
<td>I felt the webinar was too long</td>
<td>4.0</td>
</tr>
<tr>
<td>I would have preferred the presentation to include more Spanish translation</td>
<td>4.0</td>
</tr>
<tr>
<td>The presentation format should have allowed for more audience participation</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Those who explained their rating of the webinar including more Spanish translation indicated a desire for more communication in Spanish to help instill motivation and ownership among those not English dominant, as in:

- I believe that more could have been done/communicated in the Spanish language during the training overall. I believe there were only two portions where the facilitator briefly explained concepts in Spanish- I felt that took away from a valuable learning opportunity for those who are not English dominant. Also, the website is designed with English dominant speakers in mind, and it complicated navigation for Spanish dominant speakers.
- I would like to see more Spanish during the Webinar not only translations. For our program the participation of parents is extremely important. Our parents speak mostly Spanish and the ownership component to motivate them should be from the beginning. I think they need to be part of the trainings.
I chose neutral for the opportunity to ask questions because I did not attend the live webinar but viewed it at a later time. I also feel that some of presentations could have been offered in Spanish. In part because I was under the assumption that the SciGirls staff were all fluent in Spanish and also because it would have been a nice model to follow since I rarely conduct programming in Spanish. Still, the comfort level and skill in presenting in another language (for those, like me, who have Spanish as a first language but lead lives where mainly English is spoken) is something I believe also comes not only by watching others but also from our own experience and practice.

2.5 Reactions to the SciGirls en Familia Ning

2.5a Access and use of the Ning

The staff was asked to report on their number of visits to the Ning, their speed of connection, the number and order of modules they completed, and any technical or other difficulties they encountered.

- **Number of visits**: The majority of the staff (63%) reported visiting the Ning more than 5 times. While none visited just once, 7% visited twice, 20% visited 3 times, and 10% visited 4-5 times. In terms of the setting from which they accessed the Ning, half said they accessed the Ning at home (50%), while just under half (47%) visited at work, and the rest said they visited from other places. A few staff identified problems in accessing the site, as in the case of one staff member who found the Ning was considered “a violation of internet usage” at work.

- **Speed of connection**: More than four-fifths (87%) of the staff accessed the Ning using a high speed internet connection, while 7% used a low speed connection, and 7% didn’t know the speed.

- **Completion of modules**: The staff provided a wide range of estimates of how long it took them to finish the Ning’s six training modules. Their estimates ranged from a low of 2 hours to a high of 15. The majority of the staff, however, indicated they spent somewhere between 3-6 hours in total.

  Number of modules completed per visit: More than half the staff (56%) indicated they completed 2-3 modules per visit, while about one-quarter (23%) said they completed 1 per visit. The remaining staff said they completed 4 or more modules per visit (10%) or all 6 modules (10%) at once.

  Order of completion: More than four-fifths of the staff (87%) said they completed the modules in order, while 13% did not due to: time constraints, confusion over what needed to be done, or a preference to work on what most appealed at the time.

- **Technical difficulties**: The staff reported few technical difficulties accessing or using the webinar or Ning. More than two-thirds (67%) reported no difficulties. Those who reported difficulties with the webinar pointed to: losing the link before/between visits (10%), not having access to a phone and computer (10%), and not receiving the training email invitation (7%). None of the staff reported having difficulty logging in or using Skype.

  Those who reported having difficulties with the Ning pointed to: not receiving email notices (13%), videos not loading (7%), pictures not displaying correctly (7%), losing the link before/between visits (3%), not having access to a phone and computer (3%), logging in (3%) and/or their screen freezing (3%).
Other difficulties: Beyond technical difficulties, the staff were asked if other factors limited the extent to which they participated in the training during the allotted timeframe. About two-fifths (38%) of the staff indicated they didn’t experience any other factors. Those who did most often pointed to time constraints limiting the extent to which they were able to participate in the training during the allotted timeframe (23%). Many of these staff indicated they had competing work duties and needed extra time to complete the training. Several staff (13%) said they were on summer vacation during part of the training, while several others (13%) experienced “outside” factors that limited their training experience (7%). A small number of staff indicated issues with confusion over the training completion dates (3% each), or said they had to use another person’s login due to being new or a latecomer to the training.

2.5b Perceived appeal of the Ning

Using a 1-7 scale (with 7 being most positive), the staff were asked to rate the SciGirls en Familia Ning for overall likeability, visual appeal, and effectiveness as a training tool. As indicated by the group median ratings in Table 12, the staff as a whole gave high marks in each area.

<table>
<thead>
<tr>
<th>Table 12. Overall appeal and training value of the SciGirls en Familia Ning training (median ratings, n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visually dull</td>
</tr>
<tr>
<td>Disliked very much</td>
</tr>
<tr>
<td>Ineffective training tool</td>
</tr>
</tbody>
</table>

The staff that commented on their ratings tended to weigh the limitations and benefits of the format, with a few commenting that the Ning encouraged networking and exchange of ideas, but also posed limitations for those who were not tech-savvy, had language barriers, or preferred face to face instruction. Their comments included:

- I felt neutral about the current mode of training because it has a lot of benefits, but it also has its limitations. One on hand, it allows for networking and allows for ideas to be exchanged, discussed and shared. Getting to know the community of SciGirls around the country is very useful. The only downfall is the fact that if you are not tech-savvy, this training can be VERY overwhelming. If there is a language barrier, for example, you will not be able to know how to navigate the site.
- I think that face to face as last year made a better impact for parents and staff members. An on-going training component should be added to share experiences during the program.
- I liked the ability to see what others thought and to share in their experiences about the specific topics. I think it remains to be seen how effective the "training" aspect is. If there is participation in describing experiences in the programs, that will be effective in providing support and confidence for others to follow.
- I think Ning is a great way to get in contact with others across the country and share ideas. I thought the message boards were ok, but was hoping for more opportunities for live chatting. I only knew of 3, and wasn’t able to make any of them due to work.
- It is an effective training tool because it allows us to view the tips, informational documents, and videos over and over. It could only be made better by watching a live session with the targeted audience (girls ages 8-14 and parents).
2.5c Grantees’ perceptions of the user friendliness of the Ning

The staff further rated the Ning for three aspects of user-friendliness, again using a 1-7 scale. As indicated by the median ratings in Table 13 (6.0) and the staff’s explanations of their ratings, the Ning was found to have a clear layout/organization and was easy for users to navigate and find information.

<table>
<thead>
<tr>
<th>Table 13</th>
<th>The user-friendliness of the SciGirls en Familia Ning (median ratings, n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Confusing layout/organization</td>
<td></td>
</tr>
<tr>
<td>Hard to use/navigate</td>
<td></td>
</tr>
<tr>
<td>Hard to locate information</td>
<td></td>
</tr>
<tr>
<td>Clear layout/organization</td>
<td></td>
</tr>
<tr>
<td>Easy to use/navigate</td>
<td></td>
</tr>
<tr>
<td>Easy to locate information</td>
<td></td>
</tr>
</tbody>
</table>

Staff who chose to comment on their ratings tended to describe the site as generally well organized and easy to navigate, although a few found it took them a while to find information they were looking for. Their comments included:

- Overall, the layout was easy enough to understand, but I found myself clicking around a lot to find specific items I needed.
- The Webinar was very organized.
- Like any new program, it takes a while to get used to. We had one issue where one staff ended up sharing the log-in of another, but we got that worked out. I think the challenge will be for members to keep contributing to make the site useful and relevant.
- The site was really easy to navigate and had no problem finding what I needed.
2.5d Grantees’ perceptions of the density and interactivity of the Ning

Using a scale of 1 (too little) to 7 (too much) with 4 being “just right” in this case, the staff was asked to rate the Ning for the amount of: written text, videos, participant interactivity, and moderation from the SciGirls en Familia staff. As indicated by the median ratings in Table 14 (4.0), the staff generally felt the amount provided in each case was just right.

| Perceived density and interactivity of the Ning (median ratings, n=30) |
|-------------------------------------------------|-----------------|-----------------|
|Too little written text                          |
|Too few videos                                   |
|Too little moderation from                       |
|Too little participant interactivity             |
|                                                | 1   | 2   | 3   | 4   | 5   | 6   | 7   |
|                                                | 4.0 |     |     |     |     |     |     |
|Too much written text                            |
|Too many videos                                  |
|Too much moderation from                         |
|Too much participant interactivity               |

Examples of the staffs’ comments follow:

- I liked the fact that the staff made themselves available to interact, however, I think more options should have been given as far as times and dates.
- It is difficult to share everything about an activity or experience in writing. Once the projects get going, I can see the difficulty in writing about an experience and transmitting the energy of the activity so that others can learn from it. At the same time, being forced to write about it often brings reflections that you hadn’t considered before.
- I feel like the staff did a great job interacting with others, they weren’t all over the place but put in enough input to keep conversation going. I wish there were some more videos from the training, to me it was helpful seeing other participate in activities and how they worked through them.
- Again, it feels good as it is. Having more videos that include bilingual workshops taught to the target audience would also have been very helpful. I think we can do without them but I would have looked forward to them.
2.5e Grantees’ perceptions of the value of the Ning modules

When asked to rate the value of the Ning modules using a scale of 1 (not all valuable) to 7 (extremely valuable), the staff generally indicated that they found the overall set of modules to be valuable (median rating 6). As shown in Table 15, four of the six modules also had a median rating of 6, including: 1) Hands-on science inquiry, 2) Case studies/Working with girls, 3) Welcoming Latino families in your programming, and 4) Running a bilingual program. Two modules rated a little lower (median rating 5.0), including Welcome to SciGirls en Familia and Successes and challenges at your institution.

<table>
<thead>
<tr>
<th>Table 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived value of the training modules and other features (median ratings, n=30)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Perceived value</td>
</tr>
<tr>
<td>The 6 training modules</td>
</tr>
<tr>
<td>Running a bilingual program</td>
</tr>
<tr>
<td>Hands-on science inquiry</td>
</tr>
<tr>
<td>Case studies/working with girls</td>
</tr>
<tr>
<td>Welcoming Latino families in your programming</td>
</tr>
<tr>
<td>Welcome to SciGirls en Familia</td>
</tr>
<tr>
<td>Successes and challenges at your institution</td>
</tr>
<tr>
<td>“My Page”</td>
</tr>
<tr>
<td>The discussion forums</td>
</tr>
<tr>
<td>The live online chats</td>
</tr>
</tbody>
</table>

The staff rated other aspects of the Ning somewhat lower on the whole, including My Page (median rating 5.0), followed by the discussion forums and live online chats, which received the lowest median ratings (4.0). The staff in these cases cited an overall lack of audience participation and discussion in the forums and chats and technical difficulties, as follows:

- Technical difficulties negated some of the participation in the on-line chat. The discussion forums where real life experiences could be shared were to most valuable.
- I wished there was more discussed in Module 4. I don't think there was enough discussion on how to draw families into SciGirls en Familia and how to keep them engaged during the activities. I did think that the other modules were full of a lot of information.
- Online chats need more audience participation.
2.6 Suggestions for improving the training

When asked if they had suggestions for improving the training for future grantees, several small groups of staff pointed to areas they would like to see added or featured more prominently, including: an in-person training component, a wider selection of activities, the use of training videos, such as videos of a workshop showing girls working with their families on a featured activity, and more information on running a bilingual program. Finally, a few other grantees suggested featuring more live chat opportunities, more information on engaging Hispanic families, and/or more training in Spanish for Spanish speakers. These themes are presented in order of descending frequency in Table 16, and described in greater detail below.

Add in-person training (13%)

- Gathering together in one location is a wonderful opportunity to network and share ideas. This was done for the SciGirls Museum Affiliate program, and it was very powerful, though understandably, expensive. If you could anchor the trainings with this type of meeting, I think it would be an improvement, though the Ning site has great possibilities for continuing the conversations about experiences in real-time.
- I personally will prefer on-site trainings.
- It would be great to offer the training in person. I think that was a valuable experience for me personally.
- I would like to take the training again in person, so that way I can feel more comfortable and I believe that I understand better and participate more in the activities.

Incorporate video of program/workshop with families (13%)

- Video of an actual workshop with a group of girls or parents (even if it is acted) might be easier to understand...
- Maybe some dramatizations or other visual aid to help emphasize the points and lessons made by the training?
- What I mentioned above about bilingual examples and seeing is there’s a way to put these training videos on a CD for participants who don’t have access to internet services.
- Wish we could have gone more in depth with videos of folks taking a/multiple bilingual approaches during a workshop.

Wider selection of activities (13%)

- Any of the engineering activities are always very popular, and we feel they could have been covered more fully.
- I would have liked to see more of the different science activities done.
- More on-hands activities would be nice, and videos too.
- Also, it would be nice to see more activities done.

Table 16
Suggestions for improving the training

<table>
<thead>
<tr>
<th>Add in....</th>
<th>(n=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-person training component</td>
<td>13%</td>
</tr>
<tr>
<td>Training videos featuring workshops of families working with girls on activities</td>
<td>13%</td>
</tr>
<tr>
<td>Wider selection of activities</td>
<td>13%</td>
</tr>
<tr>
<td>More information on running a bilingual program</td>
<td>10%</td>
</tr>
<tr>
<td>More training in Spanish for Spanish speakers</td>
<td>7%</td>
</tr>
<tr>
<td>More information on engaging Hispanic families</td>
<td>7%</td>
</tr>
<tr>
<td>More live chat opportunities</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>20%</td>
</tr>
</tbody>
</table>
More information on running bilingual program (10%)
› What I mentioned above about bilingual examples and seeing is there’s a way to put these training videos on a CD for participants who don’t have access to internet services.
› I would like more information about how to efficiently and effectively run a bilingual program.
› I wish we could have gone more in depth with taking multiple bilingual approaches during a workshop.

Provide training in Spanish for Spanish speakers (7%)
› I think not enough was done in Spanish for Spanish speakers. If we are targeting Familias, a lot more should be done to create a sense of comfort for participants.
› I think is important to include Spanish Language during and in the training.

More information on engaging Hispanic families (7%)
› I would like more information about how to engage Hispanic families a
› I wish there was more information about how to get families engaged and involved, especially on a consistent basis (weekly)

More web chatting opportunities (7%)
› I believe it would be good plan with the participants of the training before having the live web chats, because unfortunately I was not able to participate in those.
› I would say maybe have a few more opportunities for chats? But overall it was wonderful

Other (20%)
› Have a different program for administrators.
› Make sure expectations of the training are clear.
› Being conscious of the commitment that is required during the training would be very helpful.
› The only thing I could think about is the timing. The deadline should be late September when all staff is hired.
› Using a single type of communication for the webinar.
› Please include parents in the future.
2.7 Expectations for SciGirls en Familia projects

After grantees completed the SciGirls en Familia training, they were asked to look ahead to the planning and implementation of their projects by rating their level of agreement with a series of statements using a scale of 1 (strongly disagree) to 7 (strongly agree), with 4 being neutral. As indicated by the median ratings in Table 17 below, the grantees generally agreed to strongly agreed (6.5) that the SciGirls en Familia project would get families in their community excited about science. They generally agreed (6.0) that they felt well prepared to begin implementing their SciGirls en Familia projects and somewhat agreed (5.0) that they expected to need little assistance from TPT once the SciGirls en Familia project was underway. Overall the grantee group was neutral (4.0) as to whether the Ning site should be moderated by SciGirls en Familia staff for more than 2 weeks and whether TPT was expecting too much from the organization’s SciGirls en Familia project.

<table>
<thead>
<tr>
<th>Level of agreement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Neutral</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think our SciGirls en Familia project will get families in my community excited about science</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I feel well prepared to begin implementing our SciGirls en Familia project</td>
<td>6.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I expect to need little assistance from TPT once our SciGirls en Familia project is underway</td>
<td>6.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I’m concerned that TPT is expecting too much from my organization’s SciGirls en Familia project</td>
<td>5.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The few staff who chose to elaborate on their ratings either expressed a level of disappointment about the training’s lack of discussion about the challenges involved in engaging family participation or they felt the training could have been improved with more advanced planning and communication of expectations, as follows:

› My concerns are anchored in the fact that the expectations of program completion prior to the start of our programs in our cities where not clear from the beginning. I find that items such as online trainings, expectations and requirements should have been communicated during the application phase in order to avoid confusion of what is or is not expected. I know that personally, I have received information in a delayed time frame. Also, had these requirement and time lines been more clear from the beginning, I think programs across the country could have insured an increased participation during the training. I was very surprised by the LACK of participation from other awarded programs- but then again, I feel this is directly tied to the limited “heads-up” we got for such deadlines/expectations.

› Again, I was a little disappointed in that there was not enough discussion about the challenges faced in getting families to participate in SciGirls. I live in [a state], where there is already enough tension related to immigration issues, and education that that I believe will make it that much harder for us to get families involved. I wish there was more information on how SciGirls en Familia is culturally relevant.
Part 3: Project implementation and impacts

3.1 Audiences served by grantee projects

3.1a Student audiences

**Total number served**
The 10 SciGirls en Familia grantee programs collectively served a total of 546 students. When looked at by program type as shown in Table 19: 274 of these students were served by the three science center programs, 184 by the four school-based/after-school programs, and 88 by the three girls-focused programs.

**Average number served**
As Table 18 shows, on average, 55 students were served per program, although the numbers served at each program ranged considerably, from a low of 15 at a girls-focused program to a high of 199 at a science center program. On average, the number of students served was highest at the science center programs (mean = 91), followed by the school/after-school programs (mean = 46), and then the girls-focused programs (mean = 29).

3.1b Family audiences

**Total number served**
As Table 19 shows, the ten SciGirls en Familia grantee programs collectively served a total of 1091 family members. When looked at by program type: 845 of these family members were served by the three science center programs, 223 by the four school-based/after-school programs, and 23 by the three girls-focused programs.

**Average number served**
As Table 18 shows, on average, 109 family members were served per program, although the numbers served at each program ranged considerably, from a low of 0 at a girls-focused program to a high of 623 at a science center program. On average, the number of family members served was highest at the science center programs (mean = 281), followed by the school/after-school programs (mean = 56), and then the girls-focused programs (mean = 8).
3.1c Proportion of Hispanic participants

Grantees indicated that most of their participants were of Hispanic Origin. Individual programs reporting a range of 88% to 98%, with some providing additional details in terms of country of origin, SES, and immigration status as follows:

- Predominantly Latino population (93.9%) 66.7% Mexican, 26.2% Puerto Rican
- 90% Hispanics. Populations of below 10,000 people, annual incomes of less than $25,000., 50% of population with no high school diploma, and 50% of families have children younger than 18 years.
- 91% Hispanic/Latino, over 91% of students at these schools receive free or reduced meals and 19-44% of these are enrolled in a transitional bilingual program
- 100% Latino. Family incomes below poverty line
- Predominantly Spanish speaking lower-income schools. Almost all girls were Hispanic & in the 4th or 5th grade
- The majority of participants are from immigrant families who have recently arrived from Mexico, Central & South America, the Dominican Republic and Puerto Rico

3.2 Recruiting strategies for engaging students and families

While most of the grantees recruited participants using several different methods, the majority (n=7) recruited through local schools using flyers, attending school assemblies, and enlisting the help of teachers to identify potential participants. As Table 20 shows, a few of the grantee organizations (n=3) recruited participants through after school programs. A few grantees (n=3) worked through private contacts with deep ties to the Latino community such as church leaders, other community leaders, or professionals associated with agencies such as the Hispanic and American Chamber of Commerce or The County Office of Education.

A few other grantees (n=3) focused on community outreach directed both broadly, such as by distributing flyers at Latino grocery stores and health fairs, and through more targeted programs such as the Mother-Daughter Health and Communication strategies workshop. A couple of grantees (n=2) recruited participants through past SciGirls workshops and one grantee reported posting information on the grantee organization’s website both in English and Spanish.

Examples of how grantees described their recruitment process follow:

**Local schools**
- We worked closely with the two elementary schools to recruit girls & parents. Both…elementary schools…allowed us to attend a "parent cafecito" to educate the parents on the SciGirls program. To directly recruit girls, we also tried to connect with them during school programming. We went to school assemblies and talked about the program as well as demonstrated STEM experiments.

<table>
<thead>
<tr>
<th>Table 20</th>
<th>Main ways grantee organizations recruited participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grantee organizations (n=10)</td>
</tr>
<tr>
<td>Local schools</td>
<td>7</td>
</tr>
<tr>
<td>After-school programs</td>
<td>3</td>
</tr>
<tr>
<td>General community outreach</td>
<td>3</td>
</tr>
<tr>
<td>Personal contacts/community leaders/stakeholder</td>
<td>3</td>
</tr>
<tr>
<td>Past SciGirls participants</td>
<td>2</td>
</tr>
<tr>
<td>Website</td>
<td>1</td>
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</table>
We were able to recruit these girls through our 15 year track record of successful neighborhood programming and close ties we have with neighborhood schools. School staff often sends newly arrived immigrant youth our way because we are able to assist them in the transition process of getting acclimated.

We recruited girls from Spanish-speaking households by contacting our local…public schools, which are walking distance from the museum. Flyers, in both English and Spanish, were given to the school’s parent teacher coordinators…we have a longstanding connection with many schools, teachers, principals & traditionally underrepresented students in the region. We offered our program as a no cost after school four-workshop series for families to three different middle schools.

To recruit new families, we recruited classroom teachers as allies to promote the program within their classroom. We also participated in school wide events where we tabled for recruitment purposes.

After school programs
- Recruited girls from the after-school program. The program serves about 85% Spanish speaking families
- We recruited the girls and their families through invitation letters that were written both in Spanish and English and sent out to all girls in our after-school program grades fourth through eighth. The students were invited to participate in an orientation meeting so they could learn about the program’s goals, objectives and activities. The students were selected on a first come first served basis.

Personal contacts/stakeholders
- We used….personal outreach and parent to parent and girl to girl outreach approaches.
- …private contacts,
- collaborated with….Regional Coordinator. His work in the Colonia areas of the border provided many contacts with the audience we sought
- community and church leaders….

Community outreach
- Community outreach, flyers/notices to schools, Hispanic/English Chambers, service clubs, public speaking….
- For workshop #1….extensive recruitment, including at….Latino grocery stores,…Latino health fair, ESL class, organizations that serve the Latino community. We also recruited at an event scheduled by the Guatemalan consulate that attracted 500 Latinos. We offered enticements such as free dinner, transportation and childcare and held the workshops at a community center that serves the Latino community. For workshop #2: Our Latina Bilingual Parent Liaison contacted families who had attended our Mother-Daughter Health and Communication strategies workshops…. The Liaison visited families in their homes to inform them about the camp, the generous scholarship funding from SciGirls and the curriculum.

Past SciGirls participants
- Surveyed the 2009 program participants & their families to identify interest within the group for the 2010 SciGirls en Familia program. Those families that expressed interest were invited to participate this year via direct bilingual mailings.
- She also contacted families whose daughters had participated in SciGirls camp programming and workshops. The Liaison visited families in their homes to inform them about the camp, the generous scholarship funding from SciGirls and the curriculum.

Website:
- We also posted SciGirls information on our website in both English and Spanish.
3.3 Recruiting successes and challenges

3.3a Successes

The staff from 8 of the 10 grantee organizations indicated that that their chosen recruitment strategies were successful as they met their expected participation goals. They described their successes as follows:

- 100% of classes filled
- Very successful
- Our recruitment was very successful; about 90% of all the girls invited responded. In making our final pick of girls and their families we looked at various elements such as: prompt response, family involvement, and their overall participation in our afterschool program.
- Had a retention rate of 88.2%
- It was very successful. Our goal was to have 10 girls on both Saturdays and Sundays, plus their families. We were able to reach our goal.
- Originally, judging from the workshop activities, we set the maximum attendance numbers to 10 students and 10 parents per workshop. We later changed this limit per teacher requests and expanded the workshops to include 20 students and 20 parents each. Interestingly, attendance numbers reflected the original intent: We had an average of 18 participants per workshop. Out of 480 possible, we had 223 people attend.

3.3b Challenges

Meanwhile, staff from two organizations reported difficulties in meeting some of their recruitment goals. Staff from one organization reported success in recruiting student participants but challenges in recruiting family members to participate in their workshops. Staff from another organization indicated that despite performing extensive recruitment efforts, their organization did not yield the expected number of participants anticipated for one of their key workshops. The staff subsequently learned that parents of potential participants were intimidated by the workshops’ focus on science and were able to make adjustments in time for their second workshop. The staffs’ descriptions of the challenges they faced in their recruitment strategies follow below.

- We had no problem with girl’s attendance, but we had trouble engaging their family members. We did not have any family participation during the meetings.
- Workshop #1: We were disappointed that our extensive recruitment efforts did not yield more participants. We subsequently learned that parents were very intimidated by the workshops because the focused on science. For most Guatemalans in [our region], their education ended at the first grade…. …Workshop #2: The Liaison was very successful in recruiting families. In fact, many of the families had friends that wanted to sign their daughters up but we only had funding for eight girls. The availability of transportation was also critical in recruiting families. Parents with younger daughters now want to sign up their kids for other Girls Inc. break camps.
3.4 Key benefits of bilingual resources

When asked to describe the key benefits of the bilingual resources that were afforded to them through SciGirls en Familia, four-fifths of the staff pointed to impacts on the students and their family members that directly participated in their projects, while nearly one-third pointed to benefits for their own staff members, as listed in Table 21 and detailed further below.

### 3.4a Student and family benefits

In the case of students, the staff explained that the bilingual resources enabled them to feel more comfortable in a bilingual environment and allowed them to strengthen their second language skills, as in:

- Resources enabled our students to explore STEM and participate in activities in the language that they felt most comfortable in. In our sessions, we switched on and off from Spanish to English which allowed students who were not very dominant in one language to acquire skills in their second language.
- SciGirls benefitted from the bilingual resources by allowing the girls a space where they could participate openly in a bilingual environment….the girls were able to feel more comfortable with us from the start and be more themselves.

The bilingual materials provided a comfortable atmosphere for participants but also, their family members who were more reticent in participating. Family members, according to the staff, benefitted from the bilingual resources by allowing them to follow along with the workshops and learn STEM terms, as many of the family members spoke Spanish almost exclusively or were not currently fluent in English, as in:

- Our project would not have had such a strong impact without the ability to bring in bilingual materials. About half of the adults in our workshop were Latino immigrants to the US with some knowledge of English who were still working on fluency. About a third of these spoke Spanish almost exclusively. Without bilingual resources, we would have risked alienating these participants rather than creating an atmosphere of inclusion, engagement, fun & discovery
- The SciGirls en Familia bilingual resources benefited the program enormously. It provided a great opportunity to engage the families with their kids by offering educational resources in Spanish and English. These resources also provided the families with accessible STEM activities in order to get them engaged in hands on science in a fun and motivational way, and easy to do at home with the entire family. In addition, these educational Spanish-language materials provided parents guidance about science careers so they can be able to continue motivating their daughters to get related in careers in science in the future. The bilingual resources made it easy for us to provide the families with opportunities to participate in trips along with their kids and in outdoor activities.

### 3.4b Staff members

In the case of staff members, the staff felt that the bilingual resources allowed them to better understand the content of the workshops and then apply it accordingly, as in:

- We used these bilingual resources to develop three bilingual workshops that included both activities from the SciGirls guide and from our own in-house collection of activities. It was extremely helpful to have the science terminology in Spanish, which was something we struggled with.
- It was beneficial for the staff and participants because they were able to fully understand the content of the lessons

<table>
<thead>
<tr>
<th>Table 21: Benefits of bilingual resources (n=30)</th>
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<tbody>
<tr>
<td>Students – more comfortable, strengthened language</td>
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<tr>
<td>Family members – could follow along, learn STEM terms</td>
</tr>
<tr>
<td>Staff – improved understanding of science content/terms</td>
</tr>
</tbody>
</table>
3.5 When and how Spanish language materials were used

When asked to describe when and how they used the Spanish language versions of the SciGirls print and video materials, most grantee staff indicated their organizations used them throughout their workshops, while a few used them for staff training and/or for families to borrow as listed in Table 22 and detailed below.

**Resources used throughout each session (n=8)**

All but two of the grantee organizations used the Spanish language resources throughout their program sessions. The print materials were typically made available for the participants to read aloud in English and Spanish. In terms of using the video resources, while access to a DVD player/TV was a challenge for at least one grantee, others indicated consistent use of the videos, particularly at the end of each workshop session. A sampling of grantees’ explanations for how they used the print and video resources follows.

- We used the print material more often than video resources as we did not always have access to a TV/DVD player. When distributing the handouts, we would have the girls read aloud in both English & Spanish. This gave them a better understanding of the procedures involved in activities. The DVD were used to help demonstrate more complicated activities.
- Resources were used at every session, twice a week as our opening activity.
- Resources were useful in effectively running the program. The girls enjoyed using the Spanish language versions of the hand-outs and would read them over & over again & share them with their parents.
- The Spanish-language versions of the SciGirls resources were used during all our sessions. It was essential to have the Spanish-language materials for our Hispanic/Latino families that didn’t speak English, which made the translated materials a must.
- Materials were used for every single workshop except two, in which all attendees spoke English fluently. Also, at the end of all events we played the relevant DVD episode in both languages.
- The Spanish-language versions of the SciGirls videos were available for watching at the end of each of the three sessions. Each session ended with a video of one of the SciGirls episodes or one of the SciGirls scientists. We asked the participants to vote if they preferred to watch the video in English or Spanish. In some cases, they preferred to watch the video in English and were given the option to borrow the DVD to watch it at home in Spanish.

**Resources used for staff training (n=3)**

Three of the grantee organizations used the resources to train staff members, to give them a better understanding of scientific Spanish terminology or to model the inquiry process to be used with participants.

- Resources were used for recruitment/teacher training. By request, the class elected to speak English during class but wanted to improve communication skills.
- Resources were very useful in the preparation of staff to implement this outreach program. Resources were used for staff training to model how to develop the inquiry process for girls, a refresher for our SciGirls en Español staff and for other. The bilingual materials also gave staff the background in science Spanish vocabulary. While originally we had planned to show some of the video material during each program, the logistics and risks of leaving unattended laptops playing videos while staff focused on

<table>
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<th>Table 22</th>
<th>When and how Spanish language materials were used</th>
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<tbody>
<tr>
<td></td>
<td>Grantee organizations (n=10)</td>
</tr>
<tr>
<td>Used throughout sessions</td>
<td>8</td>
</tr>
<tr>
<td>Staff training</td>
<td>3</td>
</tr>
<tr>
<td>Made available for family members to borrow</td>
<td>3</td>
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</tbody>
</table>
delivering programming proved too complicated to implement this part of the plan. The bilingual materials also became important to a Girl Scouts program we developed and initiated this year.

- Resources were used before the staff conducted the lessons. It was useful because the staff were able to translate the lessons better and use the proper terminology in Spanish. The print was used for the families and girls that were English language learners. For family members who were able to attend meetings, we gave copies of the DVD for them to take home.

Resources made available for family members to borrow (n=3)
Three grantee organizations made the resources available to family members to view or to take home, as in.

- For family members who were able to attend meetings, we gave copies of the DVD for them to take home.
- The Spanish-language versions of the SciGirls videos were available for watching at the end of each of the three sessions. Each session ended with a video of one of the SciGirls episodes or one of the SciGirls scientists. We asked the participants to vote if they preferred to watch the videos in English or Spanish. In some cases, they preferred to watch the video in English and were given the option to borrow the DVD to watch it at home in Spanish.
- Resources were also placed in the library and were made available to students for checkout.
3.6 Main benefits of grant funds

In reporting on their projects, the grantee staff consistently reported that the SciGirls en Familia funding provided benefits in three key areas, including: recruiting and sustaining family members, professional development training and planning, and student/family field trips, as listed in Table 23 and detailed further below.

Recruiting and sustaining family members (n=10)
All of the grantee organizations used the funds to help them recruit, connect with, and sustain the involvement of families targeted by their projects, as in:

- The resources provided by this grant were necessary to extend our outreach program to some of the neediest audiences in our community.
- The SciGirls en Familia funding secured a project that would otherwise not have been covered by the institution. We were able to connect with and provide families from our local community with rich, hands-on, science experiences. It was a great way to introduce these families to [our institution] and activities they could participate in throughout the year.
- Without funding, we wouldn't have been able to offer the programming which really got girls and their families excited about science… Interaction with the Latina community requires dedicated funding for relationship building and for transportation. In July, we were able to increase our Latina outreach from one girl who participated in June to nine girls.

Professional development training for staff (n=7)
Staff from 7 of the 10 organizations pointed to the importance of the grants for conducting professional development training with their staff and volunteers. Coupled with the educational and training resources provided by TPT, the staff indicated that the grant funds provided them with a solid foundation to develop curricula, plan workshops, engage their local communities and grow professionally.

- The professional development trainings allowed for our staff and volunteers to expand their resources, contact and become a part of a community where ideas were constantly exchanged and shared
- It was necessary for the staff to participate in the professional development training because it gave them the opportunity to prepare themselves in order to get the necessary tools and knowledge to teach the lessons to the students. They felt more confident to plan and develop the curriculum activities and to work as a team to develop a more structured program… They had the opportunity to participate in mandatory webinars, conference calls and get connected online with different sites which provided them with ideas and additional support in the lesson planning. We allocated money to pay for the planning meetings, trainings and lesson planning for the leaders. The fact that we used a percentage of the funding to pay salaries allowed the staff to be fully invested in the program contributing to the successful implementation of program requirements.

Fieldtrips (n=3)
Three grantee organizations indicated that the funding was also important for enabling participants to partake in fieldtrips that help extend student and family learning from their projects, as in: The SciGirls en Familia funding helped to provide the activities and trips that were a part of getting the girls and their families excited about science.

Table 23
Main benefits of grant funds

<table>
<thead>
<tr>
<th></th>
<th>Grantee organizations (n=10)</th>
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<tbody>
<tr>
<td>Recruiting and sustaining family members</td>
<td>10</td>
</tr>
<tr>
<td>Professional development training/planning</td>
<td>7</td>
</tr>
<tr>
<td>Student/family field trips</td>
<td>3</td>
</tr>
</tbody>
</table>

Knight Williams, Inc.
3.7 How uncovered grant costs were addressed

All ten grantee organizations received approximately $7500. All but one of the organizations incurred costs that were not covered by the SciGirls en Familia grant, such as staff salaries, project space, and transportation. The amount of the costs that grantees incurred ranged from a low of $25 to a high of nearly $39,000. Most often though the amounts ranged between $3000 and $6000, as follows: $3000, $5400, $8100, $4000, $6000.

The staff indicated that these overages were usually covered by grants, general operating funds, and/or funding from other programs or fundraising, such as the sale of Girl Scout cookies, as none of the participants in their programs paid to participate.

Staffs’ descriptions of the costs that were covered by the grant included:

- All project expenses were covered
- SciGirls funding provided all the materials and resources needed to carry out the program. Budget report reflects less than 1% of expenses exceeding budget.
- We didn’t have any funding issues that weren’t covered by the SciGirls funding

Staffs’ descriptions of the costs that were not covered by the grant included:

- Transportation for girls from cities within the county outside of the city the center is in, and transportation to the Wetlands.
- The grant covered more than half of the project expenses.
- The grant did not cover most of the staff salaries.
- Rent for project space, staff benefits or materials.
- Travel costs (vehicle, maintenance, gas) and staff time
- [Institution] admissions and one-year family memberships were provided to the participants.
- Both: Supervisor and administrative support, as well as data collection and space usage, were not covered by the SciGirls grant.

Staffs’ descriptions of the various ways that they covered these costs included:

- A $1000.00 grant from Hunter Farms
- Covered by the museum operating budget
- The remaining necessary funds were covered through partial funding from other grants and the proceeds from the sale of Girl Scout cookies
- Funding provided by OST, Hunter/FUSE grants
- Funding from the City of NY Dept. of Youth & Community Development and organizational/general operating funds allocated to this program.
- Acceso a la Ciencia grant money covered these expenses through support from the National Science Foundation.
- The cost was covered by the institution
- These expenses were covered by our general operating income and our United Way income
3.8 Methods used to evaluate projects

The grantee staff evaluated their projects through one of four methods: surveys/written evaluations, discussion/debriefing/ focus group sessions, demonstration activities, and/or staff reflections. These methods are listed in Table 24 in order of descending frequency and described in greater detail below.

<table>
<thead>
<tr>
<th>Surveys (n=5)</th>
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<tbody>
<tr>
<td>Half of the grantee organizations used surveys or written evaluations to gauge impact. In two cases, grantees asked participants to complete both a pre-program survey to identify their initial impressions about STEM or prior involvement in science activities, and then a post-program survey based on the same set of questions. The grantees then compared answers to help them gauge whether their programs were having an impact as intended. The other three grantee programs were evaluated by asking participants to complete surveys or other less formal written evaluations at the conclusion of the programs. Examples of how individual grantees gauged impact through surveys or evaluations follows:</td>
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- Before the start of the program, we created a pre-test survey about STEM. At the first meeting, we had girls take this survey in order to determine their initial thoughts/feelings about STEM. At the end of the program year, we then had the girls fill out the same survey in order to see if their thoughts/feelings had shifted over the course of the program. We also gauged our impact through our interactions with the girls and measuring girls’ attendance, indicating their desire to be present at SciGirls and take part in the program.
- Our applications included a question about how often their children participate in science activities, and how often they participate in science activities as a family. From the applications we learned that a majority of the families participated in science activities together once a year or less. On the last day of the program we asked the families again, how often they participate in science activities. Since the program occurred once a month, the majority of families responded once a month. A few months later we asked a subset of families to come back and share their thoughts on the program with us.
- To measure outcomes, we conducted post workshop evaluations at all but two events.
- Workshop #1: We used evaluations and participant comments to gauge the impact of the program. Workshop #2: We used end of camp evaluations filled out by the girls and participant comments to gauge the impact of the program. Our Liaison will be meeting with the Latina parents to write down their answers to the evaluation questions since the parents are illiterate even in their first language. The girls did fill out the evaluations without assistance.
- We used end of camp evaluations filled out by the girls and participant comments to gauge the impact of the program. Our Liaison will be meeting with the Latina parents to write down their answers to the evaluation questions since the parents are illiterate even in their first language. The girls did fill out the evaluations without assistance.

<table>
<thead>
<tr>
<th>Table 24</th>
<th>How grantees evaluated their projects</th>
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<tbody>
<tr>
<td>Grantee organizations (n=10)</td>
<td></td>
</tr>
<tr>
<td>Surveys/written evaluations</td>
<td>5</td>
</tr>
<tr>
<td>Discussions/debriefs/focus groups</td>
<td>3</td>
</tr>
<tr>
<td>Demonstration of learning from programs in other activities</td>
<td>2</td>
</tr>
<tr>
<td>Staff reflections</td>
<td>1</td>
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</table>
**Discussion/debriefs/focus groups (n=3)**
A few grantee organizations used post-workshop discussions, debriefing sessions, and/or focus group sessions as their means to gauge the impact of their programs. A couple of these grantee organizations also used written survey methods, as described above. Examples of how individual grantees gauged impact through discussions/debriefing/focus group sessions follows:

- We informally gauged the impact of this program with informal question and answer period with several of the mothers at each site. Conversations led to discussions about the opportunities for girls to study science.
- We developed focus groups whereby our parents discussed their connection to nature and expressed their interest for their kids to get more connected to nature and science.
- ... A few months later we asked a subset of families to come back and share their thoughts on the program with us.

**Activity-based demonstrations of learning (n=2)**
A couple of grantee organizations gauged impact by asking participants to demonstrate what they learned through a different activity that builds on learning addressed by *SciGirls en Familia*. In one case a grantee organization organized a science fair in which participants based their projects on the *SciGirls* experiments they performed during the workshops. Another grantee developed a system of SciPoints that were awarded to the participants with the highest participation during those weeks' sessions and winners were featured in a monthly newsletter. Examples of how individual grantees gauged impact through participant demonstration follows:

- To gauge the participant's understanding of concepts and family involvement, we created SciPoints. Participants earned SciPoints by completing homework assignments, participating in sessions and by getting their parents involved. At the end of the week, the student with the most SciPoints was named SciGirl of the week and was featured in our monthly *Científicas* newsletter which was distributed to the community. In addition to homework assignments, we gauged participants understanding of concepts with a final project/showcase. For their final project program participants had to create a PowerPoint presentation that display what they learned throughout the program
- The class working in teams organized a museum Science Fair presenting their experiments to the public. Oral/poster presentations were used to explain, bilingually as needed, their projects/research conclusions. Teams were using scientific terms/principles/methods.

**Staff reflections**
Finally, one organization relied on staff reflections to notice evidence of impact and did not incorporate the use of any of the above methods.
3.7 Reported impacts of grantee projects

The staff from the 10 grantee organizations collectively pointed to 16 different project impacts. As shown in Tables 25 and 26, 10 of these related to the students served by their SciGirls en Familia projects, and six related to the families that were served. The following section provides examples of the kinds of student and family impacts that the staff reported and how they characterized these impacts.

3.7a Student impacts

As shown in Table 25 and detailed below, the most frequently reported student impacts were: increased STEM knowledge and interest; increased interest in STEM careers; enjoyed collaborating/doing activities with family; increased confidence in conducting experiments/using scientific process; increased inquisitiveness/curiosity/questioning; and increased understanding of the personal relevance of STEM.

<table>
<thead>
<tr>
<th>Increased STEM Knowledge and interest (n=9)</th>
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<tr>
<td>Almost all of the grantee organizations reported that their students increased their knowledge of and interest in STEM as a result of participating in their grantee project. As three staff reflected:</td>
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<tr>
<td>✷ Out of the 179 participants that filled out evaluations, all participants mentioned new concepts they had learned and 19% of these noted specific science or math concepts</td>
</tr>
<tr>
<td>✷ The girls enjoyed engaging in the experiments and demonstrated an increased knowledge of and interest in STEM.</td>
</tr>
<tr>
<td>✷ We also gauged our impact through our interactions with the girls and measuring girls’ attendance. Once the program started, most girls had continual attendance, indicating their desire to be present at SciGirls and take part in the program. As for the impact of SciGirls on girls and their families, girls continued to show enthusiasm for all things science. They also continued to express how surprised they were that science could be so fun.</td>
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</table>

| Table 25 |
| Reported student impacts |
| Grantee organizations (n=10) |
| Increased STEM knowledge | 9 |
| Increased STEM interest | 9 |
| Increased interest in STEM careers | 6 |
| Enjoyed collaborating/doing activities with family | 6 |
| Increased confidence in conducting experiments/using scientific process | 5 |
| Increased inquisitiveness/curiosity/questioning | 3 |
| Increased understanding of personal relevance of STEM | 3 |
| Competed/placed at a science fair | 1 |
| Led activities with their families at home | 1 |
| Increased ability to communicate about science | 1 |
| Expanded connection to local community | 1 |

5 It is possible that each grantee project resulted in additional impacts to those listed here. What this section highlights is the impacts that the staff from each organization specifically reported on their accord.
Increased interest in STEM careers (n=6)
More than half the grantees reported that their students demonstrated an increased interest in STEM careers, as in:

- The impact that these two weeks had on the Latina girls was priceless. Several girls were not certain about their careers paths, but by the end of the seventh week they began to show interest in medical and culinary careers. Their confidence grew week after week as they conducted experiments, toured a local TV station, visited the Planetarium at Chattanooga State, explored fractions and food, and competed in a Math Munchers relay. ... The girls were thrilled to be young scientists, chemists, engineers, and computer gamers. Many of them became interested in medical and culinary careers. They also wished that these activities could be taught at their schools.

Enjoyed collaborating/doing activities with family (n=6)
More than half the grantees indicated they enjoyed collaborating/doing activities with their families, as in:

- 83% responded that they enjoyed doing these activities with family members and 61% indicated enjoyment of the activities.
- The fact that the program was intergenerational allowed the children to engage in educational science related activities with their parents and siblings, allowing for a connection not present prior to the program.

Increased confidence in conducting experiments/using scientific process (n=5)
Roughly half of the grantees reported increased confidence in conducting experiments/using scientific process, as in:

- 100% of our participants reported increased confidence in science related activities. Research conducted by the TASC Research team indicates that The CHCF after-school program at PS/MS 279 is one of 4 “quality distinguished sites”. The findings were pretty compelling in showing that students at high quality sites like ours reported higher motivation, confidence, and knowledge about science than other sites that were not deemed “high quality”.
- The girls started off not being too fond of science but by the end they were extremely interested and felt very confident and most even mentioned wanting to become scientist. They were previously not aware of the different science careers. The staff who are also Latinas and from the community also learned a lot and were very enthusiastic about teaching the lessons.

Increased inquisitiveness/curiosity/questioning (n=3)
A few grantees reported that their students demonstrated increased inquisitiveness, curiosity, or propensity to ask questions, as in:

- As the sessions progressed, the girls started engaging more in the experiments and asking inquisitive questions. They were excited when they would learn something new.
- The SciGirls en Familia Program definitely had a meaningful impact on the girls who participated as well as their families. The SciGirls program allowed girls to explore STEM topics in a fun all-girls environment. Because of this informal setting, girls were able to have more of a hands-on learning experience and felt more comfortable asking questions.
Increased understanding of STEM personal relevance (n=3)
A few grantees reported that their students had an increased understanding of how STEM related to them personally, as in:

- During the second program at each site, more time was spent with discussions about nutrition and eating habits of children. The anchor activity at the second event of creating a healthy snack led to rich discussions not only with parents questioning their own nutrition choices, but with young adults who were truly curious about calories and nutritional content. …The prevalence of diabetes in the community became a topic of discussion, common in the Hispanic population and borne out by the anecdotal stories of the parents we spoke with. Parents expressed their concern with the eating habits of their children, and the cost of food was identified as a factor.
- In addition, through the project girls were able to see how STEM subjects apply to everyday occurrences and processes. This, in turn, made STEM much more relatable to the girls’ current lives and what they might do in the future. Lastly, the project enhanced the ability of their families to support girls’ continued STEM engagement.

Other (n=1 each)
Individual organizations pointed to additional outcomes such as their students: placed at a science fair, led activities with their families at home; demonstrated an increased ability to communicate about science; and expanded their connection to their local community. The staff described these impacts as follows:

- Led activities with their families at home: The Latina girls were given the opportunity to create their own inventions, design and name a planet, and serenade their families through drinking straws. The activities were very impactful and many of the girls are now interested in learning and teaching their families about STEM related activities that can be conducted in their own homes.

- Increased ability to communicate science: According to pre/posttest class survey the materials were a challenge that helped the students to understand/communicate science.

- Completed/placed at a science fair: All of the SciGirls participants successfully completed in our school annual science fair of which 17% placed in first, second, or third place.

- Learned about parents: I feel their daughters learned a lot about their parents during these activities. It also made the girls happy to have their parents supporting them.

- Expanded connection to local community: The girls were able to expand their connection beyond the family to the school and their surrounding community. One example is the “Making the Ultimate Lip-gloss Lesson”. Through this activity the girls conducted data collection with students, teachers, parents, sibling and peers. This allowed other girls and teachers not participating in our program to become interested in our project.
3.7b Family impacts

As shown in Table 26 and detailed below, the grantees most frequently reported their family impacts to be: increased parent/guardian: excitement/pride in their daughters’ accomplishments; support of their daughters’ continued STEM engagement; family discussions about STEM; interest/willingness to conduct STEM activities at home; and STEM knowledge.

**Parent excitement/pride in daughters’ accomplishments (n=8)**
Almost all of the grantees reported that the parents/guardians that participated in their projects exhibited excitement/pride for their daughters’ accomplishments through the SciGirls en Familia project. For example:

- The parents also participated with their daughters and they also were very excited and enjoyed the activities. It was great to watch the interaction with the girls and their parents. They were happy that the material was in Spanish so they were able to fully understand the lessons. It isn’t often that the parents get this opportunity to participate with their daughters in this setting…
- At the end of the camp, all of the girls participated in an hour long presentation that showcased what they learned during camp including about the planetary system. The Latina girls did their presentations in English and Spanish. Family members beamed with pride at their children, grandchildren and nieces.

**Increased support of their daughters’ continued STEM engagement (n=5)**
Half of the grantees pointed to parents/guardians indicating increased motivation and skills to support their daughters’ continued STEM engagement, as in:

- Conversations led to discussions about the opportunities for girls to study science. Parents were very supportive of the children, and of their girls in particular, continuing to pursue educational opportunities and none of the stereotypical hesitation to send girls into traditionally male-dominated fields was seen. One mother with three older girls was particularly proud that her girls were so confident in the sciences and that two had expressed interest in pursuing veterinary degrees.
- Parents were very supportive of the children, and of their girls in particular, continuing to pursue educational opportunities and none of the stereotypical hesitation to send girls into traditionally male-dominated fields was seen.
- Some parents expressed becoming better role models as a result of their participation in SciGirls because the hands on activities allow the family to interact and learn together.
- The project enhanced the ability of their families to support and continue the engagement of the girls into STEM fields. Our Latina/Hispanic girls and families showed tremendous interest and engaged in the program given that the curriculum was inclusive of their primary language and thus, they felt connected to the content.

<table>
<thead>
<tr>
<th>Table 26</th>
<th>Reported family impacts</th>
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<tbody>
<tr>
<td><strong>Increased...</strong></td>
<td><strong>Grantee organizations (n=10)</strong></td>
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<tr>
<td>Parent excitement/pride in daughters’ accomplishments</td>
<td>8</td>
</tr>
<tr>
<td>Support of their daughters’ continued STEM engagement</td>
<td>5</td>
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<tr>
<td>Family discussions about STEM</td>
<td>4</td>
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<tr>
<td>Interest/willingness to conduct STEM activities at home</td>
<td>4</td>
</tr>
<tr>
<td>Knowledge of STEM</td>
<td>4</td>
</tr>
<tr>
<td>Comfort with institution as place to visit</td>
<td>1</td>
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</table>
Increased STEM family discussion and activities at home (n=4 each)
Just under half the grantees pointed to the families indicating they had increased discussions about STEM at home (n=4) and an increased interest in/willingness to conduct STEM activities at home, as follows:

- Increased family discussions about STEM: After the program, families saw just how excited the girls were about the program and their desire to talk about what they had done. Many shared that because of their girls’ enthusiasm for the SciGirls program, they would continue to support their exploration of STEM both in school and in outside activities.

- Increased interest/willingness to conduct STEM activities at home: More importantly, the parents were happy to see their girls doing hands on experiments. The girls’ mothers who participated in several of the Sci Girls events showed a willingness to engage in similar science based crafting activities at home, and the [organization] has encouraged them to do so, offering ideas and extra materials.

Increased STEM knowledge (n=4)
Four grantees reported that their participant parents/guardian demonstrated an increase in STEM knowledge, as in: The use of their primary language allowed for accurate understanding of STEM terminology, engaging fully in inquiry and critical thinking activities and content analysis.

Increased comfort with institution as place to visit (n=1)
One grantee further pointed to increased parent/guardian comfort with their institution as place to visit, as in: We also wanted them to become familiar with [institution] and see this as a place where they could visit.
Part 4: Mini case study findings

The following 3 mini case studies allowed for a more in-depth look at the workings of a few individual projects, and in particular the role of families and bilingual resources. These three projects also provide insight into the three program types funded through the grantee program as each represents: a science center/museum project, an after-school project, and girl-focused project.

Case 1: Acceso a la Ciencia Collaborative Project
Yakima Valley/Tri Cities Math, Engineering, Science and Technology Achievement

Background

Based in Richland, Washington, Washington State University’s Yakima valley/Tri Cities Math, Engineering, Science, and Technology Achievement (YVTC MESA) program has a long history of providing enrichment opportunities in STEM to underrepresented students in grades K-12, teachers, and parents through in and out of school programs, mentors, role models, and scholarship and career advising.

Building on MESA’s mission, the YVTC MESA staff designed its SciGirls en Familia project to expand the programs reach into elementary schools and to do so with in-depth science explorations with families by creating simultaneous parent and student workshops at a local school where family members combine for icebreaker activities.

Project Description

While the project staff had the experience of working on a SciGirls en Español project, a goal of their SciGirls en Familia project was to learn more about the families in their local community and how they could best meet their needs. The YVTC MESA staff was interested to gain insights into the challenges of working with families and see if the approach they took through SciGirls would be successful. The staff indicated that they understood the logistical challenge that working parents faced in making time to attend the workshops they hoped to gain insight as to the feasibility of conducting workshops for
parents and whether or not to continue to teach parent and student workshops separately or if having parents working alongside their children would be more effective and fun.

Finally, the staff also wanted to provide an experience that although hands-on and fun, would also require data collection and interpretation through the use of math and the ability to graph findings. With the understanding that many of the parents involved would have little experience with these processes, the staff chose to program was to include a few parents who may be illiterate in both Spanish and English, MESA felt it would be best to control quality by controlling numbers. In reflecting on their recruitment success, the MESA staff reflected.

Originally, judging from the workshop activities, we set the maximum attendance numbers to 10 students and 10 parents per workshop. Our goal was to provide an experience that although hands-on and fun, would also require data collection and interpretation through the use of math and the ability to graph findings. With the understanding that many of the parents involved would have little experience with these processes, including a few parents who may be illiterate in both Spanish and English, it seemed best to control quality by controlling numbers. We later changed this limit per teacher requests and expanded the workshops to include 20 students and 20 parents each. Interestingly, attendance numbers reflected the original intent: We had an average of 18 participants per workshop. Out of 480 possible, we had 223 people attend. In retrospect, although this may seem an unsuccessful result, the lower numbers created a better environment for giving individual attention to our very diverse groups.

YVTC MESA hosted a series of four workshops at three different middle schools, for a total of 13 SciGirls en Familia workshops with one being offered as a fifth bonus workshop to one of the schools. To help set up the series, the Yakima Valley/Tri Cities MESA program, was able to rely on its longstanding connections with many schools, teachers, principals and traditionally underrepresented (in science fields) students in the region. MESA provided all workshop materials, t-shirt, kit and poster giveaways, as well as a pizza dinner at each event at no cost. Each event was designed with capacity for up to 20 students and 20 parents. The only requirement for registration was that students be accompanied by a parent or adult family member in order to attend.

A total of six different workshops were selected and developed for the program, based on activities outlined in the guide: Dinosaurs, Doghouse Design, Exercise & Memory, Make-up, Music & Sound and Temperate Rain Forest. The activities were chosen based on their ability to work as one-time events. They also adapted and/or developed data and analysis worksheets as suggested.
Target audience

As Table 27 shows, YVTC MESA generally met or exceeded its recruiting goals as reflected by the projected vs. actual numbers in the table to right. The project served a total of total of 223 participants, including 92 girls age 8-14 years, 94 family members, and 37 boys, as boys were allowed to participate if registration numbers permitted.

Almost all of the participants were Hispanic/Latino (91%) and all participated at no cost. Over 91% of students at the three schools targeted received free or reduced meals and between 19%-44% of these are enrolled in a transitional bilingual program.

The staff met with the three selected middle schools to offer the SciGirls en Familia workshops and then met a second time with each to coordinate logistics. They tailored their recruitment and registration process to the school’s preferences, and tried to incorporate the best times for working parents to attend. The two schools with the highest attendance and highest returning participant numbers were ones in which the science teachers worked with the staff members to schedule the workshops and select the topics very early in the school year. They helped to promote the workshops via posters, fliers, and registration sheets that they provided.

Teachers became the ultimate advocates for SciGirls as they were present at all events, had consistent contact with students and parents and were able to encourage attendance by their own recommendation and by allowing students to promote participation among each other. The staff indicated it was not difficult to recruit girls from Spanish speaking households as the demographics of the targeted schools reflect an overwhelming percentage of Hispanic students.

<table>
<thead>
<tr>
<th>Participant goals: Projected vs. actual</th>
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<tbody>
<tr>
<td>Total number of girls 8-14 served</td>
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<tr>
<td>Projected: 96</td>
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<tr>
<td>Actual: 92</td>
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<tr>
<td>Total number served (girls and family members)</td>
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<tr>
<td>Projected: 196</td>
</tr>
<tr>
<td>Actual: 223</td>
</tr>
<tr>
<td>Percentage of participants who were Hispanic/Latino</td>
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<tr>
<td>Projected: 98%</td>
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<tr>
<td>Actual: 91%</td>
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<tr>
<td>Percentage of participants who participated at no cost</td>
</tr>
<tr>
<td>Projected: 100%</td>
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<tr>
<td>Actual: 100%</td>
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</table>
Use of bilingual resources

The staff used the Spanish language materials for every workshop except two, in which all the attendees spoke English fluently. At the end of all events, the staff played the relevant DVD episode in both languages. Most workshops were conducted in English and Spanish and all additional materials developed (workshop guides for instructors, data sheets, evaluations, fliers, registration forms) were also created in both languages, which the staff deemed was indispensable to their SciGirls program.

The staff reflected that the success of their SciGirls en Familia project was closely tied to its use of the bilingual materials given its high percentage of exclusive Spanish speakers and Latino immigrants with limited English fluency.

Our SciGirls en Familia project would not have had such a strong impact without the ability to bring in bilingual materials. About half of the adults in our workshops were Latino immigrants to the United States with some knowledge of English who were still working on fluency. About a third of these spoke Spanish almost exclusively. Without bilingual resources, we would have risked alienating these participants rather than creating an atmosphere of inclusion, engagement, fun and discovery.

The staff also concluded that the use of Spanish language materials in the SciGirls webinar training allowed them to complement the existing science interpretation training program they already provide for their youth interns. This process created a higher tier of performance for these interns and provided an opportunity for growth and further application of their burgeoning leadership skills.
**Expenses**

The SciGirls en Familia grant money covered all of the project costs with the exception of travel costs (vehicle, maintenance, gas) and staff time. The Acceso a la Ciencia grant money covered these expenses through support from the National Science Foundation. As reflected in the registration form to the right, families were not asked to pay for the program upon enrolling their child.

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**Impact**

To measure outcomes, MESA conducted post workshop evaluation at all but two events. Out of 179 participants that filled out evaluations, all participants mentioned new concepts they had learned and 19% of these noted specific science or math concepts; 83% responded that they enjoyed doing these activities with family members and 61% indicated enjoyment of the activities, a desire to see their continuation and/or acknowledged their educational value in the comments section. The following section provides a brief breakdown of the findings and participant comments from four of the workshops:
Workshop 1: Music & Sound workshop (44 participants)
Participants overwhelmingly agreed (73%) that the workshop was worthwhile. A sampling of their responses to questions about what they learned, found most and least valuable, and how they felt about doing the activities with a family member follows:

Concept/tip/idea learned from workshop
- I learned that pointing out, looking for and just plain acknowledging my surroundings and how sound is created helps me to understand my world better and am able to explain things to other
- How sounds are made and the vibrations and waves of sound.
- I learned how to make a Membranophone. A membranophone is similar to a saxophone

Favorite part of the workshop
- I loved being able to make music from my own created membranophone. After a couple of kinks, I was able to succeed
- Hands-on activities—being able to make science things with household items
- The videos, it shows different things

Least favorite part of the workshop
- Making sounds with the cups
- The time, I would love to do more
- All the talking

Experience of doing the activity with a family member
- I enjoyed doing this with a family member because you get to spend time with them and have FUN
- We got to work/learn something new/bond/have fun together/learn from each other/have family time
- Yes, with my dad, he said he did stuff like this in Mexico.

Workshop 2: Make Up workshop (60 participants)
The majority of participants (88%) felt the workshop was worthwhile, while a handful of participants (8%) had no comment. A sampling of their responses to questions about what they learned, found most and least valuable, and how they felt about doing the activities with a family member follows:

Concept, tip or idea that participants learned from the workshop
- I learned that sometimes the things we think are difficult, are the simplest
- You can make lip gloss out of natural ingredients
- The data sheet, the percentage and amount was interesting

Favorite part of the workshop
- Mixing all the ingredients together and trying the product on
- Adding the colors and flavors
- Pouring final make up into souvenir containers

Least favorite part of the workshop
- Got mad because it was too hard. BUT IT WAS FUN!
- The fact that I had to do math scared me but it was ok because we had help
- Putting in the chemicals was my least favorite part

Experience of doing the activity with a family member
- Yes, because I finally got to spend some time alone with my mom
- Meeting people and other adults. Something fun to do with your child while learning together
- No, there were no family members present
Workshop 3: Dinosaurs workshop (23 participants)
All but 1 participant (96%) felt the workshop was worthwhile. A sampling of their responses to questions about what they learned, found most and least valuable, and how they felt about doing the activities with a family member follows:

Concept, tip or idea that participants learned from the workshop
- The difference between dinosaurs, I learned the reasons for their differences in size, color and diets
- Owls don’t poop out the hair from the animals they eat, they cough it up
- That dinosaurs were in the bird family and how big they were

Favorite part of the workshop
- I liked everything, dissecting the owl pellet, knowing more about dinosaurs that we didn’t know and that having balance in the body is important
- Opening up the owl pellet

Least favorite part of the workshop
- The smell was awful
- My aunt almost throwing up
- My mom wanting to throw up

Experience of doing activity with a family member
- Yes, because my mom found and was freaked out about dissecting owl pellets
- Yes, because we keep learning new, interesting things and at the same time share with our children
- Yes I would have liked to bring my husband so he could have had the great experience of learning more

Workshop 4: Temperate Rain Forest workshop (29 participants)
The majority of participants (85%) felt the workshop was worthwhile. A sampling of their responses to questions about what they learned, found most and least valuable, and how they felt about doing the activities with a family member follows:

Concept, tip or idea that participants learned from the workshop
- That rings tell us the age of trees
- That a black mark or line in a tree round is a scar
- Many trees that are the same type and planted at the same time can grow bigger or shorter than the other one

Favorite part of the workshop
- I enjoyed participating in a group with other adults. I learned more in a group
- Counting the years of the trees
- Looking for the diameter

Least favorite part of the workshop
- Separating the students for the parents
- Extra kids that didn’t belong in our workshop
- Going outside in the cold

Experience of doing the activity with a family member
- Yes, because I believe I am setting a good example for my child showing interest in science
- Yes and no. My mom was embarrassing. My friends were there
- Yes, because we learned about family unity and we learned the same things
Although their informal science education program (Acceso a la Ciencia) is well-known in the region they serve, the staff felt that SciGirls en Familia catapulted the significance of their contribution by helping families to conduct their own experiments, evaluate their findings and integrate the scientific method while making real-world connections regardless of educational background or English language proficiency. The staff found that the feedback on the impact of the SciGirls workshops from parents, school administrators and teachers was sufficiently positive that they planned to continue offering the workshops for summer programs while seeking institutional support for the project through other funding sources. Excerpts from a parent recommendation letter are included below. The letter was written by a parent who attended a SciGirls program with his daughter and worked at a local elementary school served by the program.

Excerpts from a parent recommendation letter are included below. The letter was written by a parent who attended a SciGirls program with his daughter and worked at a local elementary school served by the program.
Case 2: Imaginarium of South Texas

Background

Based in Laredo, Texas, the Imaginarium of South Texas is a science center and children’s museum dedicated to creating the spark of curiosity which ignites a lifelong passion for learning through educational exhibits and inquiry-based programming that nurture the individual’s sense of inquiry and inspiration. The Imaginarium has a history of participating in SciGirls project, including SciGirls en Español.

Partnering with the Office of Border Affairs of Laredo; Church and community center leaders from seven sites. For the SciGirls en Familia grant, the Imaginarium of South Texas proposed to visit community centers and church centers in seven low-income areas just outside of the Laredo, Texas, city limits and offer two educational programs of science-based activities for families served by these centers. These programs were provided without cost to the participants. The seven communities share similar demographics, for example the demographics of one community follows:

Rio Bravo –  
- 2010 pop. 10,458,  
- 91% Hispanic  
- 51% of households with children <18yrs.  
- 54% households earn income below $25K  
- (US avg. -21%),  
- Over 75% 25+yr-olds do not have high school diploma  
- SITE Rio Bravo Community Center

Ranchito Las Lomas –  
- 2007 pop. 396,  
- 98.5% Hispanic  
- per capita income $4,924,  
- 64% 25+ yr-olds do not have a high school diploma  
- SITE Santa Teresita Community Center

Project description

Grantee staff from the Imaginarium of South Texas visited a total of seven community centers or churches located outside Laredo two times each. The staff sought the SciGirls en Familia grant to accomplish three goals: 1) provide educational outreach programs to the impoverished rural communities in South Texas; 2) provide programming in Spanish that would allow girls to discuss their experiences with their Spanish speaking parents; and 3) to witness the interaction between children in science activities first hand.
Target Audience

The project’s target audience comprised impoverished rural communities in South Texas. The staff’s ability to communicate in Spanish and their plan to visit several Spanish speaking, low-income communities make their proposal a significant one in term of looking at family interactions in the Hispanic community. They planned to provide services that address real needs in their communities—specifically, aid in developing science projects, a task that for lower income and undereducated parents becomes burdensome and impacts their children’s participation in school. By engaging parents in science activities with everyday materials and then going back to the same populations and focusing on a high-need project, they think their program will be successful.

As Table 28 shows the Imaginarium staff generally met or exceeded their recruiting goals as reflected by the projected vs. actual numbers in the table to right. A total of 199 students and 623 family members took part in the program, indicating the staff generally doubled its project attendance numbers. 90% of these participants were Hispanic, and were from areas with populations of less than 10,000 people and had annual incomes of less than $25,000. 50% of these participants had no high school diploma and have children younger than 18 years of age.

As a recipient of the SciGirls en Familia grant, the Imaginarium of South Texas proposed to visit community centers and church centers in seven low income areas just outside of the Laredo, Texas city limits and offer two educational programs of science-based activities for families served by these centers. These programs were provided without cost to the participants.

The staff indicated that its focus on sites with which it had a history and collaborating with the Zapata HHSC-OBA Regional Coordinator was key to their recruiting success given the benefit of the ongoing commitment and because of the coordinator’s contacts with the targeted audience to participate in the program and knowledge of the local community centers. The staff worked with him to selected sites, including two additional sites that had participated in the SciGirls en Español program. The staff reflected:

The Imaginarium of South Texas collaborated with Mr. Jaime Arizpe, Laredo – Zapata HHSC-OBA Regional Coordinator (Texas Health and Human Services Commission - Office of Border Affairs). His work in the colonia areas of the border provided many contacts with the audience we sought. After consultation with Mr. Arizpe, four sites were chosen. Two additional sites had been the previous recipients of programming provided by the SciGirls en Español grant we received in 2009. The museum has provided outreach services to the Quad-city Community Center in Mirando City since 2005. In choosing these sites, we relied heavily on Mr. Arizpe’s guidance. We additionally met with community and church leaders in Rio Bravo, El Cenizo and La Presa. We purposely chose to include previous sites because we believe that only with an on-going commitment to provide educational opportunities over the years will we be able to impact children’s educational choices.
The staff couldn’t speak highly enough about the relationship they had forged with the coordinator and the important role he played in helping them to choose site, given his knowledge of the community and where residents gather and would be comfortable meeting.

The staff also felt their staff continuity and bilingual capacity were important factors in their project’s recruitment success with students and families as one staff reflected: Our staff – we are lucky in that they are mostly part time students and all bilingual and bicultural and they are amazing and will run with it. They connect with the kids and run with it and a couple of them are from the colonias.

The major challenge the staff faced in recruiting was getting parents comfortable with the people leading the programs and the purpose of the programs. Although this wasn’t a pervasive problem, the staff encountered some resistance with community members due to factors as far reaching as them fearing the program could be a trap with immigration. The staff alleviated such concerns through recurring visits to help with buy-in and trust. Although they felt they were able to address the concerns this attention to detail required a significant investment of staff time, and resources, such as gas, to be sufficiently present in the local communities that were targeted.

Use of bilingual resources

The Imaginarium of South Texas used the bilingual resources provided by the program with students, but the main priority was as training tools to model how to develop the inquiry process for girls, and provide refresher for SciGirls en Español staff and others. Video materials were planned to be shown during each student program, but the logistics and risks of leaving unattended laptops playing the videos while staff focused on delivering programming proved too complicated to implement this part of the plan.

Part of the challenge entailed community partners not being able to come through on screening devices as expected, as in:

We were set up going to rural communities and internet connection wasn’t always there and we relied on comm centers and anything high tech was shaky – so having a screen available wasn’t possible and we didn’t have control over what they do. I think it would have been nice if we could have used those materials. We shared them in camps and they are excellent materials.
It was difficult for the staff to suggest alternatives for dealing with this in the future, as they appreciate the availability of space, but you can only work with what is available.

To take advantage of the bilingual resources, several staff members participated in the SciGirls en Familia webinar training the staff found that the bilingual materials gave a bilingual staff that was not all familiar particular science concepts in Spanish the necessary background in science Spanish vocabulary. Having had previous experience with the SciGirls programs and familiarity with aspects of the training, staff members appreciated the online format and the ability to interact with other institutions participating in the program, sharing their thoughts and experiences about specific topics. The staff reflected:

The bilingual print and video resources provided by SciGirls were very useful in the preparation of staff to implement this outreach program. Bilingual staff had limited knowledge of Spanish vocabulary of the science content of the program, and the resources addressed this deficiency. While originally we had planned to show some of the video material during each program, the logistics and risks of leaving unattended laptops playing the videos while staff focused on delivering programming proved too complicated to implement this part of the plan.

Resources were used for Staff Training to model how to develop the inquiry process for girls, a refresher for our SciGirls en Español staff and for others; for our native Spanish speakers, proving that training in Spanish was very helpful. The bilingual materials also gave staff the background in science Spanish vocabulary, needed by a bilingual staff that was not all familiar with particular science concepts in Spanish.

The bilingual materials also became important to a Girl Scouts program we developed and initiated this year. In particular, we presented the interviews with female scientists at both a badge workshop for Junior Girl Scouts and at a signature event that invited woman engineers to lunch with Girl Scouts and their mothers. Many of the mothers attending were Spanish speakers, as were the professional engineers. And while girls chose for the most part the interviews in English at the
badge workshop, we feel that the girls walked away with the knowledge that science bridges any perceived differences between English and Spanish.

Despite the convenience of the online training format, some staff members would have preferred the training be in-person, rather than in webinar form, recognizing the importance of the bonding experience available with live training and the fact that specific activities were hard to grasp in webinar form and would have been more valuable to staff with hands-on experience. The staff reflected that in this case that while they appreciated the challenges of getting staff together, typically their staff would benefit more from a face to face training, with a trainer visiting with all the materials in-hand where staff can experience the synergy of working together and reviewing the materials.

Expenses

The majority of the budget was applied towards personnel salaries and facilities rental fees. The staff noted that it was preparing to apply for funding to other organizations because without continued financial support, this program would not be sustainable, since the community resources do not have the resources. In the meantime the bilingual materials have been recycled to be used by a Girl Scouts program they developed and implemented this year.

Impacts

The impact of the program was gauged qualitatively through an informal question and answer period with several of the participating mothers at each site. During the second program at each site, more time was also dedicated to discussions about nutrition and eating habits of children, which led into conversations about the opportunities for girls to study science.

The staff concluded:

- Parents were attracted to the program because of the educational focus and the bilingual materials and their participation was driven by their aspiration for their children’s education, independent of their own level of education. Overall, parents found value in attending the program and felt it was a benefit for their children.

- The project exceeded its participant goals. In fact, the Imaginarium had over 600 family members participate in the various activities, the largest number of participants across the 10 SciGirls en Familia grantee program.
As a result of the project parents expressing heightened interest in nutrition and concerns with the eating habits of their children.

Overall, parents were supportive of their children, and of the girls in particular, in continuing to pursue educational opportunities. The staff was particularly satisfied with the program’s impact on families, but noticed a difference in the level of interest and involvement from the mothers and fathers, as in:

It worked very well with families – the Hispanic families are often more focused on the boys than the girls, so it was empowering for the mothers in particular. The moms were more willing to jump in, especially the single moms who didn’t want their girls being in same situation were often particularly attentive and interested. They weren’t often aware before the program that science was an option for their girls but they could see the value through SciGirls.

The staff also observed that dads were somewhat less involved, noting that: Many were less likely to show up or going with their boys and doing things that were competitive.

The staff thought that they might be able to hook more fathers in if they featured a competition based element to the program, as in: We thought about adding in a building competition of sorts, but it – but seemed counter to what we were doing as part of the SciGirls 7. Looking forward the staff determined it would look to set up some ways where the fathers are the experts, something they are familiar with, that might be an angle to get them more involved. This way they can share what they know but not need to be competitive.

In reflecting on its project impacts, the staff also expressed a desire for more comprehensive methods of gauging impact. Though they had success having staff keep detailed journals for its SciGirls en Español project, they did not use journals for the current grant project, and regretted that decision. We always struggle with documenting impact. we are lacking in assessment it’s always a challenge. If we were journaling that would have been helpful. The girls might do surveys, but not so much the moms, they were chasing toddlers and doing other things. Maybe a few could do it, or we would have to offer a trinket, that might work… the surveys would need to be short and simple, and bilingual.
Case 3: Sahuaro Girl Scout Council, Inc.

Background

Founded in 1935 in Tucson Arizona, the Sahuaro Girls Scout SciGirls (SGSC) each year serves more than 16,000 girls ages 5 to 17 throughout Southern Arizona. More than one-third of these participants are served through outreach programs for low-income, sheltered, and at-risk girls who live in areas that lack resources and volunteer support. Through structured and supervised weekly activities, camp, and special events, the program is supported by initiatives in literacy, including financial literacy; environmental education, health and wellness, arts and culture, and Science Math and Related Technologies (SMART), which includes astronomy, technology, robotics, physics, and basic math skills; SGSC was founded in 1935. SGSC’s history in STEM initiatives is further evident in its prior involvement in SciGirls en Español program, ending in 2010.

Program description

The SciGirls en Familia program was held at two elementary schools Summit View Elementary and Mission View Elementary- two predominantly Spanish speaking lower-income schools. The program met weekly and was held after-school for a total of 20 sessions.

Target audience

As Table 29 shows, the SGSC generally met or exceeded its student recruiting goals but fell short of its family goal as reflected by the projected vs. actual numbers in the table to right. A total of 40 4th and 5th grade students, 90% of whom were Hispanic, took part in the program. To recruit girls and families from Spanish-speaking households the troop staff worked closely with the two elementary schools. The staff reflected:

Both Summit View and Mission View Elementary allowed us to attend a “parent cafecito” to educate the parents on the SciGirls program. At this time we sent families home with SciGirls fliers and information about Girl Scouting in general. In addition, we continued to advertise for the program right up until its start date. We were fortunate as we had Spanish speaking staff at these events. Since the families in this area are predominately Spanish-speaking, they appreciated having a staff member who could easily explain things/terms to them in their own language. More importantly, by removing the language barrier, the families felt more comfortable with the staff and ultimately the program. To directly recruit girls we also tried to connect with them during school programming. We went to school assemblies and talked about the program as well as demonstrated STEM experiments.

Although the SGSC staff was able to attract and maintain student involvement through the program, securing parent involvement proved more challenging:

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<th>Table 29</th>
<th>Participant goals: Projected vs. actual</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Projected</td>
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<tr>
<td>Total number of girls 8-14 served</td>
<td>40</td>
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<tr>
<td>Total number served (girls and family members)</td>
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</tr>
<tr>
<td>Percentage of participants who were Hispanic/Latino</td>
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</tr>
<tr>
<td>Percentage of participants who participated at no cost</td>
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</table>
Once SciGirls started we had no problem with girls’ enthusiasm or attendance. On the other hand, we did have trouble engaging their family members. At the beginning of our program at Summit View, we had a family member attend with her niece and help out. At Mission View, we did not have any family participation during the meetings. We do believe while parents were interested in their child’s activities, the timing of the program conflicted with other work and family obligations. As a result, we mostly saw parents when they came to pick up girls after SciGirls was over.

The staff did have success getting parents involved with a field trip, which was an all day excursion, as follows:

We did have successful with our field trip excursion to Kitt Peak Observatory. During this all day excursion we had a number of girls attend with their families. This was great for the girls as they were able to convey their enthusiasm for STEM to their families and share what they had learned about Kitt Peak to the family members they brought along. The girls’ enthusiasm was infectious and soon we had family members who were just as excited as the girls.

While the reported numbers for parental involvement in the program would indicate no parent participation, the level of family involvement in this event showed that parents were involved in one of the planned program components, even though it wasn’t part of the workshop series.

**Use of bilingual resources**

The SGSC staff used both the SciGirls print and video Spanish-language resources in this program but tended to rely more on the print material more often than video resources given limited access to a TV/DVD player, but they made the DVD’s available for families to take home to view. The Council explicitly approached the activities in both English and Spanish to reinforce the procedures and the girls’ abilities to explain what they did during the program to their families, as follows:

When doing activities with the girls we always made copies of the instructions/program overview in English as well as Spanish. In addition, when distributing the handouts we would have the girls read aloud in both English and Spanish. We believe this gave them a better understanding of the procedures involved in activities. Moreover, when girls went home they could explain to their families what they had done in SciGirls and show them the bilingual handouts to help illustrate the activity.

When able to view the DVD we used this resource to help demonstrate more complicated activities. This helped to build up excitement in the girls. In addition, for family members who were able to attend SciGirl meetings we gave copies of the DVD for them to take home. After one girl watched the DVD at home with her family, she came back to SciGirls and shared that what she saw on the DVD was just like an episode of SciGirls PBS TV show she had watched with her family over the weekend.

The strong emphasis on a bilingual approach was in part possible because the project staff consisted of full and part time staff and adult volunteers, almost all of whom were native Spanish speakers, and all were bilingual.
The SGSC staff indicated that the bilingual resources were an essential part of their program’s success, citing an example of how much more comfortable the girls were in being able to communicate about STEM in their native language:

SciGirls greatly benefited from the bilingual resources by allowing the girls a space where they could participate openly in a bilingual environment. During the school day, we find students are not always allowed to communicate in Spanish. Rather, they are told to speak English. By having SciGirls embrace bilingual resources and environment, the girls were able to feel more comfortable with us from the start and be more themselves. For instance, there was one time when a girl was speaking English but had trouble expressing her thought. So she switched to Spanish, finished her thought, and then mumbled sorry. We instantly told her she had nothing to be sorry about and asked her to start reading the next activity in Spanish. She slowly smiled and said si. This example shows the type of trust garnered when one can openly communicate in the way that is most comfortable to them.

The bilingual resources further provided credibility that was important as the girls viewed that science careers were accessible to them, seeing that recognizable national organizations like NASA made available resources in Spanish.

In addition, having the bilingual resources made STEM more tangible to the girls. By having resources in Spanish from famous organizations such as NASA, girls were able to see that not only are these careers available to girls, they are available to “girls like me” (Spanish-speaking). As previously mentioned, the bilingual resources remove the initial language barrier and make science and math more relatable and attainable.

Expenses

The SGSC staff reported that the SciGirls en Familia grant money covered more than half of the project expenses. The remaining necessary funds were covered through partial funding from other grants and the proceeds from the sale of Girl Scout cookies.

Impact

Prior to conducting its program, the SGSC staff anticipated using an evaluation approach that would rely on 15 outcomes described by Girl Scouts of the USA to measure Girl Scout programming success.

Through comprehensive research Girl Scouts of the USA has developed 15 outcomes that can measure the success of each girl’s experience with Girl Scout programming. Girls will “Discover”: a Girl Scout seeks challenges in the world. Girls will develop critical thinking skills; a strong sense of self; positive values; and practical life skills. Girls will “Connect”: a Girl Scout develops healthy relationships; promotes cooperation and team building; learns to resolve conflicts; advances diversity in a multicultural world; and feels connected to her community. Girls will “Take Action”: a Girl Scout learns to be a resourceful problem solver and how to identify community needs; girls will learn to advocate for themselves and others; girls will learn to educate and inspire others to act and will feel empowered to make a difference in the world.

The success of the program will also be gauged by the number of girls who finish the program once they begin; the number of girls who continue to engage in the Girl Scout Movement at the
end of the grant period; the number of family members who participate in the program; and the number of community stakeholders who step forward to be trained as Girl Scout leaders.

While the project staff used the attendance numbers as part of its evaluation focus, the staff focused more on STEM related outcomes which were more immediately addressed in the SciGirls en Familia programming. The staff used a pre-post survey design and attendance reporting, as follows:

*Because this was a new venture for us we gauged the impact of our program in various ways. Before the start of the program we created a pre-test survey about STEM. At the first meeting we had girls take this survey in order to determine their initial thoughts/feelings about STEM. At the end of the program year, we then had the girls fill out the same survey in order to see if their thoughts/feelings had shifted over the course of the program.*

*We also gauged our impact through our interactions with the girls and measuring girls’ attendance. Once the program started, most girls had continual attendance, indicating their desire to be present at SciGirls and take part in the program. As for the impact of SciGirls on girls and their families, girls continued to show enthusiasm for all things science. They also continued to express how surprised they were that science could be so fun. We also received positive feedback from family members who thanked us for helping their girls become excited about learning and going to school.*

The SGSC staff reported that the project’s main impacts involved the girls comfort level in exploring STEM topics, because the program was informal, fun, bilingual, and the girls-only. Although parents did not directly participate in the ongoing program, they indirectly benefited by observing and sharing in their children’s’ enthusiasm.

*The SciGirls en Familia Program definitely had a meaningful impact on the girls who participated as well as their families. The SciGirls program allowed girls to explore STEM topics in a fun all-girls environment. Because of this informal setting, girls were able to have more of a hands-on learning experience and felt more comfortable asking questions. In addition, through the project girls were able to see how STEM subjects apply to everyday occurrences and processes. This, in turn, made STEM much more relatable to the girls’ current lives and what they might do in the future. Lastly, the project enhanced the ability of their families to support girls’ continued STEM engagement. After the program, families saw just how excited the girls were about the program and their desire to talk about what they had done. Many shared that because of their girls’ enthusiasm for the SciGirls program; they would continue to support their exploration of the STEM both in school and in outside activities.*

One of the main lessons the project staff was able to take away from their project involved the challenges of incorporating families into their troop-based programming. As the staff determined that the lack of parent/guardian participation was not due to a lack of interest in their children’s activities but rather a function of program timing, future family-oriented projects could look into emphasizing parent involvement at specific events, as the staff was able to secure for the day long fieldtrip, which entailed a significant amount of time, advance planning, and time off work.
Summary of Findings

Our evaluation of SciGirls en Familia focused on four elements: 1) the background and expectations of the grantee staff designated to undertake the SciGirls en Familia projects; 2) the staff’s experience with the training program, 3) the implementation and impacts of the 10 grantee projects; and 4) the mini case studies of three of the grantee projects. Our evaluation methodology relied on a mixed methods approach that included three general components: secondary data review and analysis, surveys of grantees before and following the tpt training, and follow-up surveys and telephone interviews as needed with grantees following the completion of their projects. The evaluation findings for each area are summarized below. Implications of the main findings are also discussed as appropriate.

Part 1: Pre-training findings

Prior to initiating their SciGirls en Familia projects, a total of 30 staff from the 10 grantee organizations completed a pre-training survey. Among the 30 grantee staff that participated in the training, most were female (86%) and ranged in age from 21-64, with an average age of 35. Most were of Hispanic origin (82%), with one-fifth reporting they were White (7%), Asian (4%), or of a multiracial background (7%).

Reasons for applying for a grant

When asked to rate the importance of six factors for their organization’s decision to apply for a SciGirls en Familia grant, using a scale from 1 (not at all important) to 7 (extremely important), or not applicable if the reason didn’t apply), the staff consistently agreed their organizations applied for the grant to: 1) start a science program focused on families, 2) expand or build on an existing science program focused on families, 3) continue working with existing community partners, 4) form new community partners, and 5) continue having a positive history of working on projects with TPT. For five of the six reasons, the median ratings were a 7 (extremely important). The final reason, incorporating the SciGirls en Familia materials into another more general educational program, was deemed a slightly lower priority overall, with a median rating of 6 (very important). Many staff also pointed to three additional reasons for applying to the grantee program, including: the opportunity to provide STEM programming to Hispanic girls and their families, the chance to serve girls and their families together in an integrated fashion, and the opportunity to continue their involvement in a SciGirls program.

Prior experience with key SciGirls en Familia project features

The grantee staff was asked to rate how much experience they had working on projects that involved specific components related to the SciGirls En Familia grant, using a scale of from 1 (no experience) to 7 (extensive experience). As indicated by the median ratings in each case, the staff as a whole reported considerable experience: working with families of Hispanic, Latino, or Spanish origin (7.0), engaging girls in science learning (6.0), and promoting inquiry science (6.0). The staff tended to indicate somewhat less experience engaging families in science learning (5.0), participating in online social network platforms like Ning (3.5), and completing an online professional development training (3.0).

Staff from four of the organizations also offered that while they incorporated parents in their programs, they had not previously conducted family specific science programs. When asked to elaborate on the types of family-oriented programming in which they had been involved, the staffs’ responses indicated that each of the 10 organizations had previously conducted 2 or more types of family-oriented events or programming. The types of programming varied widely, and included...
monthly family programs where families create hands-on crafts and projects such as herb gardens;
family science festivals that takes hands-on activities to local schools;
family astronomy events focused on hands-on activities and exploration stations;
take-home activities made available through an afterschool program;
open houses designed to bring together families to conduct hands-on science activities, offer star gazing nights, and lectures and meet and greet with scientists;
An overall family-orientations when hosting exhibits, events program and floor demonstrations; and
science enrichment programs designed to help students, families, and volunteers prepare for students' annual science projects.

Prior experience implementing family-focused STEM programs
The staff was asked to describe any prior experience they had implementing science programs geared specifically to families prior to the SciGirls en Familia grant. The staff from all 10 organizations identified a family-focused STEM program, which most often included: open houses, workshops, exhibits, floor demonstrations, retreats, monthly programs, festivals or training, as follows:

- Open houses designed to bring together families to conduct hands-on science activities, star gazing nights, and lectures and meet and greet with NASA speakers and astronauts.
- Weekend workshops on science topics, and in general is family-oriented when hosting events program and floor demonstrations.
- Monthly family program where families created hands-on projects such as herb gardens and coordinated a family science festival in partnership with another science museum that took hands-on activities to local schools.
- Family astronomy events focused on hands-on activities and exploration stations.
- Overnight family science retreats and take-home activities made available through an afterschool program.
- A gardening program involving families gardening with only native plant species.
- A family science training in partnership with another organization and planned family-oriented science exhibits at local community events.
- A science enrichment program designed to help students, families and volunteers prepare for students’ annual science project.

Prior experience with SciGirls materials
The staff was also asked about prior experience with SciGirls materials (videos and activates). Just over half of the staff (52%) indicated no prior use of the SciGirls videos or activities, while the remaining staff variously reported a little, some, moderate, or extensive use of each.

Expectations for participating in the SciGirls en Familia training
When asked to identify their main expectations for the training, the staff most often indicated wanting to learn more about three issues: Engaging/serving Latino families in science (60%), the SciGirls program and resources (23%), and the grant expectations (10%).

Expectations for SciGirls en Familia projects
The staff were asked to rate their level of agreement or disagreement with a series of statements about their expectations for their SciGirls en Familia projects, using a scale of 1 (strongly disagree) to 7 (strongly agree). As indicated by the median ratings in each case:
Perceived organizational impacts: The staff as a whole strongly agreed that the supervisor/advisor at their organization was supportive of their participating in the SciGirls en Familia program (7.0) and that their organization would both benefit from participating in the grantee program and accrue beneficial partnerships with local community groups (7.0).

Understanding and advancing the goals of SciGirls en Familia: The staff also generally agreed to strongly agree that they: had a good understanding of the goals of the SciGirls en Familia program (6.0), were confident that their project would advance the goals of the SciGirls en Familia program (7.0), and felt prepared to begin implementing their SciGirls en Familia project (7.0). Staff explained their preparedness as a function of their prior experience working with Latino families or having participated in SciGirls en Español. A small number of staff indicated they expected to have a clearer send of the goals and expectations after training.

Exciting families about science: The staff generally strongly agreed that their projects would excite families in their communities about science (7.0).

Perceived value of online training: The staff as a whole strongly agreed that the SciGirls en Familia online training would be a valuable learning experience (7.0) and tended to agree that they would prefer the training occur in person rather than online (6.0). When invited to explain their ratings, a few staff explained that while they found the online training to be a useful and convenient remote training mechanism, in some contexts there is no substitute for in-person interactions, taking into account both cultural and institutional factors.

TPT's anticipated role in grantee projects: In general, the staff expected to need little assistance from TPT once their SciGirls en Familia project was underway (5.5). The staff also generally indicated that TPT was not expecting too much from them (3.0).

Organizational factors likely to contribute to project success
When the grantee staff were asked to identify any organizational factors that were likely to make their projects stand out and be successful, the staff from the ten grantee organizations collectively identified seven key factors, including: A prior rapport with the families to be served (n=7); A specialty in making science accessible to underserved populations (n=6); An established/trusted presence in the Latino community to be served (n=4); Passionate and dedicated staff (n=4); A strong history in serving girls (n=3); Having Spanish speaking/bilingual staff; and Strong partnerships with organizations that serve youth and/or families (n=2).

Part Two: Post-training findings

Participation in the webinar
Nearly two-fifths of the staff (37%) participated in the webinar held on August 4th. The remaining staff subsequently viewed the webinar as part of Module 1. The staffs' main reasons for not participating in the webinar on the original date were because they were part of the previous in-person training held at NYSC, they weren’t yet hired, or they experienced technical difficulties that prevented them from participating.

Perceived value of the webinar
The staff rated how valuable they found five different aspects of the SciGirls en Familia webinar using a scale of 1 (not at all valuable) to 7 (extremely valuable). As indicated by the median ratings of 6 in each case, the staff found the following four aspects to be very valuable: 1) the overview of SciGirls, 2) the SciGirls Seven: 

Knight Williams, Inc. 71
Strategies to Engage girls in STEM, 3) the SciGirls resources for leaders, parents, and girls, and 4) the tour of the Ning website. The staff tended to find the review of the training plan somewhat less valuable, however, with the median rating being 5 in this case.

The staff were also asked to rate how much they agreed or disagreed with several statements pertaining to the value of the SciGirls en Familia webinar, using a scale of 1 (strongly disagree) to 7 (strongly agree). As indicated by the median ratings of 5 in each case, the staff generally agreed that: it was helpful to hear the presenters talk through the SciGirls Seven "strategies for engaging girls in STEM, they found the presentation format of having two presenters (rather than just one) effective, they liked how the webinar used media, and they appreciated the opportunity to ask questions at three different time points rather than just at the end. The staff tended to somewhat agree that the webinar was a good use of their time (median rating 5) and were generally neutral about whether the webinar was too long, should have included more Spanish translation, and should have allowed for more audience participation (median ratings 4).

Access and use of the Ning
The staff reported on their number of visits to the Ning, their speed of connection, the number and order of modules they completed, and any technical or other difficulties they encountered.

- **Number of visits:** When asked to report on their number of visits to the Ning, the majority of the staff (63%) reported visiting more than 5 times. While none visited just once, 7% visited twice, 20% visited 3 times, and 10% visited 4-5 times. In terms of the setting from which they accessed the Ning, half said they accessed the Ning at home (50%), while just under half (47%) visited at work, and the rest said they visited from other places. A few staff identified problems in accessing the site, as in the case of one staff member who found the Ning was considered “a violation of internet usage” at work.

- **Speed of connection:** More than four-fifths (87%) of the staff accessed the Ning using a high speed internet connection, while 7% used a low speed connection, and 7% didn’t know the speed.

- **Completion of modules:** The staff provided a wide range of estimates of how long it took them to finish the Ning’s six training modules. Their estimates ranged from a low of 2 hours to a high of 15. The majority of the staff, however, indicated they spent somewhere between 3-6 hours in total.

In terms of the number of modules completed per visit, more than half the staff (56%) indicated they completed 2-3 modules per visit, while about one-quarter (23%) said they completed 1 per visit. The remaining staff said they completed 4 or more modules per visit (10%) or all 6 modules (10%) at once. In terms of order of completion, more than four-fifths of the staff (87%) said they completed the modules in order, while 13% did not due to: time constraints, confusion over what needed to be done, or a preference to work on what most appealed at the time.

- **Technical difficulties:** The staff reported few technical difficulties accessing or using the webinar or Ning. More than two-thirds (67%) reported no difficulties. Those who reported difficulties with the webinar pointed to: losing the link before/between visits (10%), not having access to a phone and computer (10%), and not receiving the training email invitation (7%). None of the staff reported having difficulty logging in or using Skype.

Those who reported having difficulties with the Ning pointed to: not receiving email notices (13%), videos not loading (7%), pictures not displaying correctly (7%), losing the link before/between visits (3%), not having access to a phone and computer (3%), logging in (3%) and/or their screen freezing (3%).
• **Other difficulties:** Beyond technical difficulties, the staff were asked if other factors limited the extent to which they participated in the training during the allotted timeframe. About two-fifths (38%) of the staff indicated they didn’t experience any other factors. Those who did most often pointed to time constraints limiting the extent to which they were able to participate in the training during the allotted timeframe (23%). Many of these staff indicated they had competing work duties and needed extra time to complete the training. Several staff (13%) said they were on summer vacation during part of the training, while several others (13%) experienced “outside” factors that limited their training experience (7%). A small number of staff indicated issues with confusion over the training completion dates (3% each), or said they had to use another person’s login due to being new or a latecomer to the training.

**Perceived value of the Ning**

The staff were asked to reflect on the value of the Ning, by rating it for overall value, user-friendliness, density, and the value of the individual modules.

• **Overall value:** Using a 1-7 scale (with 7 being most positive), the staff were asked to rate the *SciGirls en Familia* Ning for overall likeability, visual appeal, and effectiveness as a training tool. As indicated by the group median ratings of 6 in each case, the staff generally gave high marks on each indicator.

• **User-friendliness:** The staff further rated the Ning for three aspect of overall user-friendliness, again using a 1-7 scale. As indicated by the median ratings of 6 in each case, the staff generally found the lay out/organization to be clear, easy to navigate, and easy to find what they were looking for.

• **Density:** Again, using a scale of 1 (too little) to 7 (too much) with 4 being “just right” in this case, the staff were further asked to rate the Ning for the amount of: written text, videos, participant interactivity, and moderation from *SciGirls en Familia* staff. As indicated by the median ratings in each case (4), the amount provided in each case was just right.

• **Value of modules:** Using a scale of 1 (not all valuable) to 7 (extremely valuable) the staff generally indicated that they found the following four modules to be very valuable, as indicated by the median rating of 6 in each case for the: 1) *Hands-on science inquiry*, 2) *Case studies/Working with girls*, 3) *Welcoming Latino families in your programming*, and 4) *Running a bilingual program*. Two modules rated a little lower (median rating 5), including *Welcome to SciGirls en Familia* and *Successes and challenges at your institution*, as did the *My Page* and the discussion forums. The live online chats received the lowest median rating of 4, with the staff citing an overall lack of audience participation and technical difficulties as the two main reasons.

**Reflections on the training as a whole**

The staff were asked to reflect on the value of the training as a whole, taking into account both the webinar and Ning, by rating them together for overall appeal and training value, most and least valuable aspects, and inclusiveness.

• **Overall appeal and value:** Using a scale of 1 (strongly disagree) to 7 (strongly agree), with 4 being neutral, the staff were asked to indicate how much they agreed or disagreed with statements regarding the *SciGirls en Familia* training overall, taking into account their experience in both the webinar and Ning. As indicated by the median ratings for the group, the staff strongly agreed that their projects would advance the goals of the *SciGirls en Familia* program (median rating 7).
The staff generally agreed (median rating 6), meanwhile that: the training was well run and organized, they received sufficient information about the training requirements before participating, they had a good understanding of the goals of the SciGirls en Familia program, and that they learned a lot from the training about how girls learn, experience and enjoy science.

The staff generally somewhat agreed (5) that they would have preferred the training occur in person rather than online and that the training gave more attention to issues relating to Spanish speaking audiences.

- **Whether the training met expectations:** The majority of the staff (67%) felt that the SciGirls en Familia training met their expectations. A few staff (7%) indicated they would have liked more training in getting parents involved or felt the training was too basic and geared towards new educators, while a few others felt they entered the training program with little expectation and left with valuable knowledge. About one-sixth (17%) of the staff had other responses, including that: they felt the program was too long, or they would have liked more insight towards the targeted audience or greater participation in the discussions.

- **Most valuable aspects:** When asked to describe the most valuable aspect of the training experience, the staff most often pointed to three aspects: the interactions they had with other grantees (23%), the convenience and pacing of the online training (17%), and the strategies provided for involving families in their programs. Several staff found the SciGirls Seven strategies (13%) to be most valuable while others appreciated the videos and workbooks provided (13%). A few staff appreciated the in-person training the most (13%) or found the different activities to be most valuable (10%).

- **Least valuable aspects:** One-third of the staff (33%) felt that all of the training was valuable. Two smaller groups (13%) felt the discussions and chats in the chat rooms were the least valuable, noting that they were difficult to follow or that the discussions were redundant. Others pointed to: too much time being spent on reviewing specific activities, the time constraints of having to be online during certain times, or the overall length of the training (10% each). Two staff (7%) felt the webinar to be the least valuable aspect of the training experience while individual staff pointed to other aspects, including that: the training was geared to first time educators, it was not sufficiently geared to those overseeing the grant, they would have preferred in-person training, or they wanted more focus on the process of science.

- **Inclusiveness of topics:** The staff were asked if the training omitted a topic that they wish had been covered, or if was there a topic they wished had been covered in more depth. The largest group (27%) indicated that no training topics were omitted from the program or were covered in insufficient depth. Some staff (13%) would have liked more Spanish to be included in the training program, however, while a few staff (7%) would have liked more activities to be added to the training program.

**Looking ahead to their projects**

Looking ahead to the planning and implementation of their projects, the staff were asked to rate their level of agreement with a series of statements using a scale of 1 (strongly disagree) to 7 (strongly agree), with 4 being neutral. As indicated by the median ratings, the staff agreed to strongly agreed (6.5) that the SciGirls en Familia project would get families in the community excited about science. They agreed (6) that they felt well prepared to begin implementing their SciGirls en Familia projects.

The staff somewhat agreed (5) that they expected to need little assistance from TPT once the SciGirls en Familia project was underway. They were neutral (4) about whether the Ning site should be moderated by SciGirls en Familia staff for more than 2 weeks and whether TPT was expecting too much from the organization’s SciGirls en Familia project.
Suggestions for improving the training
When asked if they had suggestions for improving the training for future grantees, several staff (13%) felt the training program would be improved with the inclusion of training videos of the program as well as a video of an actual workshop of a group of girls or families. Several others (13%) felt that the inclusion of an in-person training would improve the SciGirls en Familia training program. A few staff felt more live chat opportunities (7%) or hands-on activities (7%) would improve the training for future grantees while a few others felt future staff should be clearly informed of the expectations and time commitment involved in the SciGirls en Familia training program.

Part 3: Project implementation and impacts
Audiences served by the projects
The 10 grantee projects served a diverse set of student and family Hispanic audiences as detailed below.

- **Student audiences:** The ten SciGirls en Familia grantee projects collectively served a total of 546 students. When looked at by program type 274 of these students were served by the three science center programs, 184 by the four school-based/after-school programs, and 88 by the three girls-focused programs. On average, 55 students were served per program, although the numbers served at each program ranged considerably, from a low of 15 at a girls-focused program to a high of 199 at a science center program. On average, the number of students served was highest at the science center programs (mean = 91), followed by the school/after-school programs (mean = 46), and then the girls-focused programs (mean = 29).

- **Family audiences:** The grantee programs collectively served a total of 1091 family members. When looked at by program type: 845 of these family members were served by the three science center programs, 223 by the four school-based/after-school programs, and 23 by the three girls-focused programs. On average, 109 family members were served per program, although the numbers served at each program ranged considerably, from a low of 0 at a girls-focused program to a high of 623 at a science center program. On average, the number of family members served was highest at the science center programs (mean = 281), followed by the school/after-school programs (mean = 56), and then the girls-focused programs (mean = 8).

- **Proportion of Hispanic participants:** Grantees indicated that most of their participants were of Hispanic origin. Individual programs reporting a range of 88% to 98%, with some providing additional details in terms of country of origin, SES, and immigration status.

Recruiting strategies for engaging students and families
While most of the grantees recruited participants using several different methods, the majority (n=7) recruited through local schools using flyers, attending school assemblies, and enlisting the help of teachers to identify potential participants. A few of the grantee organizations (n=3) recruited participants through after school programs. A few grantees (n=3) worked through private contacts with deep ties to the Latino community such as church leaders, other community leaders, or professionals associated with agencies such as the Hispanic and American Chamber of Commerce or The County Office of Education. A few other grantees (n=3) focused on community outreach directed both broadly, such as by distributing flyers at Latino grocery stores and health fairs, and through more targeted programs such as the Mother-Daughter Health and Communication strategies workshop. A couple of grantees (n=2) recruited participants through past SciGirls workshops and one grantee reported posting information on the grantees organization’s website both in English and Spanish.
Recruiting successes and challenges
The staff from 8 of the 10 grantee organizations indicated that that their chosen recruitment strategies were successful as they met their expected participation goals. Meanwhile, staff from two organizations reported difficulties in meeting some of their recruitment goals. Staff from one organization reported success in recruiting student participants but challenges in recruiting family members to participate in their workshops. Staff from another organization indicated that despite performing extensive recruitment efforts, their organization did not yield the expected number of participants anticipated for one of their key workshops. The staff subsequently learned that parents of potential participants were intimidated by the workshops’ focus on science and were able to make adjustments in time for their second workshop.

Key benefits of bilingual resources
When asked to describe the key benefits of the bilingual resources that were afforded to them through SciGirls en Familia, four-fifths of the staff pointed to impacts on the students and their family members that directly participated in their projects, while nearly one-third pointed to benefits for their own staff members. In the case of students, the staff explained that the bilingual resources enabled them to feel more comfortable in a bilingual environment and allowed them to strengthen their second language skills. The bilingual materials provided a comfortable atmosphere for participants but also, their family members who were more reticent in participating.

Family members, according to the staff, benefitted from the bilingual resources by allowing them to follow along with the workshops and learn STEM terms, as many of the family members spoke Spanish almost exclusively or were not currently fluent in English. In the case of staff members, the staff felt that the bilingual resources allowed them to better understand the content of the workshops and then apply it accordingly.

When and how Spanish language materials were used
When asked to describe when and how they used the Spanish language versions of the SciGirls print and video materials, most grantee staff indicated their organizations used them throughout their workshops, while a few used them for staff training and/or for families to borrow, as follows.

- **Resources used throughout each session (n=8):** All but two of the grantee organizations used the Spanish language resources throughout their program sessions. The print materials were typically made available for the participants to read aloud in English and Spanish. In terms of using the video resources, while access to a DVD player/TV was a challenge for at least one grantee, others indicated consistent use of the videos, particularly at the end of each workshop session.

- **Resources used for staff training (n=3):** Three of the grantees used the resources to train staff members, to give them a better understanding of scientific Spanish terminology or to model the inquiry process to be used with participants.

- **Resources made available for family members to borrow (n=3):** Three grantees reported making the resources available to family members to view or to take home,

Main benefits of grant funds
In reporting on their projects, the grantee staff consistently reported that the SciGirls en Familia funding provided them benefits in three key areas, including: recruiting and sustaining family members, professional development training and planning, and student/family field trips, as follows. All of the grantee organizations used the funds to help them recruit and sustain the involvement of families targeted by their projects. Seven of the ten organizations pointed to the importance of the grants for conducting professional development training with their staff and volunteers. Coupled with the educational and training resources provided by TPT, the staff indicated
that the grant funds provided them with a solid foundation to develop curricula, plan workshops, engage their local communities and grow professionally. Staff from three grantee organizations indicated that the funding was also important for enabling participants to partake in fieldtrips that help extend student and family learning from their projects.

**How uncovered grant costs were addressed**

All 10 grantee organizations received a grant from *SciGirls en Familia* in the amount of approximately $7500. All but one of the organizations incurred costs that were not covered by the *SciGirls en Familia* grant, such as staff salaries, project space, and transportation. The amount of the costs that grantees incurred ranged from a low of $25 to a high of nearly $39,000. Most often though the amounts ranged between $3000 and $6000, as follows: $3000, $5400, $8100, $4000, $6000. The staff indicated that these overages were usually covered by grants, general operating funds, and/or funding from other programs or fundraising, such as the sale of Girl Scout cookies, as none of the participants in their programs paid to participate.

**Methods used to evaluate projects**

The grantee organizations evaluated their projects through one of four methods: surveys/written evaluations, discussion/debriefing/focus group sessions, demonstration activities, and/or staff reflections.

- **Surveys (n=5):** Half of the grantee organizations used surveys or written evaluations to gauge impact. In two cases, grantees asked participants to complete both a pre-program survey to identify their initial impressions about STEM or prior involvement in science activities, and then a post-program survey based on the same set of questions. The grantees then compared answers to help them gauge whether their programs were having an impact as intended. The other three grantee programs were evaluated by asking participants to complete surveys or other less formal written evaluations at the conclusion of the programs.

- **Discussion/debriefs/focus groups (n=3):** A few grantee organizations used post-workshop discussions, debriefing sessions, and/or focus group sessions as their means to gauge the impact of their programs. A couple of these grantee organizations also used written survey methods, as described above.

- **Activity-based demonstrations of learning (n=2):** A couple of grantee organizations gauged impact by asking participants to demonstrate what they learned through a different activity that builds on learning addressed by *SciGirls en Familia*. In one case a grantee organization organized a science fair in which participants based their projects on the *SciGirls* experiments they performed during the workshops. Another grantee developed a system of SciPoints that were awarded to the participants with the highest participation during those weeks’ sessions and winners were featured in a monthly newsletter.

- **Staff reflections (n=1):** Finally, one organization relied on staff reflections to notice evidence of impact and did not incorporate the use of any of the above methods.

**Reported impacts of grantee projects**

The staff from the grantee organizations collectively pointed to 16 different project impacts. Ten (10) of these related to the students served by their *SciGirls en Familia* projects, and six related to the families that were served. The following section provides examples of the kinds of student and family impacts that the staff reported and how they characterized these impacts.

**Student impacts:** Almost all of the grantee organizations (n=9) reported that their students increased their knowledge of and interest in STEM as a result of participating in their grantee project. More than half the grantee organizations (n=6) reported that their students demonstrated an increased interest in STEM careers.
More than half (n=6) indicated they enjoyed collaborating/doing activities with their families. Exactly half (n=5) of the organizations reported increased confidence in conducting experiments/using scientific process. A few organizations (n=3) reported that their students demonstrated increased inquisitiveness, curiosity, or propensity to ask questions, while a few more reported that their students had an increased understanding of how STEM related to them personally. Individual organizations pointed to additional outcomes such as their students: placed at a science fair, led activities with their families at home; demonstrated an increased ability to communicate about science; and expanded their connection to their local community.

**Family impacts:** Staff at almost of the organizations (n=8) reported that the parents/guardians that participated in their projects exhibited excitement/pride for their daughters’ accomplishments through the *SciGirls en Familia* project. Staff at half of the grantee organizations (n=5) pointed to parents/guardians indicating increased motivation and skills to support their daughters’ continued STEM engagement. Just under half pointed to the families indicating they had increased discussions about STEM at home (n=4) and an increased interest in/willingness to conduct STEM activities at home. Four more grantees reported that their participant parents/guardian demonstrated an increase in STEM knowledge. One organization further pointed to increased parent/guardian comfort with their institution as place to visit.

**Part 4: The mini case study findings**

The three mini case studies allowed for a more in-depth look at the workings of individual projects, and in particular the role of families and bilingual resources. The three projects described below provide insight into the three program types funded through the grantee program as they included: a science center/museum project, an after-school project, and a girl-focused project.

**Project description**

In terms of their programing focus, the three organizations served considerably different functions. As a science center the Imaginarium of South Texas specialized in both museum based exhibits and inquiry-based programming, but also outreach programming to the rural communities surrounding Laredo. YVTC MESA was focused on STEM achievement through enrichment opportunities in STEM to underrepresented students in grades K-12, teachers, and parents through in and out of school programs, mentors, role models, and scholarship and career advising. The Sahuaro Girls Scout SciGirls (SGSC) primarily served girls ages 5-17 through structured and supervised weekly activities that take place after school, camps, and special events.

Despite these differences, all three grantee organizations had a history of serving underrepresented youth, and Latino girls and families in particular. All three also articulated it as a project goal to learn more about effective ways to engage Latino families, particularly bilingual and Spanish speaking parents and guardians.

The basic program format that each grantee organization developed was also similar in that each program involved staff visiting a site more than once. In two cases the programs were held in school-based settings and in the third they were held a variety of community based settings. SGSC held 20 after-schools weekly sessions at two predominantly Spanish speaking lower-income elementary schools. The Imaginarium of South Texas visited a total of seven community centers or churches located outside Laredo two times each. YVTC MESA hosted a series of four workshops at three different middle schools, for a total of 13 workshops.
Recruitment of target audience
In all three grantee projects, more than 90% of participants were Hispanic/Latino, and all participated at no cost. Each grantee project reported meeting or exceeding its student recruitment goals. The number of student participants served ranged from 40 at SGSC to 199 students in the case of the Imaginarium of South Texas. The girls varied somewhat in age by program, but were roughly between the ages of 8-14.

Two of the three programs served just as many or more family members than student participants, and in fact, the Imaginarium of South Texas had over 600 family members participate in its various activities, by far the largest of family participants recruited across the 10 grantee projects. On the other hand, one of the three programs fell short of meeting its family recruitment goal. In the case of SGSC, the staff came to the conclusion that greater attention would need to be paid to when family members were available to participate as it wasn’t a lack of interest that kept them from participating, but rather time of day and work and home commitments. When offered the chance to attend a day long field trip that was planned in advance, many parents/guardians found a way to attend.

Overall, each organization’s recruitment was greatly enhanced by local advocates. In the case of YVTC it was teachers who were present at all events and had consistent and ongoing contact with the students and their families. In the case of the Imaginarium of South Texas, it was the Zapata HHSC-OBA Regional Coordinator who was key to their recruiting success given the benefit of his ongoing commitment and contacts with the targeted audience to participate in the program and knowledge of the local community centers. In the case of SGSC having it was a matter of having Spanish speaking staff at venues where they advertised the program and held sessions, which helped the families to feel more comfortable with the staff and ultimately the program. SGSC staff might have benefited from the type of strategy that YVTC MESA used, which relied on a recruitment and registration process that was heavily tied up front to the school’s preferences, and focused on finding the best times for working parents to attend, and then having science teachers work with the staff members to schedule the workshops and promote the workshops via posters, fliers, school-wide events and registration sheets that they provided.

Use of bilingual resources
The staff for each project reflected that the success of their SciGirls en Familia project was closely tied to their use of the bilingual materials given their high percentage of exclusive Spanish speakers and Latino immigrants with limited English fluency. The staff in each case used the Spanish language materials in their sessions, although the Imaginarium of South Texas faced more challenges using the video than intended due to partner sites not meeting their commitments and the risks of leaving unattended laptops playing the videos. In this case, the sessions were held at community centers and churches rather than school sites as was the case in the other two programs that would likely have the required equipment. Meanwhile, the SGSC staff used both the SciGirls print and video Spanish-language resources in its programs but tended to rely on the print materials more often than video resources given limited access to a TV/DVD player. However, the staff made the DVD’s available for families to take home to view. This strategy might not have worked at the Imaginarium as only two visits were schedule per community site, whereas the SGSC school sessions were ongoing such that a rapport could be built with families and a mechanism for taking out and returning the videos put in place.

The SGSC staff indicated that the bilingual resources were an essential part of their program’s success, citing an example of how much more comfortable the girls were in being able to communicate about STEM in their native language: The bilingual resources further provided credibility that was important as the girls viewed that science careers were accessible to them, seeing that recognizable national organizations like NASA made available resources in Spanish. The strong emphasis on a bilingual approach was in part possible because the
project staff consisted of full and part time staff and adult volunteers, almost all of whom were native Spanish speakers, and all were bilingual.

The staff in each case also concluded that the use of Spanish language materials in the SciGirls webinar training allowed them to complement the existing science interpretation training program they already provide for their staff, volunteers, and youth interns. The staff found that the bilingual materials gave a bilingual staff that was not all familiar particular science concepts in Spanish the necessary background in science Spanish vocabulary and provided an opportunity for growth and further application of their developing leadership skills in STEM education.

Despite the convenience of the online training format, some staff members, all of whom had experience with an in-person training format through SciGirls en Español, would have preferred the training be in-person, rather than in webinar form, recognizing the importance of the bonding experience available with live training and the fact that specific activities were hard to grasp in webinar form and would have been more valuable to staff with hands-on experience. The staff reflected that in this case that while they appreciated the challenges of getting staff together, typically their staff would benefit more from a face to face training, with a trainer visiting with all the materials in-hand where staff can experience the synergy of working together and reviewing the materials.

Expenses
For the MESA project, the SciGirls en Familia grant money covered all of the project costs with the exception of travel costs (vehicle, maintenance, gas) and staff time. The organization’s Acceso a la Ciencia grant money covered these expenses through support from the National Science Foundation. In the case of the Imaginarium of South Texas staff, the majority of the budget was applied towards personnel salaries and facilities rental fees. The staff noted that it was preparing to apply for funding to other organizations because without continued financial support, this program would not be sustainable, since the community resources do not have the resources. In the case of The SGSC, the staff reported that the SciGirls en Familia grant money covered more than half of the project expenses. The remaining necessary funds were covered through partial funding from other grants and the proceeds from the sale of Girl Scout cookies.

Project impacts
To measure outcomes, two of the three grantee programs relied on participant surveys. The YVTC MESA program staff conducted post workshop evaluation at all but two events. Out of 179 participants that filled out evaluations, all participants mentioned new concepts they had learned and 19% of these noted specific science or math concepts; 83% responded that they enjoyed doing these activities with family members and 61% indicated enjoyment of the activities, a desire to see their continuation. The project staff of SGSC used attendance numbers and STEM related outcomes addressed in the SciGirls en Familia programming. Using a pre-post survey design the SGSC staff reported that the project’s main impacts involved the girls comfort level in exploring STEM topics, because the program was informal, fun, bilingual, and the girls-only.

Although parents did not directly participate in the ongoing program, the program staff indicated they indirectly benefited by observing and sharing in their children’s’ enthusiasm As alluded to earlier, one of the main lessons this project staff was able to take away from their project involved the challenges of incorporating families into their troop-based programming. As the staff determined that the lack of parent/guardian participation was not due to a lack of interest in their children’s activities but rather a function of program timing, future family-oriented projects could look into emphasizing parent involvement at specific events, as the staff was able to secure for the day long fieldtrip, which entailed a significant amount of time, advance planning, and time off work.
Unlike the other two grantee projects, the impact of the Imaginarium of South Texas project was gauged qualitatively through an informal question and answer period with several of the participating mothers at each site. Although the staff didn’t have a systematic way of evaluating parent impacts across sites, the staff concluded based on the available data they had to work with that overall, parents: found value in attending the program and felt it was a benefit for their children, expressed heightened interest in nutrition and concerns with the eating habits of their children, and were supportive of their children, and of the girls in particular, in continuing to pursue educational opportunities. This was the one site where the staff noticed a difference in the level of interest and involvement from the mothers and fathers, in that dads were somewhat less involved. The staff thought that they might be able to hook more fathers in if they featured a competition based element to the program. Looking forward the staff determined it would look to set up some ways where the fathers are the experts, something they are familiar with, that might be an angle to get them more involved. This way they can share what they know but not need to be competitive.

In reflecting on its project impacts, the staff also expressed a desire for more comprehensive methods of gauging impact. Though they had success having staff keep detailed journals for its SciGirls en Español project, they did not use journals for the current grant project, and regretted that decision. This is a theme evident across many of the grantee projects, not just the three case studies. The grantees approached their evaluation in very different ways, and some had more evaluation knowledge and capacity than others to think through and execute a solid evaluation plan. Nonetheless, the section on project impacts in Part 3 showed that many projects looked at the same types of impacts and generated similar findings.

**Implications for future work**

In closing, we briefly discuss key themes that stood out in the above findings, selected both for their pertinence to the goals of the current evaluation, and their implications for future work produced by tpt and other groups focused on producing informal science outreach programs designed for Hispanic girls and their families.

- The findings that emerged in this report concerning the barriers and facilitating factors to families’ participation in the SciGirls en Familia program have been addressed in recent studies on Latino families’ engagement in their children’s informal science learning. For example, in their 2010 focus group study with Latino parents in two communities, Bruyere and Salazar found that parent interest in informal science programs was high and that parents perceived family-focused programming as appealing and important but were unaware of the opportunities for engagement. Their research further indicated that parents recognized that practical barriers to their participation existed, but felt these could be addressed and should be viewed as secondary.

Similarly, many of the SciGirls en Familia grantee staff spoke of these themes in their final reports, surveys, and interview responses. The staff described their recruiting challenges at length, but was also quick to explained the strategies that worked to address these challenges. In most cases the strategies were successful, and when they weren’t, the grantees took away, and shared with tpt, lessons they learned about improving future recruiting efforts.

In planning future tpt programs, this is an important area where sharing of project successes and challenges would benefit grantees as they occur, rather than after programs are completed. Where some

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Knight Williams, Inc. 81
projects built into their project design mechanisms for assessing, up front, the likely role parents could play in their programming and garner feedback from them on what was feasible and how to build their program around their availability, others had to learn as they went, and encountered family participation rates that were not as high as projected. The type of online community that was made available to the grantees through the Ning, which was a new feature of SciGirls en Familia that wasn’t possible before, makes this sharing feasible from a technological standpoint. From a communication and participation standpoint, most staff also indicated in their post-training responses that they were willing and able to communicate in this fashion, particularly if it were facilitated, easy to use, and updated to remain current.

- The case studies conducted for this report similarly raised cross-cutting themes that further point to the potential value of grantees sharing project plans, implantation strategies, successes, and challenges as they emerge and are a work in progress, not just after the fact in the form of lessons learned. For example, the SGCS staff may have gained helpful insights from the experience of the Imaginarium of South Texas staff, who, like them, also encountered recruiting challenges with parents. Two major recruiting challenges the Imaginarium staff faced were getting parents comfortable with the program’s purpose and its leaders. The resistance took a number of forms, with at least some community members even fearing the program could be an immigration trap. The staff addressed and ultimately alleviated such concerns through recurring visits to help establish buy-in and trust.

This attention to detail paid off as the family attendance numbers exceeded expectations, but it also required a significant investment of staff time, and resources, such as gas, which is a significant cost in rural area. While the SGCS staff faced different recruitment challenges with their local families, some of the mechanisms that the Imaginarium staff used in researching parents’ needs and interest up front, meeting parents on their own terms, and building a program around their availability and concerns, could apply across all projects. Here again, future SciGirls grantee programs might work to build this online sharing capacity into the project implementation phase, well beyond the training component.

- Future SciGirls programs should closely consider the relative value of the online training platform. Despite the convenience of the online training format, some staff indicated they would have preferred the training be in-person, rather than in webinar form, recognizing the importance of the bonding experience available with live training and the fact that specific activities were hard to grasp in webinar form and would have been more valuable to staff with hands-on experience. The staff reflected that in this case that while they appreciated the challenges of getting staff together, typically their staff would benefit more from a face to face training, with a trainer visiting with all the materials in-hand where staff can experience the synergy of working together and reviewing the materials. While it doesn’t have to be an either or scenario, considering supplementing the online training with some form of an in-person element seems warranted.

Other small tweaks to the online training are also worth considering. When asked if they had suggestions for improving the training for future grantees, several small groups of staff pointed to areas they would like to see added or featured more prominently, including: an in-person training component, a wider selection of activities, the use of training videos, such as videos of a workshop showing girls working with their families on a featured activity, and more information on running a bilingual program. Finally, a few other grantees suggested featuring more live chat opportunities, more information on engaging Hispanic families, and/or more training in Spanish for Spanish speakers.

- It is commendable that for the limited budget funds available, all of the grantee projects managed to conduct evaluations of their projects. The methods varied considerably though, as did the rigor, which is to be assumed given that the grantees had both limited funding and training in this area. Future projects could
benefit by having the project evaluator develop an evaluation assessment tool that could be adapted across projects so that common indicators could be looked at across the projects. All of the grantee staff that were asked about this option were open to the assistance and felt that using, or at least adapting, common templates was feasible.

- To further assist with the reporting of impacts, future grantee programs might build in a mechanism whereby the project evaluator works with tpt on the questions that grantees are asked to address in their final reports. Not all grantees answered all of the questions, and in some cases questions had multiple parts which got skipped over. Developing an online final reporting form in which sub-questions are asked separately, and are required to be completed before advancing in the form, could help address this issue. The grantee staff did indicate they appreciated tpt providing them questions as it gave them a clear idea of the questions they needed to address up front, and most seemed to understand the issues they were asked to address. However, in places the questions could be simplified, clarified, and streamlined to make the reporting process more efficient and effective. These relatively easy changes could also help ensure that both the project administrative and evaluative functions are adequately served and that consistent types of information are collected across projects.

- From a methodological standpoint, shifts in the evaluation approach are also recommended when conducting future case studies involving parent participation. The evaluation team initially hoped to have the opportunity to speak with one or two parents involved in each program to provide feedback on their experience, this proved difficult to organize given: challenges in locating parents who participated in the program, parents not feeling comfortable speaking to an “outsider,” parents not having sufficient familiarity with evaluation to understand the purpose of the interviews to “trust” the process and what was involved in them. Although the case studies were designed to be retrospective, and only contact parents at the conclusion of a project, future efforts to secure parental buy-in to participate in interviews should begin before the grantee projects begin so that sufficient time to build familiarity, comfort level, and purpose can be established, such that by the end of the grantee program, speaking with an evaluator would be a natural expectation of program closure and follow-up.

- Finally, the findings on the appeal and effectiveness on the SciGirls bilingual materials support work documented in recent studies on the value of bilingual programming in informal science education. Articles cited in the SciGirls en Familia training Ning by Wheaton and Ash (2008),7 for example, support the value of bilingual programming in informal science education where in that case, the bilingual teaching of science in an aquarium summer camp for Latina girls was deemed very important to bridging the girls' lives in camp, school, and home (page 131).

This theme applied not just to the girls served by the SciGirls en Familia projects, but also their families. A 2007 Department of Education study produced by West Ed, entitled Engaging Parents in Education: Lessons From Five Parental Information And Resource Centers8, reported that one of the biggest challenges facing a community-based organization serving Latino immigrants was “to vet the information on the Web site and, thereby, ensure its usefulness. The biggest challenge they said they were facing was to translate the education jargon into terms that are meaningful …“(page 22).

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To meet this challenge, which is similar to the SciGirls en Familia grantees encountering families unfamiliar with science terms and lacking comfort around STEM content discussions, the staff relied heavily on their conversations with parents affiliated with the organization. This face-to-face strategy was also use by many of the SciGirls en Familia grantee staff, who frequently described the importance of taking the necessary time required to meet with parents of girls who attended the participating schools, after-school programs, and community centers, and use the SciGirls bilingual materials to help them address the barriers to communication that arose. For both students and their families, the value of the bilingual resources provided by tpt was a recurring theme throughout the report, and one which was poignantly summed by the staff member who reflected. “Without bilingual resources, we would have risked alienating these participants rather than creating an atmosphere of inclusion, engagement, fun & discovery.”
Evaluation Team

The evaluation team was co-directed by Valerie Knight-Williams, Ed.D., and Divan Williams Jr., J.D., with assistance from Eveen Chan, Tal Sryaboyants, David Towers, and AJ Chambers. The team has collaborated previously on the evaluation of informal science education projects targeting Spanish speaking audiences, including current initiatives associated with the *Pulse of the Planet* radio program and the Exploratorium’s *Evidence* website project.

Knight Williams has also collaborated on more than fifty multimedia science education projects funded by the National Science Foundation’s Informal Science Education program since 1990. The firm is based in Sacramento with associates located in San Francisco, Washington DC., New York, Miami, Portland, and Seattle. The firm’s projects are frequently national or regional in scope, target public and professional audiences in diverse settings, and typically incorporate one or more of the following media: television programs, giant screen films, radio programs, museum exhibits, websites, interactive multimedia, and curricula or other print materials.

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