

Summative Evaluation Report

Dragonfly TV SciGirls Grantee Outreach Program



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Overview

Supported by a grant from the National Science Foundation's Program for Gender Equity, *Dragonfly TV SciGirls* (*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. Since 2005, Twin Cities Public Television (TPT), the PBS affiliate station in St. Paul/Minneapolis, has awarded 24 organizations ("grantees") with grant awards, multimedia resources, and training to help outreach staff implement *SciGirls* initiatives in their local communities.

To assess the impact of the *SciGirls* grantee program, Knight-Williams, an independent evaluation firm specializing in informal science education media projects, conducted a summative evaluation of the program's first three years. The evaluation focused on 17 of the 24 *SciGirls* grantees funded from 2005-2007. This group of 17 included the PBS stations for which grantee contacts were available (8 out of 14) and the science centers/museums that completed *SciGirls* projects by the evaluation period (9 out of 10). The evaluation relied on secondary data, most notably the grantees' project proposals and final reports, and the reflections of the principal staff responsible for directing the grantee projects, as reported through in-depth telephone interviews and an online survey. While this retrospective design did not allow for comparisons over time, the evaluation findings confirm that the grantees addressed the overall goals of the *SciGirls* program and fulfilled their grantee obligations to TPT. These goals and obligations, combined for the purposes of this overview, included:

- 1) participate in a *SciGirls* training;
- 2) strengthen proposed community partnerships and act as lead coordinator among partners;
- 3) reach diverse audiences;
- 4) use *SciGirls* resources to reflect the inquiry and authentic investigation approaches in *Dragonfly TV*;
- 5) deliver hands-on science encouragement and career guidance in creative and dynamic ways;
- 6) complete a final report documenting the project's outcomes; and
- 7) demonstrate sustainability beyond the completion of the grant.

The key findings from the evaluation, grouped according to these 7 goals and obligations, are briefly summarized below.

1. Participate in a *SciGirls* training

All but one grantee participated in the *SciGirls* grantee training program. Grantees consistently praised the program and identified the most valuable aspects to be the hands-on activities, the trainer's knowledge and enthusiasm, and/or the opportunities to connect with other staff and partners. Grantees generally agreed that the training program was worthwhile, organized, and well-run and that it gave them a better understanding of the *SciGirls* program goals. They also agreed that they gained knowledge that was best acquired by attending in person and that they learned valuable ways to use the *SciGirls* video, print, and web resources. Grantees were somewhat divided about whether the program should dedicate more time to research findings on how girls learn and enjoy science and how the resources related to their needs and experiences.

2. Strengthen proposed community partnerships and act as lead coordinator

Grantees named the opportunity to form new community partnerships as one of the two main reasons for seeking a *SciGirls* grant. When choosing partners, grantees most often focused on youth organizations, followed by scientists from educational or commercial institutions, museums, media organizations, schools/teachers, or environmental/outdoor clubs or associations. Grantees generally considered their partnerships to be successful, and frequently praised their partners for: offering leverage, being easy to approach or get buy-in from, yielding collaborations that were natural rather than forced, and offering the missing pieces that they needed for their projects, such as site/spacing, staffing, recruiting, and guest speaker support. The partnerships did create a few challenges for grantees, particularly in terms of dealing with: partner staff turnover, attrition among participants

recruited by partner organizations, and aligning partners' established youth programs with the goals of *SciGirls*.

3. Reach diverse audiences

The number of participants served by *SciGirls* projects ranged widely, from a low of 12 to a high of 512. While the average number of girls served across the projects was 112, the majority of projects served between 12-40 participants. With the exception of one project that targeted educators, the projects mainly targeted girls, typically 5th - 9th graders. To recruit girls, grantees partnered with various youth organizations, most often the Girl Scouts, followed by Boys and Girls Clubs, and Girls Inc. While grantees did not verify the types or numbers of underserved youth participants, all stressed that their projects were designed with this goal in mind, and that they chose partners accordingly. Grantees most often described serving girls from low income, followed by racial minority backgrounds. Less frequently they described serving girls with special needs, residing in rural regions, or from military families.

4. Use *SciGirls* resources to reflect inquiry and authentic investigation in *Dragonfly TV*

All of the grantees used some combination of the multimedia resources provided by TPT. While grantees found all of the resources valuable, they tended to most highly rate the videos, followed by the print activity guides, and then the website, as follows.

Videos: All but one grantee used the videos in their *SciGirls* projects. While few grantees reported regular use of the videos, most found ways to use them at least occasionally, typically as a warm-up/icebreaker or to model the scientific inquiry process prior to doing an Investigation activity. The most common reasons grantees identified for not relying upon the videos were that: the content didn't quite mesh with their project focus, they wanted to get the girls immediately active by doing their own "live" inquiries, or the videos featured girls interacting with materials or environments that weren't readily available in their region.

Print activity guides: All but one grantee used the print activity guides in their *SciGirls* projects. Few grantees reported regular use of the guides, but most found ways to use them at least occasionally. While most grantees used the Icebreaker activities, less than half used the Investigation activities as written, although they were sometimes adapted to fit the needs of a project. The most common reasons grantees identified for not relying upon the activity guides were similar to those applied to the videos above, including: the content not meshing with their projects' focus, their preference for having participants develop their own investigations, or their lacking access to materials required to complete the activities.

Website: The majority of grantees used the website early on, during their grant or project planning stages to see if they qualified for the grant, for grant writing support, or for background knowledge. More than half then continued to use the site as a reference tool or to download materials. Several grantees said they referred partners, teachers, or girls to the site, although few actually used the site with girls. Those who used the site with girls used the message board feature, watched an episode that related to a topic they were covering, and/or just had the girls browse the site. The most common reason for grantees not using the site was that it didn't offer material beyond what they already received from TPT.

5. Deliver hands-on science encouragement and career guidance in creative dynamic ways

Camps were the most common type of project offered by the grantees, followed by after-school programs and sleep-over or day-long events. As noted in section 4 above, grantees were focused on getting girls actively involved in doing science investigations, and being hands-on. Career guidance was delivered either by using the scientist profiles featured in the *SciGirls* materials or through guest

speakers arranged with partners. As noted under section 6, “science encouragement” and “career guidance” were key elements of the gains grantees discussed about their project outcomes.

Grantees were also attune to *SciGirls*’ focus on promoting girls in science, as nearly three-fifths incorporated research findings on how girls learn and enjoy science into their projects’ design, promotions, and/or implementation. Grantees that strongly relied on the findings said they were essential in the design of their projects as they lacked experience in this area. Grantees that relied little on the findings noted that they basically reinforced information they already knew from prior work. Meanwhile, about two-fifths of the grantees had some difficulty recalling the research findings, explaining that either too much time had elapsed for them to remember the findings or that the findings weren’t prominently enough featured in the *SciGirls* training program or materials for them to take notice.

6. Complete a final report documenting project outcomes

All 17 grantees completed a final report that documented their project activities and outcomes. When asked to reflect on the impact of their projects on the girls who participated, grantees typically discussed outcomes that were both cognitive and attitudinal in nature. Most often they concluded that their projects: increased girls’ confidence to participate in science, deepened their understanding of the inquiry process, broadened their perception that science is bigger than previously thought, increased their awareness of and interest in science careers, and/or showed them that science can be fun and exciting.

Nearly half of the grantees did not conduct a formal evaluation to assess their project outcomes, however, or they relied solely on informal feedback from program participants and/or staff. Those who did conduct an evaluation most often asked the participating girls and/or their parents to complete written or telephone surveys at the end of their projects. Some grantees also sought staff or outreach partner feedback. The main reasons grantees cited for not conducting an evaluation were time constraints or oversight.

7. Demonstrate sustainability beyond the completion of the grant

All of the grantees reported that their departments were still conducting or planned to conduct additional *SciGirls* programming. While only a couple of grantees planned to continue with their original project model, most planned to expand or develop variations of their projects. At a minimum, grantees planned to fold the use of *SciGirls* materials into their existing educational programs.

Even with the retrospective design limitations, the findings show that the *SciGirls* grantees met these 7 goals and obligations. And as these goals and obligations are fundamental to the grantee program’s larger mission of *encouraging girls’ interest in science by building capacity among outreach professionals in the area of gender-equity teaching and learning* (page 1), TPT was successful in fulfilling its mission. Via the NSF Program for Gender Equity grant, TPT awarded 24 PBS stations and science centers/museums with outreach grant awards over a 3 year period that were typically under \$10,000 each. As reported by the 17 organizations accounted for in this report, TPT also efficiently delivered to them multimedia resources that incorporated authentic investigations, scientific inquiry, and research findings on how girls learn and enjoy science. The resources were well-utilized by the grantees across diverse project sites, due in part to opportunities created through the grant award, but also, according to the grantees, the resources’ high internal value. Additionally, the support provided by TPT, most notably through the *SciGirls* training, and by local partner collaborations, also played a critical role. These two levels of national and local support, TPT and community partnerships, respectively, were in turn highly valued, well-utilized, and ultimately integral to the grantees’ success in sustaining, modifying, or even expanding their *SciGirls* projects after the grant period.

Finally, grantees were overwhelmingly positive about their experiences with their *SciGirls* projects. While acknowledging some challenges in administering their grants, typically involving time or financial constraints, most grantees strongly agreed that they found valuable ways to use the *SciGirls* materials, that they received the materials in a timely manner, and that they received sufficient direction and support from TPT. Grantees also agreed that they had a good understanding of the goals of the *SciGirls* grantee program, that their project advanced these goals, and that their departments benefited from *SciGirls*.

Grantees did suggest a few ways to modify or expand the *SciGirls* grantee guidelines, training program, multimedia resources, and final reporting requirements. The following issues may be worth exploring for the future:

➤ The grantee guidelines

Offer strategies for how grantees can: supplement grant awards, form and maintain successful partnerships, address resistance to girls-only programs, maximize participant enrollment, minimize participant attrition and staff turnover, and find a fit between *SciGirls* programming and that offered by partnering youth-based programs.

➤ The training program

Add more information on: how girls learn and enjoy science, include training costs into the grant awards, and follow-up with a video conference call/webex.

➤ The multimedia resources

Expand the resources to include: grade level/standards information, supplemental take home materials with a regional and family focus, branded and waterproof *SciGirls* journals, updated T-shirt styles, dynamic blogging, web-based data representation, and activity-based materials and environments that are available and relevant, respectively, across diverse regions.

➤ The final reporting requirements

Include evaluation assistance or templates that enable grantees to report on common indicators while capturing their project outcomes in ways that also reflect their unique *SciGirls* outreach goals.

The full report details grantees' perspectives on all the above issues and offers specific ways to address each suggestion.

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Introduction

Supported by a grant from the National Science Foundation’s Program for Gender Equity, *Dragonfly TV SciGirls* (*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. Twin Cities Public Television (TPT), the PBS affiliate station in St. Paul/Minneapolis, has since 2005 awarded 24 organizations (“grantees”) with: (i) outreach grant awards of \$4000-\$9200; (ii) multimedia resources including *Dragonfly TV* videos featuring girls doing authentic inquiry and ancillary print and Web resources; and (iii) training to help outreach staff implement *SciGirls* initiatives in local communities.

The 24 grantees included 14 PBS stations awarded grants in 2005-06 and 10 science centers/museums awarded grants in 2007. As shown in Figure 1 the grantees are situated in large and small communities and from diverse regions of the US. The grantees were selected through a competitive application process based on the extent to which their proposed projects were well-designed and poised to meet the following goals:

- deliver hands-on science encouragement and career guidance to girls in their communities in creative and dynamic ways;
- use the *SciGirls* videos, print, and Web resources in ways that take advantage of the inquiry-based and authentic investigation approaches reflected in *Dragonfly TV*;
- reach diverse audiences;
- strengthen proposed community partnerships; and
- have the potential for sustainability beyond grant completion.

Figure 1
***Dragonfly TV SciGirls* Outreach Grant Recipients**

Informal science centers/museums funded 2007 (n=10)	PBS stations funded 2005-06 (n=14)
<ol style="list-style-type: none"> 1) Amoskeag Fishways Learning and Visitor Center, Manchester, NH 2) Arizona Science Center, Phoenix, AZ 3) Carnegie Science Center’s Girls Math & Science Partnership, Pittsburgh, PA 4) Center for Educational Technologies, Wheeling, WV 5) DaVinci Discovery Center of Science and Technology, Allentown, PA 6) Discovery Center of Springfield, Springfield, MO 7) Hobbes Inc. (Hands-On Boat-Based Education & Science), Acton, MA 8) New York Hall of Science, Queens, NY 9) Science Center of Southern Illinois, Carbondale, IL* 10) Tallahassee Museum of History & Natural Science, Tallahassee, FL 	<ol style="list-style-type: none"> 1) KPBS (San Diego, CA) 2) UNCTV (Research Triangle Park, NC) 3) WQLN (Erie, PA) 4) WFSU (Tallahassee, FL) 5) SDPTV (Vermillion, SD) 6) WPBS (Watertown, NY) 7) WBIQ (Birmingham, AL) 8) WSIU (Carbondale, IL) 9) KSYS (Medford, OR)* 10) WGBY (Springfield, MA)* 11) WCFE (Plattsburg, NY)* 12) WLPB (Baton Rouge, LA)* 13) KOPB (Portland, OR)* 14) WEDU (Tampa, FL)*
<p>*Organization where <i>SciGirls</i> project was incomplete at time of evaluation and therefore excluded from the analysis.</p>	<p>*Organizations where staff members who worked on or were familiar with the <i>SciGirls</i> program had left. These projects were excluded from the analysis.</p>

Once grantees received funding they were then additionally asked to meet the following obligations:

- assign staff to complete training;
- act as a lead coordinator among partners; and
- complete a final report documenting the program's outcomes.

Knight-Williams, an independent evaluation firm specializing in the evaluation of informal science education media and outreach projects, conducted a summative evaluation of the grantee program during the winter and spring of 2008. The purpose of the evaluation was to document the impact of the *Dragonfly TV SciGirls* outreach model on the organizations that took part, with the "model" comprising the combined contributions of the grant award, the hands-on training, and the multimedia resources. The *SciGirls* project goals and grantee obligations bulleted above are the core issues that informed the evaluation design and questions, detailed below.

Evaluation Design and Questions

The evaluation focused on 17 of the 24 grantee projects funded from 2005-2007. This total includes all of the science centers/museum funded in 2007 that completed *SciGirls* projects by January 2008 (9 out of 10) and all of the PBS stations for which grantee contacts were available (8 out of 14). As the evaluation occurred in the winter of 2008, after all but one of the grantee organizations had completed their projects, the evaluation is retrospective, relying on secondary data sources and the reflections of the principal staff responsible for directing and implementing the grantee activities. The evaluation explored questions relating to the grantees' experience with the *SciGirls* grant awards process, training, and resources, as outlined below.

SciGirls grant award

- How did grantees learn about the *SciGirls* grantee program and why did they apply? Did grantees have previous involvement in *Dragonfly TV* educational programs or activities? Did they have previous experience with girls' science initiatives?
- What kinds of individuals were targeted by the grantees' projects? Was the target audience reached? About how many girls were served? Did grantees attract non-traditional audiences, and if so how?
- What kinds of partners were targeted by the grantees' projects? What roles did the partners' typically play? How successful did grantees feel their partnerships were?
- How were grantees' projects similar to and different from one another? To what extent did grantees have plans for continuing their projects after the grant period?

SciGirls training

- To what extent did the training prepare grantees to coordinate and implement activities in their local communities?
- Did grantees feel the training was well-organized and run?
- What did they find most and least valuable?
- To what extent did the training increase awareness of issues in gender-equity teaching and learning within grantees' departments? In particular, did the training raise staff awareness of how girls learn and enjoy science? Or did the resources play a bigger role in this regard?
- Did grantees have suggestions for improving the training experience?

SciGirls resources (video, print, and web resources)

- Which of the video, print, and Web resources did grantees engage and why?
- How satisfied were grantees with the resources? What did they find most and least valuable?
- What did grantees find to be the main challenges and highlights of implementing the resources they chose to use?
- In the grantees' opinion, what did the girls gain from their experience with the resources? What methods if any, were used to assess these gains?
- In implementing the resources, did grantees apply the key research findings built into the *SciGirls* materials?

Procedure

The evaluation occurred in 3 phases, as outlined below.

Phase 1: Secondary data analysis

Knight-Williams compiled and reviewed all pertinent secondary data sources for the purpose of documenting the outreach program as a whole and informing the 2nd phase of data collection summarized below. Secondary data sources¹ included:

- The 2 grant proposals submitted to the NSF.
- The RFP on which the proposals are based.
- The training agenda.
- The 24 grantee proposals.
- The grantee final reports.
- The *SciGirls* activity guides and DVDs.
- Contact information for grantees.

Phase 2: Evaluation of grantees' experience with the *SciGirls*' outreach program

Knight-Williams conducted in-depth telephone interviews with the grantees to explore their partnerships, use of *SciGirls* resources, and future plans. Grantees also completed an online survey http://www.knightwilliams.com/sci_girls/intropost.htm that focused on their: experience with the grant application process, method of learning about the *SciGirls* grant program, experience as a *SciGirls* grantee, and reactions to the training program.

The evaluation sought feedback from at least one representative from each grantee organization that participated in the *SciGirls* program, where project contacts were available. All participants were informed that their feedback was confidential and would help guide the direction that TPT takes in planning future outreach activities. Participants were also provided a \$40 honorarium or gift certificate to amazon.com as an added incentive to complete the evaluation tasks, which totaled approximately 70-120 minutes of their time depending on depth of feedback.

Phase 3: Overall analysis and reporting

Given the small number of grantees, limited descriptive statistics were conducted on the quantitative data generated from the evaluation. Content analyses were performed on the qualitative data generated in the open-ended questions and was conducted by two independent coders. Any differences that

¹ Sincere thanks are due to Margaret Duden of TPT for carefully compiling, organizing, copying, and sending all of the secondary data sources required for the analysis.

emerged in coding were resolved with the assistance of a third coder. Finally, to preserve grantee confidentiality in the reporting, where quotes are provided by grantees, unique identifying information was either removed or rephrased in the more general form, as in [Organization] instead of X organization.

Grantees’ organizational affiliations and roles on the *SciGirls* projects

The grantees’ organizational affiliations are summarized in Table 1. Those from the 8 participating PBS stations most often worked both in Education (n=7) and Outreach (n=6) capacities while those from the 9 informal science center/museums most often worked in K-12 student programs (n=7) and/or teacher programs (n=4).

Table 1 Grantees’ organizational affiliations	
	(n=17)²
PBS Station	8
<i>Education</i>	7
<i>Outreach</i>	6
<i>Other</i>	1
Informal science center/museum	9
<i>K-12 student programs</i>	7
<i>K-12 teacher education programs</i>	4
<i>Volunteer/docent training</i>	0
<i>Staff development/enrichment</i>	2
<i>Exhibit development, renovation</i>	0
<i>Other</i>	1

In the online survey, the grantees were also asked to describe their role(s) on the *SciGirls* grant. Their descriptions of their program roles are below, and typically involved wearing multiple hats, including: grant writer, program director/administrator, materials’ coordinator, marketer, liaison, trainer, technical support, staff manager, instructor, recruiter, and report writer. For example:

- *I helped with the first year of the project and was trained as a part of the grant. The two consecutive years have been the coordinator of the SciGirls Camp.*

² Note that the column sums in many tables will exceed the total (n) for the column if participants offered more than one category of response.

- *I gathered the materials and led all of the activities during the week long science camp.*
- *I co-wrote the grant proposal and worked with my managers to create the program design. Once approved, I connected my managers with staff at Dragonfly so that program details could be discussed. I co-wrote the final report with the development office. So, overall, I managed the grant, but was involved in the day to day implementation.*
- *For this project, I developed the outreach campaign and managed the program during the grant period.*
- *I was the grant administrator, overseeing the project, providing the resources for the partners, and providing technical support to the partners. The [program] director and coordinators actually implemented the curriculum in their weekly planned academies.*
- *Originally, I developed the activities that were included in the grant proposal. I co-wrote the grant application with our grant writer. I was involved with all marketing and promoting of this program. I was involved in all partnerships with external companies. I coordinated all donations and was responsible for all expenses and budget concerns.*
- *I wrote and administered the grant. Was the point person with all partners and volunteers and managed [staff].*
- *I wrote the grant after meshing our center's capabilities with SciGirls activities and the grant requirements. I also wrote the girls-only grant extension, which was a delightful, eye-opening experience. The girls were very enthusiastic!*
- *I contacted the Girl Scout office...regularly throughout the grant-writing process and after we received the grant.*
- *I obtained all food and drinks and sent repeated invitations for Girl Scout office personnel to attend the one-day training program.*
- *I recruited members of my Girl Scout troop to assist me in the day-to-day running of our two workshops... I reserved rooms for all workshops; I made cafeteria arrangements for lunches; I handled all registration logistics; I designed the theme, the notebooks, and the [instruction], based on using the [pool] and lifeguards, and two really well-done fitness videos... Our Education Resource Center manager lead an inquiry based rocketry activity.*
- *Wrote the proposal, attended the training and visited the camp. I did not teach a whole session.*
- *I was the grant administrator and writer, as well a trainer within the SciGirls sessions.*
- *I assisted the lead educator in discussing her ideas for planning and developing the camps. I assisted in supervision of field trips, helped with various administrative tasks, tabulated results of pre and post assessment, monitored the budget, submitted the final report, and made sure the educator who volunteered to develop the program had a steady supply of chocolate!*
- *Primarily responsible for developing, promoting and carrying out the program.*
- *I headed up the project for the station. I wrote the grant and was involved in all aspects of setting up the project. I also found the community partners that participated.*
- *Project administrator and leader. I was actively engaged in all aspects of SciGirls: planning, promotion, reporting, organizing, coordinating, teaching, etc...*
- *I wrote the grant with assistance...I coordinated the first SciGirls Summer Camp...It was a tremendous experience! [Colleague] has coordinated the camp for the last 2 years...and she will coordinate it again this year.*
- *Grant writer and project director.*
- *Author, Community Partner Cultivator, Administrator, Collaborator in Design and Implementation, Marketer, Evaluator, Teacher with the Girls involved, Motivator.*
- *I serviced as the overall coordinator for the grant, took care of the budget, recruited, hired and supervised the teachers, advertised the camp, and oversaw the [Museum's] portion of the camp program.*

Findings

Part 1 Grantees' feedback on the *SciGirls* grant application process

Part 1 of the evaluation focused on the *SciGirls* grant application process. Grantees reported on their source for learning about the *SciGirls* grant, their reasons for applying, and their prior experience conducting science programs targeting girls.

1.1 How did grantees learn about the *SciGirls* grant opportunity?

Grantees' mentioned a range of sources for learning about the *SciGirls* grant, with no one source being predominate. As Table 2 shows, the following sources were mentioned in order of descending frequency: email blast from TPT (n=5), third-party information (n=4), the ASTC³ Conference (n=3), direct contact with TPT (n=2), and an online posting (n=1). A couple of grantees couldn't recall how they learned of the grant program.

Table 2
How grantees learned about the *SciGirls* grant opportunity

	(n=17)
Email blast from TPT	5
Third-party information	4
ASTC conference	3
Contacted by TPT	2
Can't recall	2
Online posting	1

The grantees that learned of the grant through third-parties pointed to the National Center for Outreach, an NCO News Blast, a teacher, and/or a grant writer. The grantee who learned of the opportunity through an online informational posting noted: *A fellow staff member found the information online and passed it along to me.*

³ The Association of Science-Technology Centers (ASTC) is an organization of science centers and museums focused on increasing the public understanding of science. ASTC sponsors an annual conference as detailed at: <http://www.astc.org/conference/index.htm>

1.2 What were grantees' main reasons for applying for a *SciGirls* grant?

Grantees were asked to rate the importance of various reasons to their department's decision to apply for a *SciGirls* grant on a scale from 1 (not at all important) to 7 (very important). As Table 3 shows, the two most highly rated reasons involved forming new community partnerships (mean rating, 6.7) and starting a science program focused on girls (mean rating, 6.2). Three other reasons had mean ratings that were at least a full point lower, including: wanting to expand or build on an existing science program focused on girls (mean rating, 4.9), the opportunity to continue working with their existing community partners (mean rating, 4.7), and having a positive history of working on projects with TPT (mean rating, 4.2). The least important reason was the desire to incorporate *SciGirls* materials into another more general educational program already being implemented (mean rating, 3.8).

Table 3
Grantees' reasons for applying for a *SciGirls* Grant
(mean ratings, n=17)

	Not at all Important							Very important
	1	2	3	4	5	6	7	
The <i>SciGirls</i> grant enabled us to form new community partnerships.								6.7
We wanted to start a science program focused on girls.								6.2
We wanted to expand or build on an existing science program focused on girls.								4.9
The <i>SciGirls</i> grant enabled us to continue working with our existing community partners.								4.7
We had a positive history of working on projects with TPT.								4.5
We wanted to incorporate the <i>SciGirls</i> materials into another more general educational program we were already implementing/ planning to implement.								3.8

Grantees' comments on ratings

Grantees were also given an opportunity to explain their ratings. Many chose to comment on the "girls only" focus of their programs, as in:

- *I wanted to fund a summer workshop focused on girls. We usually have a lot more boys show up at our summer workshops than girls.*
- *We needed to secure grant funding for outreach activities. In 2004, the economic factor was a major determinant of our decision to pursue grant applications. Today, our station is more aligned*

to conduct activities and fundraising in specific content areas and with specific partners. The SciGirls grant enabled [us] to begin working with a new audience (middle/jr. high girls) and a new content area (science, technology, engineering & math), and we will continue with it.

- We saw it as an opportunity to pursue a middle school girl’s project into our program choices, which was unexplored territory for us!
- We have always wanted to have a girl’s summer camp program however; this was just not feasible from a financial standpoint. A grant would enable us to offer girls only program.
- It appeared to be a wonderful opportunity to serve a need in our community/state to address interest in science for girls 9-12.
- We wanted to have a girl’s only program and didn't know how to start, that’s where SciGirls filled the holes we had in program development and money we needed to do it.

Other reasons offered by individual grantees focused on the accuracy of the science content, the developmental appropriateness of the program for middle school girls, the value to educators and families, or the value of the grant as seed money, as follows:

- We enjoy Dragonfly TV (SciGirls) and are very impressed with the accuracy of the science content. SciGirls provides programming for a hard to reach age.
- To bring an awareness of science resources to educators in our community, especially, this prestigious organization. To offer new materials that would support the STEM curriculum of [local education organization]. We also wanted to offer support to families of girls who were interested in science.
- It served as the seed money for our SciGirls summer camp program which then enabled us to raise additional funding.

1.3 Did grantees’ have prior experience implementing science programs geared to girls?

As Table 4 shows, 10 grantees said they did not have prior experience implementing science programs geared specifically to girls, while 7 grantees reported experience in this area. Among these 7 grantees, 1 reported extensive experience conducting multimedia initiatives for girls focused on STEM topics. The other 6 grantees typically pointed to collaborative programs run through Girl Scout programs, school services, and other organizations that serve girls.

Comments from grantees with prior experience

Girl Scout programs

- We have offered Girl Scout programs for several years, as well as boy scouts. We meet all requirements for the scouts to earn a badge or pin.
- We worked with girls who participated in Girl Scouts in a grant opportunity. I can't remember the grant!
- I run a Girl Scout... team. This is a volunteer effort. We need grants before it is possible to start new programs as [we] are completely grant-funded.

Table 4	
Grantees’ prior experience in girls’ only science programming	
(n=17)	
Yes	7
No	10

Collaborations with other organizations

- *Primarily collaborations with other organizations' science-for-girls programs. Main goals were to promote girls interest and confidence doing science.*
- *After school urban wildlife programs with Girls Inc.*

Services to schools

- *High School Assembly program was conducted with the designated partner.*

Comments from grantees without prior experience

Grantees lacking prior involvement in a girls' only science program most often cited: lack of funding, lack of awareness of the need, staffing constraints, and lack of resources and training. Some of their comments are provided below for additional context.

No one to lead it/limited staff

- *Limited staff!*
- *We are a small organization and do not have the funding or staff to implement a science program specifically for girls.*
- *No one driving the idea of a girls program to completion.*

Lack of funding

- *We are a small organization and do not have the funding or staff to implement a science program specifically for girls.*
- *We also didn't have a source of funding. We had supported science curriculum through other grants but it wasn't specific to girls.*

Didn't have opportunity – or right mix of time, place, materials

- *The opportunity had never presented itself to have the curriculum and training available to offer a science camp for girls.*
- *There hadn't been the right opportunity with the right materials in place. We also didn't have a source of funding. We had supported science curriculum through other grants but it wasn't specific to girls.*

Wasn't aware of need for science program directed at girls

- *It is an education gap that we were not aware needed to be addressed; it was not an area of focus for PBS resources -- in other words, we did not have an inventory of programming or other educational media resources to deliver to this audience; nor had we done any fundraising for this purpose.*

Part 2

Grantees' feedback on the *SciGirls* Training

Part 2 of the evaluation focused on grantees' experience in the *SciGirls* training program. Grantees reported on how well organized and run they felt the training was, what they found to be most valuable, what they gained from the experience, and as a result, how well prepared they felt to implement their local projects. Although the training was not always conducted the same way in each setting, the following agenda, which served as a working outline, was included to help refresh grantees' memories.

Figure 2

Proposed Agenda

8:45	Introductions, Goals, Agenda Review
9:15	Your early science memories; Intro to DragonflyTV
9:30	Basic Science Skills: Mystery Objects
10:30	Short Break
10:45	Components of Science Inquiry
Noon	Lunch
12:45	Full Inquiry Activity: Exercise and Memory
1:45	Other DragonflyTV Activities: Icebreakers
2:30	Short Break
2:45	How can Dragonfly TV continue to help you? Discussion
3:30	Handout Freebies, and Goodbye

2.1 Did grantees participate in the *SciGirls* training provided through the grantee program?

As Table 5 shows, all but one grantee participated in the training event provided through the *SciGirls* grantee program. The one grantee who did not attend pointed to a scheduling conflict.

Table 5

Grantees' participation in *SciGirls* training

	(n=17)
Yes	16
No	1

2.2 What did grantees perceive to be the most valuable aspect of the training event?

As Table 6 shows, grantees typically found three aspects of the training to be most valuable: the opportunity to engage in hands-on activities (n=9), the knowledge and enthusiasm of the trainer who facilitated the event (n=6), and/or the chance to connect with other staff and partners (n=6). A few grantees also pointed to the training's focus on scientific inquiry (n=3) and its introduction to *SciGirls* resources (n=3).

Table 6 What grantees found to be the most valuable aspects of the <i>SciGirls</i> training event	
	(n=17)
Engaging in hands-on activities	9
The trainer - <i>knowledgeable, enthusiastic</i>	6
Chance to connect with other staff and partners	6
Focus on scientific inquiry	3
Introduction to <i>SciGirls</i> resources	3

Grantee comments on the value of the training

A selection of grantees' comments on the training is provided below.

The opportunity to engage in hands-on activities

- *Getting to do some of the activities we would be using with the girls. Experiencing new activities*
- *The demonstration of great hands-on activities that relate to the videos.*
- *The hands on experiments were the best because we went through the scientific inquiry process, and how we should ask questions.*
- *Actually participating in the hands on activities. Learning the Dragonfly approach to teaching the scientific process and watching some of the episodes to spark curiosity were all valuable.*
- *I liked the icebreaker about chewing gum. That was a great way for everyone to comfortably break into inquiry science. It was fun and everyone was thoroughly involved.*
- *Every aspect of the training was hands-on with a combination of large group and small group team work. The training helped us to visualize the SciGirls Camp experience and it also helped to generate excitement and enthusiasm for this project.*
- *The hands-on practice with elements of SciGirls activities, and explanation of the concepts behind the activities. The modeling was extremely valuable.*

The knowledge and enthusiasm of the trainer

- *The instructor was very enthusiastic and knowledgeable!*
- *The trainer - Jan was terrific.*
- *The trainer, Jan Elftmann, offered a very accessible approach to science. She related science topics from Dragonfly TV to real world situations. Training participants could identify with her personality and her ideas. The informal approach using a structured framework of science inquiry was really the most valuable aspect of the training.*

The chance to connect with project staff, partners, and others

- *First, the opportunity to invite our partner agencies to have representatives attend the training along with us.*
- *Personal connection with TPT and Dragonfly TV plus being able to share materials with other centers.*
- *We conducted the training with the Girl Scout staff. The training provided a chance for us to meet.*
- *It was also a great opportunity to have all our partners together to think out of the box on how we wanted to direct our project.*
- *It was the beginning of a baseline between us and our partners.*

The focus on inquiry

- *It was a wonderful experience to discuss implementing inquiry into a program with other people who are actually doing it and doing it well. Some of the experts in inquiry, here at our company, do not use inquiry with children. They just have training sessions for the staff but do not actually implement inquiry with kids. It is really difficult to get a real feel for how inquiry could work with students when you are only seeing it with adults.*
- *It was a great way to think about how to teach hands-on science to girls in a very engaging manner. It took everyday items and allowed us look at it through the lens of science reinforcing the idea that science is everywhere.*
- *Well, the actual curriculum was not necessarily the newest thing for us because we were familiar with the DragonFly TV's work and because we primarily engage in providing programs using the inquiry method. This training served as an important professional development for our staff and as they continued to explore science topics using inquiry, they further developed a community of practice.*
- *The fresh look at the inquiry method with activities. This was an opportunity to take a look at my Museum's ongoing programs and see how we can improve them.*

The introduction to the SciGirls DVDs and activity guides

- *Introduction to SciGirls materials, especially the Icebreaker activities.*
- *Getting an introduction to the SciGirls DVDs and activity guides. They arrived right before the workshop, so I hadn't seen them until then. I really like the inquiry process and the great role model videos.*
- *I thoroughly enjoyed the curriculum guide and training tapes.*

2.3 To what extent did grantees perceive the training event to be well organized, run, and effective?

As Table 7 shows, grantees gave high marks to the training.

Table 7							
Grantees' assessment of the organization and effectiveness of the training event (mean ratings, n=17)							
	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
	1	2	3	4	5	6	7
The training helped me understand the goals of the <i>SciGirls</i> program.							6.7
As a result of the training I felt better prepared to use the <i>SciGirls</i> resources in my local setting.							6.5
I found the training to be a worthwhile experience.							6.4
The training was well run and organized.							6.3
I acquired knowledge at the training that would have been difficult to obtain without being there in person.							6.1
I learned valuable ways to use the <i>SciGirls</i> materials in my local setting.							5.9
I would have preferred more time be spent on discussing research about how girls learn and enjoy science.							4.8
I would have preferred more time be set aside for participants to relate the material presented to their experiences and needs.							3.6
I would have liked more information about the agenda before I arrived.							2.9

When asked to rate how much they agreed or disagreed on a scale from 1 (strongly disagree) to 7 (strongly agree) with a series of statements about their experience with the training, grantees generally:

- Disagreed that they would have liked more information about the agenda before they arrived (mean rating, 2.9);

- Were neutral about whether they would have preferred more time be set aside for participants to relate the material presented to their experiences and needs. (mean rating, 3.6);
- Somewhat agreed that they would have preferred more time be spent on discussing research about how girls learn and enjoy science. (mean rating, 4.8);
- Agreed that they learned valuable ways to use the *SciGirls* materials in their local setting. (mean rating, 5.9);
- Agreed that they acquired knowledge at the training that would have been difficult to obtain without being there in person (mean rating 6.1);
- Agreed that the training was well run and organized. (mean rating, 6.3);
- Agreed that they found the training to be a worthwhile experience (mean rating, 6.4);
- Agreed that as a result of the training they felt better prepared to use the *SciGirls* resources in their local setting (mean rating, 6.5); and
- Strongly agreed that the training helped them understand the goals of the *SciGirls* program. (mean rating, 6.7).

Grantees' comments on their ratings

Grantees were also given an opportunity to explain their ratings. Their comments touched on various aspects of the training, but particularly the new ideas and activities they learned about, as well as the new tools they acquired. For example:

- *There were only three of us who took part in the training and all three of us enjoyed the new ideas and activities that were presented for us.*
- *My opinion is that this training level was appropriate for the broad mix of participants from our station and our community.*
- *I was very satisfied with the training. Many of the coordinators commented on the positive impact of the workshop, specifically all the materials provided!*
- *Overall, I believe the training provided great tools to help us, and our partners, kick-off the campaign. They provided us with the materials and explained to us the expectations of the grant.*
- *Since I hadn't seen the activity guides and DVDs before the workshop, this was a great orientation for me. I relied completely on the website to write our grant proposal, but it wasn't until I had these additional materials in hand that I fully understood how useful they would be. Going through the inquiry steps was really important to being able to perform the activities as they are intended. I'm glad we had the opportunity to do that during the workshop.*
- *Actually the training prompted all of my partners to meet again to develop the curriculum we wanted to use for the project. We realized after the training that we needed to integrate what we experienced into our goals.*
- *The presenter was extremely knowledgeable, and moved the day along at a rapid pace. Every single activity was valuable, and there was a perfect balance between doing and explaining/discussing.*
- *Day of session was not as organized as I would have liked. She did not have all of her materials ready to go.*

2.4 Did grantees' have suggestions for improving the training event?

While 6 grantees had no suggestions for improving the training, 11 offered some recommendation. No one major theme stood out among their suggestions, however, with grantees variously focusing on: providing more background research on girls and science learning, having better materials preparation, including training costs within the *SciGirls* funding, and offering a follow-up video conference call/webex. A sampling of their comments is provided below.

Provide more background research on how girls' science learning

- *It might be useful and interesting to have just a short introductory piece on the research about how girls learn and enjoy science.*
- *It would have been great to spend more time on how girls learn science, what motivates them, how teaching science to girls is different than for boys. While the activities were interesting and fun, they were not explicitly designed for girls. I did not feel better prepared to promote girls in science after the training.*

Attend to better materials preparation

- *If materials are site specific, ask host organization to purchase them ahead of time.*
- *I loved the training and the trainer and I know the participants in that room shared that experience. It was terribly difficult to understand the logistics of what TPT needed around the training. The shipping of materials in and out of the site was unclear and difficult for us and I know that my own misunderstandings made it more difficult for our trainer than it had to be.*

Include training costs in SciGirls funding

- *I think that funding for the training should be a part of the grant. I was surprised to discover that I needed to come up with money to cover the food for the participants (they came from far away and were already incurring expenses - I was afraid they wouldn't come if I didn't provide coffee service, snacks, and lunch). Luckily, I still had a little money left in another grant and I was allowed to use it for this purpose. In keeping with our SciGirls grant, I made a big effort to provide HEALTHY snacks (different types of fruit and nuts, etc.).*

Provide follow-up video conference call/webex

- *I would say the in-person training was great, however mine was very short, due to travel delays. I would suggest that a follow up video conference call/webex would be useful as well.*

No specific suggestions

- *In person, face-to-face, facilitated training with all project leaders participating worked very well for us.*
- *We were only able to meet for half a day and that seemed to be enough time.*
- *There is a lot to achieve in one day but I don't think you could extend it. Everything is great.*
- *No, the training session was very valuable and the staff who attended found the experience to be very helpful and enlightening.*

Part 3

Grantees' experience administering their *SciGirls*' grants

Part 3 of the evaluation focused on grantees' experiences administering their *SciGirls* grants, and in particular, issues surrounding: their correspondence with TPT, receipt of resources, challenges in administering their grants, and efforts to fund their projects from other sources.

3.1 How did grantees rate their experience as a *SciGirls* grantee?

Grantees were very positive about their experiences as a *SciGirls* grantee. As Table 8 shows, when asked to rate their level of agreement or disagreement with a series of statements using a scale of 1 (strongly disagree) to 7 (strongly agree), the group as a whole strongly agreed that:

Table 8							
Grantees' level of agreement on statements relating to their experiences as a <i>SciGirls</i> grantee (mean ratings, n=17)							
	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
	1	2	3	4	5	6	7
Our project staff received all the <i>SciGirls</i> materials that we expected to receive from TPT.							6.9
Our project staff received the <i>SciGirls</i> materials from TPT when we needed them.							6.8
Our project staff found valuable ways to use the <i>SciGirls</i> materials.							6.8
I feel positive about the benefits my department received from participating in the <i>SciGirls</i> program.							6.7
Participating in the <i>SciGirls</i> program enabled my department to form beneficial partnerships with local community groups.							6.7
Our project staff received sufficient direction and support from the TPT <i>SciGirls</i>							6.6
I feel I have a good understanding of the goals of the <i>SciGirls</i> program.							6.6
I'm confident that our project advanced the goals of the <i>SciGirls</i> program.							6.5

- Their project staff received the *SciGirls* materials from TPT when they needed them (mean rating, 6.9);
- They found valuable ways to use the *SciGirls* materials (mean rating, 6.8);
- They received sufficient direction and support from the TPT *SciGirls* staff (mean rating, 6.7) and they received all the *SciGirls* materials that they expected to receive from TPT (mean rating, 6.6);
- Participating in the *SciGirls* program enabled their department to form beneficial partnerships with local community groups. (mean rating, 6.7);
- They had a good understanding of the goals of the *SciGirls* program (mean rating, 6.6);
- They were confident that their project advanced the goals of the *SciGirls* program (mean rating, 6.6); and
- They felt positive about the benefits their department received from participating in the *SciGirls* program (mean rating, 6.5).

Grantees' comments on their ratings

Grantees were also invited to explain or elaborate on any of their ratings. The one theme that emerged across their responses was the positive support received from TPT, as follows:

- *TPT's project managers, especially Kristin Pederson, Rick Swanson, and Kelly Gavigan did an outstanding job. They offered reminders and assistance, and gave timely input. Margaret Duden and Joan Freese have been excellent in the later grant round.*
- *The staff for this project received incredible support from the TPT staff.*
- *The SciGirls staff was WONDERFUL to work with. They were always available to answer questions during the grant-writing process and after we received the award. They were also helpful about the reporting requirements. We placed a large order for materials and they were still in press at the time, so I wasn't able to preview them before the workshop.*
- *The staff at Dragonfly (SciGirls) was great. They answered all of our questions and provided all of the materials we needed.*
- *We were completely overwhelmed by the level of support and materials made available to us. We appreciated TPT SciGirls support in helping us to make the program a success! They were awesome!!!!*

Other comments focused on diverse aspects of grantees' grant experience and are categorized where possible below.

SciGirls assisted with forming new relationships

- *We did not form new partnerships with community groups but with female community members who wanted to share their occupations and interests with the girls.*
- *We established a strong relationship with a new partner through the SciGirls program.*

The SciGirls program was a success with the targeted girls

- *We are entering our third year of hosting a SciGirls Camp. We feel that with our strong community partners, this has become a signature event of our station.*
- *Through this program we were able to continue to provide quality-educational programs to the underserved communities in our area.*
- *I really enjoyed the experience of working just with girls. They were very enthusiastic and took most of the activities very seriously (some of them really do want to be [scientists])!*

Materials were applied to other programs

- *We had more materials than we could use in a one week program so some of the materials were incorporated into some of our other ongoing programs even though they were not girl’s only groups.*
- *We were given as many materials as we requested. We continue to utilize them as giveaways (although we are almost out) for educators. They LOVE the curriculum and the do not, by and large, know about this initiative.*

Other

- *I can't speak to TPT's benefit. I think they are pleased; I hope they are pleased, but I can not assure that we met their goals at this point.*
- *I believe stations have a good understanding of SciGirls outreach goals, but it would be useful to have a broader knowledge of the DragonflyTV/NSF goals at a national level, and how stations and community partners could aggregate efforts to achieve a bigger impact on a wider scale.*
- *While I feel we were able to strengthen our partnership with the Girl Scouts, our partnership with the Boys and Girls Club was not a valued as we had anticipated. Not all of the club sites (3 total) seemed to view participating in the program as unique and important--attendance was not mandatory, and girls from the club did not always finish the entire camp experience. Aside from that, we felt honored to have been selected to have our program funded, and found SciGirls to be a terrific resource on which to build our program!!!!*

3.2 What kinds of challenges did grantees encounter while administering their SciGirls grants?

Table 9	
Challenges grantees encountered While administering SciGirls grants	
	(n=17)
Financial constraints	9
Time constraints	6
Resistance to gender themes	2
Connecting with local PBS station	1
Competing institutional priorities	1
Access to SciGirls materials	0
Other	2

As Table 9 shows, the challenges grantees faced in administering their grants were financial constraints (n=9) and time constraints (n=6) followed by resistance to gender themes (n=2), competing institutional priorities (n=1), and linking/ connecting with their local PBS stations (n=1). A couple of grantees choosing “Other” pointed to broken communication with an outreach partner or difficulty promoting the program among partners where *Dragonfly TV* did not air in their market.

Grantees’ comments on the challenges they encountered

Grantees were also invited to elaborate on the nature of the challenges they identified. A selection of their comments are provided below and categorized where possible.

Financial constraints limited program

- *If larger funds were available to stations -- more activities could of been scheduled for the girls.*
- *The [organization] experienced a number of institutional and financial challenges during each of the grant periods that made their participation less certain at times. The Girl Scouts of [Council] experienced a number of logistical challenges related to individual member and troop level participation in SciGirls. At the national level, the Girl Scouts advocate for their own science projects for this age level. In general, though, the engagement among our community partners improved and our partnerships grew stronger as the SciGirls project evolved. [Organization] the schools, community colleges and university involvement was solid at all times.*
- *We underestimated the cost of food for feeding pre-teen girls, so our food budget was low. In addition, gasoline costs skyrocketed between the time of our proposal and implementation. Also, between the time of getting funding, and planning the actual camp program, a number of resources for field trips were discovered that were not funded in the original proposal*
- *There were some financial constraints...not large ones though. [Organization] was most generous with in-kind contributions of materials, supplies, etc. We definitely could have used more money for science equipment/supplies/etc... ..for the part of the week...when the girls created and implemented their own science experiments.*
- *Because our project was a week long overnight camp, the cost was relatively high. We have continued to offer this camp since the grant and have tried to seek funding from donors to do so.*

Time constraints

- *This could have been a two week camp. We ran out of time, space and finances to extend it.*
- *Time constraints were the availability of the Girls Inc staff to get the kids onsite in time after school. [Trips] were always great, timely, professional. Organizing the volunteers was a challenge and a time sink but well worth the long term benefits as they fell in love with working with the kids and were surprised with the interest they developed in the actual science i.e., participating in the Dragonfly survey.*
- *The partner commented that they wished they had had more time to really implement the materials on a more frequent basis. They also commented that because of all the great resources that they received, they felt like they were getting Christmas goodies all year. They were so amazed!*
- *It is very hard to narrow down what you want to accomplish even for a two week camp. It is also very important to include all the organizations involved in all the benefits of participation.*

Competing commitments affected level of interest of partners

- *It was sometimes difficult to accomplish the goals because of commitments that our community partners had already made to other curriculum. Since Dragonfly is not a known entity for our local viewers, it was sometimes difficult to build excitement.*

Resistance to limiting the program to girls

- *We were proactive in approaching a potential challenge of servicing only girls. In the school setting, this concept was not well received. We knew this would be the case upfront and planned accordingly with a separate program for the boys. No further challenges arose. The program was a complete success. In fact, we saw increased focus on the educational activities during the SciGirls program compared to other after school programs. We believe this to be (at least in part) a result of the separation of genders.*

Grantees' comments on additional resources or support desired

Grantees were also invited to describe any additional resources or support from TPT that may have assisted them in addressing these challenges or obstacles. No one particular type of support or resource was mentioned by the majority of grantees short of additional funding which was suggested by four grantees. Others individually addressed the desire for additional or re-formatted materials or implementation/technical assistance. Comments included:

More funding

- *Obviously, more money.*
- *Larger grants.*
- *We were granted an extra \$1000 to bring the total grant to \$9000 but in truth, it cost us more to run the 12 week program. Essentially, more money.*
- *Well, as always, more money to put into the project itself to cover direct costs.*

Other

- *Activities guide for the Girls would have been nice.*
- *In very rural areas of the U.S...partners must rely on university or community college experience with science topics rather than museums. There aren't any science centers/museums to speak of in very rural locations! So the expertise must come from the education system, even if it is being translated into an informal setting.*
- *That's hard to say. Perhaps a letter from TPT congratulating them on an award that their organization would benefit from by partnering with us?*
- *I think it would be great to receive the Dragonfly episode in DVD format, versus VHS.*

3.3 How else did grantees fund their activities involving *SciGirls*?

Most of the grantees helped fund their *SciGirls* activities through additional funding. As Table 10 shows, the major sources of funding were partner contributions (n=9) and folding the costs into another related program or budget (n=7). Two grantees (n=2) charged participant fees. One grantee reported using no additional funding, while other individual grantees mentioned the use of: volunteers, grants, donations, or equipment sponsorship.

Table 10	
How else grantees funded activities involving <i>SciGirls</i>	
	(n=17)
Community partner contributions	9
Folded it into another related program/budget	7
Participant fees	2
Had no additional funding	1
Other	7

Part 4

The impact of research findings on how girls learn and enjoy science on grantees' projects and departments

Part 4 of the evaluation focused on whether and how the research findings that informed the development of the *SciGirls* program, relating to how girls learn and enjoy science, influenced grantees' project design, use of materials, and departmental awareness.⁴

4.1 Did grantees factor into their project design/use of materials research findings on how girls learn and enjoy science?

Grantees were asked the following question: *The SciGirls materials were based on some research findings about how girls learn and enjoy science. From your perspective, how did these findings factor in to your use of the materials or design of your program?*⁵

As Table 11 shows, several grantees (n=7) expressed difficulty recalling the research findings, explaining that either too much time had elapsed for them to remember the findings or that the findings weren't prominently enough featured in the *SciGirls* training program or materials for them to take notice, as in:

	(n=17)
Yes	10
Not familiar/don't recall	7

- *I don't recall that at all. I would be sensitive to that.*
- *It is too far back. I don't remember.*
- *Not sounding familiar.*
- *This was an area to improve on. Wasn't that explicit.*

The majority of grantees (n=10), however, were able to discuss the findings and relate how they incorporated them into their project design, promotions, or implementation. Grantees that strongly relied on the findings said they were essential in the design of their projects as they lacked experience

⁴ The research findings referred to in this section are listed below:

- Girls prefer to experience science in group settings. The social part of science—working and learning together—is of paramount importance.
- Girls benefit from extended communication and collaboration. They want to take time to explore science, talk about their ideas and consider possibilities before digging into an experiment.
- Girls look for compelling real-life contexts for science and find abstract science questions less interesting.
- Girls need a hassle-free zone for discussion and participation.
- Girls like open-ended tasks that they explore in their own way, but they also look for feedback about their progress along the way.
- Girls value different ways of knowing, seeing and describing the world, and like to hear these diverse visions from their peers.
- Girls like to challenge dominant ways of thinking about science, and typically do not have that opportunity in traditional science environments

in this area. Grantees that relied little on the findings noted that they basically reinforced information they already knew from prior work.

A sampling of their comments follows.

Relied on it to understand how to design the project

- *It does, and we did incorporate what they were saying, this is the first time we were doing an all girls camp. We were trying to gather any information because we wanted it to be successful and wanted the best.*
- *Definitely, the realm of middle school is not something we do normally. And for [our staff person] the thought of being locked in with 25 middle schools students for a week...she used them to understand how girls learn, what will interest them and so forth.*
- *The message that was given to us is that young girls need to be in an environment where they are comfortable and working together and interactive. We wanted everything to be fun, interactive, and have major discussion. So we had them take a lot of notes and then discuss things a lot. Even some of the girls who at first were less interested came around. Everything was team based.*
- *I do, and I think that is what I loved so much about this. I loved knowing how girls learned and get into science and how to get them into and pulling them back. Some of the comments we got back is that ...it is cool to like science...I know that is what made it so easy to attract good partner.*

Was reflected in program implementation or promotion

- *This came through in how we marketed it. Then the main thing that comes to mind for me, in the beginning when we had the girls that were coming, they may not know they like science, but if they had characters that lead to science are they inquisitive, open, that helped us know they would be open to it. We wanted girls with those traits. From there we did our own evaluations and thought that to get funding, one of the main questions or goals was how do you see yourself now, has this opened up a new interest for them.*
- *I think what was most obvious is girls role models are crucial. It is like the parents who didn't see boys in the picture that really jumps out at people. The fact that the investigation was run by girls says "It is okay for me to be doing this, it is fun doing this, and I want to do this." Girls left saying they wanted to come back, be a [scientist].*

Reinforced what already knew

- *I think yes it played a role in program planning and implementation but most of us knew all that and it was all part of our practice anyway.*
- *We did read all that, but chances are I pretty much knew from my teaching experiences like I said before. The methods I probably knew. I read through everything but I don't remember exactly. I conducted hundreds of labs in the high school setting and pretty much all those would hold true for boys and girls we ran it in groups, rotated it in groups, most of these girls didn't know each other so we wanted to make sure they got to know each other. We used all that I'd say. It makes all the labs easier if we do that.*

4.2 Did grantees feel *SciGirls* increased their department’s awareness of research findings on how girls learn and enjoy science?

Grantees generally agreed that participating in *SciGirls* increased their departments’ awareness of research findings on how girls learn and enjoy science. As Table 12 shows, on a scale of 1 (didn’t increase at all) to 7 (increased very much), the ratings for all 7 findings fell within one point of another (5.3 - 5.9). The highest rating was 5.9 for *Girls need a hassle-free zone for discussion and participation*, while the lowest rating was 5.3 for *Girls like to challenge dominant ways of thinking about science, and typically do not have that opportunity in traditional science environments*.

Table 12							
Grantees’ assessment of the impact of <i>SciGirls</i> on their departments’ awareness of research findings (mean ratings, n=17)							
	Did not increase at all						Very much increased
	1	2	3	4	5	6	7
Girls need a hassle-free zone for discussion and participation.						5.9	
Girls benefit from extended communication and collaboration. They want to take time to explore science, talk about their ideas and consider possibilities before digging into an experiment.						5.8	
Girls look for compelling real-life contexts for science and find abstract science questions less interesting.						5.7	
Girls prefer to experience science in group settings. The social part of science—working and learning together—is of paramount importance.						5.6	
Girls value different ways of knowing, seeing and describing the world, and like to hear these diverse visions from their peers.						5.6	
Girls like open-ended tasks that they explore in their own way, but they also look for feedback about their progress along the way.						5.5	
Girls like to challenge dominant ways of thinking about science, and typically do not have that opportunity in traditional science environments.						5.3	

The other mean ratings, from highest to lowest frequency, were as follows:

- Girls benefit from extended communication and collaboration. They want to take time to explore science, talk about their ideas and consider possibilities before digging into an experiment (mean rating, 5.8);

- Girls look for compelling real-life contexts for science and find abstract science questions less interesting (mean rating, 5.7);
- Girls prefer to experience science in group settings. The social part of science—working and learning together—is of paramount importance (mean rating, 5.6);
- Girls value different ways of knowing, seeing and describing the world, and like to hear these diverse visions from their peers (mean rating, 5.6); and
- Girls like open-ended tasks that they explore in their own way, but they also look for feedback about their progress along the way (mean rating, 5.5).

Grantees' comments on their ratings

When grantees were invited to explain their ratings, a few chose to elaborate on their observations of the girls in their programs learning and enjoying science while two others qualified that they knew some or most of the findings from prior work. Their comments included:

Ratings based also on direct observation of participants

- *These ratings are based not only on research facts included in the SciGirls curriculum, but on direct observation of the students who participated in our project.*
- *Girls enjoyed being around other girls of the same age and learn about science in a fun setting. They helped each other, had fun, used real life examples and learned at the same time.*
- *Many of the pictures that were taken by the partner show girls in group settings and working together on the SciGirls activities. It is evident from the Director of the [Program], that this was a successful project for the coordinators and the students. The coordinators were trained on the use of the SciGirls curriculum, website and episodes.*
- *Our kids have so little exposure to book science as well as field science, most were like sponges with the information and the attention and were eager to share their knowledge with adult volunteers that did not have the benefit of a training.*
- *Even though they were women in science fields, some had not really thought through these findings. They had been so busy teaching mixed groups that they really had not observed the difference or worked with a girls-only group to experience the difference. They all learned things they can use in their classrooms in the future and they gained new insights on how to include girls.*

Prior direct experience may have altered ratings

- *Some of these things I already knew from working with girls, so the effects of the SciGirls program may not have been as strong/rating not as high as you might expect.*
- *I am using 4 as neutral. These aren't surprising to us; they are the way we structure our program directly for girls daily because we communicate similar methods/techniques in our work.*

4.3 Did grantees feel that any increased awareness within their departments was attributable to the *SciGirls* training or resources?

Following the previous question about research findings, grantees were asked: *Generally speaking, when you reflect across the above research findings on the ways girls learn and enjoy science, to what extent do you attribute any increased awareness within your department to the SciGirls training vs. resources?* As Table 13 shows, 8 grantees pointed to the training, 3 grantees pointed to a combination of the training and resources, 3 more pointed to the resources (particularly in the context of observing the girls use them in their programs), and 1 felt that neither had an impact. A sampling of their comments follow.

	(n=17)
Training	8
Resources (watching their use with girls)	3
Combination of training and resources	3
Neither	1
No response	2

Increased awareness through training

These 8 grantees concurred that the in-person training primarily led to the increased awareness. Their comments included:

- *Anything in-person generally resonates with myself better. I enjoyed hearing about the research that had been done.*
- *The training got us working together in a hassle free discussion zone and we as adults saw how well it worked for us. The guides were good and well written but having a person here to help us facilitate the training was wonderful.*
- *The SciGirls training actually modeled the skills needed to make a girls-only program successful.*
- *The research was extremely useful to me, though I feel I could have made mention of it more to my partners. The training was exciting, and the coordinators left charged up to go into the field to implement the SciGirls curriculum at their perspective sites!*
- *The training was certainly key in helping our department and partners to really understand the research findings. The educators guide is wonderful for reference and planning out, teaching the program, but only enhanced by the training itself. The training is what made the educators guide.*
- *Training definitely impacted us more than the guides, but the guides are providing longevity and classroom benefit because of the educators I've given them.*

Increased awareness through resources and/or watching participants

A few grantees (n=3) indicated that their awareness was increased by the resources, or more specifically, watching the girls use the resources, as in:

- *I think it was the activities and videos on the DVDs and watching the girls' reactions that had the greatest impact on my awareness, rather than something I experienced in the training.*
- *As I recall, the training did not explicitly address these research findings; the educator guides did make reference to these ideas. But the main benefit of participating in the SciGirls grant was the opportunity to experience firsthand how girls experience science and come to similar conclusions as the research.*

Combination of training and resources

A few other grantees (n=3) pointed to the combined value of the training and resources:

- *It was a combination of things. We discussed this in the training bringing the first awareness to this research. It was reinforced by the materials and then witnessed first hand by observing the girls in the camp. We also saw it in the evaluations that came back to us.*
- *Increased awareness of open ended science inquiry was a result of the SciGirls training. Reinforcement of awareness about the scientific method/investigation process and hands-on application of the process was a result of the educator guides.*

Neither increased awareness

Finally, 1 grantee did not see that the *SciGirls* resources or training played a significant role in increasing departmental awareness: *I do not attribute a great increase in awareness within my dept. based on any of the SciGirls components, training or the educator guides.*

Part 5

Grantees’ reflections on their *SciGirls* partnerships

Part 5 of the evaluation focused on grantees *SciGirls* partnerships, and in particular: the kinds of partners the grantees’ choose to work with, whether grantees worked with new or existing partners, the kinds of assistance their partners provided, and how successful grantees felt their partnerships were.

5.1 What types of partners did grantees choose to work with on their *SciGirls* projects?

As Table 14 shows, youth organizations were the most frequent type of partner chosen for *SciGirls* projects, with many grantees choosing to work with more than one youth organization (see Table 20 on Page 34 for a breakdown of the types of youth organizations).

Scientists from educational or commercial institutions also frequently served as partners (n=8), followed by museums (n=4), media organizations (n=3), schools/teachers (n=3), or environmental/outdoor clubs or associations (n=2).

Table 14	
Types of partners grantees worked with on their <i>SciGirls</i> projects	
	(n=17)
Youth organizations (e.g., Girl Scouts, Boys and Girls Clubs, YMCA, 4-H)	20
Scientists from educational or commercial institutions	8
Museum	4
Media	3
Schools/teachers	3
Environmental or outdoor clubs/associations	2
Other	1

5.2 Did grantees form new partnerships for their *SciGirls* projects or did they work with existing partners?

As Table 15 shows, not quite half of the grantees (n=7) formed entirely new partnerships for their *SciGirls* projects. The remaining grantees either worked with existing partners (n=5) or a combination of new and existing partners (n=5).

Table 15	
Grantee's prior experience with partners	
	(n=17)
All new partners	7
Combination of new and existing partners	5
All existing partners	5

5.3 What did grantees perceive to be the main types of assistance their partners provided?

As Table 16 shows, grantees' partners most often provided one or more of the following kinds of assistance: site/space facilities (n=11) followed by staffing (n=10), recruiting (n=9), and/or guest speakers (n=8). Grantees also pointed to other types of assistance somewhat less frequently, including: planning (n=6), transportation (n=6), resources/supplies (n=6), promotion/advertising (n=5), fieldtrips (n=5), and evaluation assistance (n=1).

Table 16	
Main types of assistance partners provided	
	(n=17)
Site/space facilities	11
Staffing	10
Recruiting	9
Guest speakers	8
Planning	6
Transportation	6
Resources/supplies	6
Promotion/advertising	5
Fieldtrip destinations	5
Evaluation	1

5.4 Did grantees feel their partnerships were successful?

Overall, grantees agreed that their partnerships were quite successful. As Table 17 shows, on a scale of 1 (not at all successful) to 7 (very successful), the mean rating was 6.1.⁶

Table 17							
Grantees' assessment of the overall success of their partnerships (mean ratings, n=17)							
	1	2	3	4	5	6	7
Not at all successful						6.1	Very successful

Grantees' comments on their ratings

In describing their partnership ratings, grantees tended to use comparable language, often characterizing the partnerships as: offering *leverage*, as being *easy to approach* or get *buy-in* from, as being *critical* or *valuable* to the success of the project, and as yielding collaborations that were *natural* rather than forced and/or worked like *clockwork*. The following phrases were captured during their interviews:

- *We had such good luck.*
- *It was critical to have the partnerships.*
- *Wouldn't be nearly as valuable without them.*
- *It was a project that had more community support and buy in than anything we had done before.*
- *This was one of our most successful camps. Everything worked like clockwork... It was successful as a group effort.*
- *With all the outreach we do, we don't always get the numbers, In the process of doing the grant, we did a program with the girls that helped reach more kids.*
- *Worked like clockwork, gave us all the pieces of the puzzle.*
- *It was wonderful. Leveraging I guess you could call it.*
- *I think the way the grant was handled was good. It gave us flexibility and a good way to leverage those partners.*
- *This was one of our most successful camps. Everything worked like clockwork.*
- *It felt like partnership rather than forced.*

⁶ In four cases grantees preferred to rate partners individually rather than collectively because there was disparity between the ratings. In those cases, an average was taken of the ratings and then used in computing the overall average.

5.5 What main challenges did grantees encounter in their partnerships?

No one particular challenge was cited by more than a few grantees, although a range of challenges were cited across the grantee group. As Table 18 shows, the three most frequent challenges were: attendance inconsistency and attrition (n=5), staff turnover (n=4), and finding a fit or aligning *SciGirls* projects with established partner-based youth programs (n=3). Other challenges raised by one or two grantees involved dealing with: overcommitted partners, leadership struggles, partners not being used to spending funds, or getting a small-sized grant officiated. Individual grantees also discussed issues that tended to surface in the context of their projects, which they attributed in part to a “partner” issue, such as: lack of parental involvement, student behavioral issues, field trip logistics, unreliable guest speakers, or recruiting or retaining middle schools.

Table 18	
Main challenges grantees encountered in their partnerships	
	(n=17)
Inconsistency and drop-off in attendance	5
Turnover in staff working with girls/trained on <i>SciGirls</i>	4
Finding fit/aligning project with established youth agency programs	3
Grant administration – <i>who is responsible for what</i>	2
Field trip logistics – <i>handling large groups, coordinating meeting sites</i>	2
Behavioral issues – <i>girls not wanting to be in girls’ only program or parents pushing for their involvement</i>	2
Overcommitted partners – <i>can’t make it a priority in timetable</i>	1
Leadership – <i>lacked main person in charge</i>	1
Organizations not used to having/spending funds	1
Greater parental involvement would have deepened impact	1
Small size of grant – difficult to administrated with office of grants.	1

Grantees’ comments on their partnership challenges

Grantees’ perspectives on the challenges outlined above are provided below for additional context.

Attendance issues

Grantees who discussed attendance issues raised possible reasons for what they observed to be lower than expected enrollment in their project, or a drop-off in attendance over time. Their observations included:

- *The small fee requested for the project was beyond what girl scouts were used to paying.*
- *Charging nothing proved to be a mistake to help ensure commitment to members of Boys and Girls club participants and perceive the value; its better to have a nominal fee.*
- *Lack of well-organized transportation and site coordination with youth serving organizations resulted in girls arriving late or not arriving at all on certain days, presenting programming challenges to ensure all participants received same amount of instruction.*
- *Girls sometimes got tired when programs were held after-school, which occasionally affected attendance.*
- *We didn't anticipate it would be as challenging as it was to recruit middle school students or to secure their involvement for a one-week program...maybe better to shorten program.*
- *We encountered some behavioral issues with few girls, due to not wanting to be in girls' only program or being there because of parental pressure.*

Finding fit and investment/aligning programs

Grantees who experienced some challenges in finding a fit between their SciGirls plans and their partners' existing programming described the challenge as most often occurring with youth organizations that had existing programs in place, as follows:

- *With a [youth organization], the sense was upon approaching the [administrative] level that it was separate, something the grantee had to go, didn't seem invested. The one person whose job it is to develop outreach programs wasn't enthusiastic and it created a bottleneck of sort, resulting in an only a couple of girls signing up from the scouts. With [another youth organization] it was more a matter of their keeping their head above water and this project seem out of context for them.*
- *In working with some of the site coordination, there were issues of buy-in and understanding what SciGirls was about. Some didn't come to the initial training and some seemed a little unclear as to what was involved, what they were to do. So even through they were given training, hands on materials, guides, and videos and they were very appreciative and said they would use it, it wasn't quite clear they got it, it wasn't in there vocabulary. When we conducted follow-up phone interviews, had some trouble finding them so can't say that SciGirls will live on in this sense.*
- *In working with [youth organization] staff, we encountered challenges in fitting into what they were already doing. May need to be more involved so we could follow up with them. Their blocks of time are harder to work with as a week long camp. Would work with them again but there are some other small camps like local camps worth exploring for next time.*
- *In working with a [youth] organization we found consistency issues...and variations in their operations depending on the troop, who the leader is and what their priorities are. They have their own things going.... Some of the administration failed to see how this could be complementary. But if you have a troop leader who has the ability and is right there right then, they can take it right there.*

Staff turnover

Grantees discussing staff turnover elaborated as follows:

- *Youth serving agencies... can experience a lot of turnover....so we have not been able to have the same leader for each program, so if we are given a new staff person they are not trained have to start over and sometimes have to go forge new connections or start from scratch. It's great when you find someone you work with and then when they aren't there you have to ask what do I do know. How do go out making that connection again?*

- *The [leader] structure of the [youth organization] can make follow-up and continuity difficult as the [leaders] responsible change over year to year.*
- *When contact persons in partner organizations left, communications and then program coordination broke down.*

Grant administration

A couple of grantees who pointed to administrative issues encountered challenges surrounding the clarity of partners' roles and/or variations in institutional policies and priorities, as in:

- *Something we talked about most was the internal workings of the partnership. It got better with working together but when the project had few strong leaders, it was hard to clarify roles and procedures so all were in agreement as to who is responsible for what and the different ways each partner organization had to function in addressing implementations issues or liability issues like background checks for new project staff.*
- *While all partners were invested, each had different visions and philosophies of how one does outreach for example. And while all may be non-profits...there were differences...in how fee structures get worked out and how a collaborative project utilized resources, takes ownership of a piece of the program, and conducts evaluations.*

Other

Other challenges raised by one or two grantees related to: overcommitted partners, leadership struggles, partners not being used to spending funds, or getting a small-sized grant officiated. Individual grantees also discussed issues that tended to surface in the context of their projects, which they attributed in part to a "partner" issue, such as: lack of parental involvement, student behavioral issues, field trip logistics, unreliable guest speakers, or recruiting/retaining middle schools. Grantees' comments across these themes follow:

- *Science center faced obstacles of participant fully they seemed out of their control tried hard but stretched beyond capacity.*
- *Took too large a group of girls on field trips was overwhelming; should have gone in 2 groups, just affects more scheduling on our part.*
- *Shifting around sites caused logistical pressures as to where girls need to be each day. Better to host main program at one site and then do limited travel.*
- *I've dealt with students many years, with girls there are a few more issues about getting along and keeping them active and there was no down time. We kept them busy they had no chance at all to even think. There were some behavior issues. And it was helpful having the staff there to help.*
- *Lacked a continuous one person who took charge with the partners' side project. A little last minute, so ended up inviting in youth serving agencies to fill slots.*
- *Partner was so used to not spending money, the hard part was spending the money, they are so used to showing the in-kind support. Created challenges in terms of bookkeeping about how it was spent and matching.*
- *Parental involvement would have deepened impact – could have provided resources or brought in for a workshop.*
- *Having to go through sponsored research office at institution where grants administrator perceived grant to be too small, not worth her time, so faced challenge to communicate it was seed money for the future. Invited administrator to events and by the end of project, person seemed to have a different view of the value of the project, and now the project budget is more than tripling.*
- *Had challenge in getting scientists to participate in terms of scheduling.*

- Finding girls of that age interested in science was a challenge, so contacted the girl scouts but didn't realize they have lower numbers in the middle school age range.

Part 6

Audiences targeted and impacted by the grantees' *SciGirls* projects

Part 6 of the evaluation focused on the audiences that grantees targeted for their *SciGirls* projects. Grantees reported on the nature and scope of the audiences they recruited, the kinds of activities they provided for these audiences, the impacts of the activities, and whether and how the impacts were evaluated.

6.1 How many participants were served by the *SciGirls* projects?

The number of participants served by the grantee projects ranged from a low of 12 to a high of 512, with an average of 121. Table 19 shows a breakdown of the numbers served. The majority of projects served between 12-40 participants, while a small cluster of projects served between 300-512. The projects serving the highest number of participants were after school programs, summer camps, and an overnight sleepover. In one grantee's project, the participants were educators, but in all others the participants were girls.

Based on the grantees' estimations, approximately 2061 participants served as target audience members across the *SciGirls* grantee projects. This sum doesn't reflect youth targeted in projects not included in this report, nor does it reflect participating partner staff and others who had an opportunity to become exposed to *SciGirls* resources and training.

Table 19	
Number of participants served in the <i>SciGirls</i> projects	
(n=17)	
<20	5
21-40	5
41-60	1
61-80	1
81-100	0
101-120	0
121-140	1
300-512	4

6.2 From where did grantees primarily recruit girls for their projects?

Grantees partnered with a wide variety of youth organizations to recruit participants for their projects. Most often, as Table 20 shows, the Girl Scouts were tapped as a key source (n=8) followed by Boys and Girls Clubs (n=3), Girls Inc (n=3), and school/school based programs (n=3). Other sources of girls included: 4-H, YMCA, Vista, and other community-based programs serving low income families.

Table 20 Sources of girls for <i>SciGirls</i>	
	(n=16)
Girl scouts	8
Boys/Girls Club	3
Girls Inc	3
Schools/school-based	3
4-H	2
Community programs	2
YMCA	1
Vista	1

6.3 What grade level of girls did grantees most often target?

As Table 21 shows, grantees most often targeted middle school students in their projects (n=14) followed by high school students (n=6) and then elementary school students (n=5). More often than not though, projects catered to a range of ages/grades, most typically youth in the 5th - 9th grades. One project meanwhile targeted educators, who were trained to then implement *SciGirls* activities with their students.

Table 21 Grade level of girls targeted	
	(n=17)
Middle school students	14
High School students	6
Elementary school students	5
Teachers	1

6.4 What types of *SciGirls* programming did grantees most typically offer?

As Table 22 shows, camps, and specifically summer camps, were by far the most common type of project offered by the grantees (n=10). Three grantees each offered after-school programs, sleepover/day events, or clubs/classes, while one grantee offered an educator training program.

Table 22 Type of <i>SciGirls</i> project offered to participants	
	(n=17)
Camp	10
After school programs	3
Sleepover/day event	3
Clubs/classes	3
Educator training	1

6.5 What did grantees perceive to be the main things that girls gained from their *SciGirls* experiences?

As Table 23 shows, grantees reflected that as a result of their *SciGirls* projects, girls gained in one or more of the following ways:

- 1) They became more confident or empowered to participate in science as they viewed it as more open to them (n=6);
- 2) They took away an increased understanding of the inquiry process – about how to question, that it’s okay to question, (n=4);
- 3) They gained a broadened view that science is much bigger than they thought, and is even all around them (n=3);
- 4) They developed an increased awareness of and interest in science careers (n=3); and/or
- 5) They gained a new appreciation that science is fun and exciting (n=2).

Table 23	
What grantees thought girls gained from their <i>SciGirls</i> experiences	
	(n=17)
More confident/empowered to participate in science – <i>more accessible, open to them</i>	6
Increased understanding of inquiry process – <i>it’s okay to question, how to question</i>	4
Broadened view that science is much bigger than they thought/all around them	3
Increased awareness of and interest in science careers	3
New appreciation that science is fun, exciting	2

Grantees’ comments on the girls’ gains

A selection of grantees’ observations relating to these five types of gains is included below.

More confident/empowered to participate in science – more accessible, open to them

- *The boys are the ones good at science. We are the ones who aren’t supposed to be the scientists and doctors some said I just didn’t know I could do this. It’s a much bigger picture. They really gain confidence. There is time to recap and review. I can just remember one girl saying my family has never gone to college and I can do this. When I came here I didn’t know why I was chosen.*
- *I think they gained that science is possible for them. That science looks different from the way they saw it before. So seeing women of different races, capacities, and backgrounds, were all doing science and there were clear similarity that hinged on their passion and hard work and joy in doing science. The girls emulated all these things in their own research. And then communicating what these women did. They did a service to the community.*
- *There are all kinds of opportunities out there and learning about things they never knew existed. I think they also felt really empowered. I think the camp gave them a lot of opportunity to feel valued, successful, and challenged. That came through really strong. And they all said it was very important that it was just girls. The way they learn when boys are around it changes. They get shy, less willing to raise hand if they aren’t sure they are right, By the end of both camps these girls were best of friends.*
- *Comments like - it was fun to do things with no boys around. I didn’t know girls could do that. Do we mean we can build this ourselves? I think they came out feeling more empowered to go out and do something a little different. We were building cars and rockers. It sounds like if they did that before the boys take it away and say I can do this better. They were polite and worked well*

as a team. Girls being in groups working together. They were part of a club. They got the tee-shirts and that helped.

- *Looking back at it, a gain in confidence from when they first came in. I think I showed the weather one. It showed nice picture graphing and we used that. Even if they didn't memorize all the parts, but they got the confidence they could do the science.*

Increased understanding of inquiry process – it's okay to question, how to question

- *Inquiry process first and foremost. How to question or how to formalize their natural curiosity. How to recognize their innate curiosity.*
- *I guess it would be the process, the steps of carrying out a successful investigation. I think the thing about girls doing science. I don't think girls perceive it that way. They don't see science as closed to them or not at that age. They see that they can participate if they want but maybe it isn't interesting. I think it is deeper or bigger than that.*
- *I think the main thing they got out of it was it is okay to ask questions and ask questions of personal interest. They had permission to start doing this. Science was for school it was only experiments and that really thinking like a scientist is all around them. The speakers helped to reinforce that.*

Broadened view that science is much bigger than they thought – all around them

- *I really think it is from the beginning to the end, the girls really do truly leave with a whole new concept of science... It is much bigger; it really is giving them a whole new vision and concept of what science.*
- *Many of the common activities are science related so when we were searching for frogs of different species I think they saw that ah, this is science related. Just that realization that easy things are science related, so when we made concoctions and did forensics, they saw that science is not about the common image, there is more to it, at least in terms of the investigation.*
- *Way more science than they thought there was going to be. Science is all around you, it is everyday life and all around them. They aren't afraid of it anymore it is more accessible.*

Increased awareness of and interest in science careers

- *Tying to get them to realize there were science careers out there that they could be interested in and could do. Prior to program and at end we discussed with them and survey with them. They were interested in science and there were fields they never thought about but they could see them as possibilities. In a relatively short period of time to see opportunity.*
- *Once we showed them some of the scientist profiles they were like, wow, that is really interesting. They saw jobs you didn't always see at the job fair. All my trainers were females except one man from a university who brought the frogs.*
- *Some understanding of science careers for girls that they didn't have before. Some feeling of accomplishment that they learned a lot of skills this week. They knew they were doing something hard that [scientists] do. They will compete to being an astronaut I think they learned a lot on every activity. Time ran out but I think they enjoyed it and came away thinking I could to it. And be a scientist.*

Science is fun/exciting

- *That they can find it enjoyable and exciting. That is another thing that came out.*
- *It is a lot of fun. Science is a blast.*

6.6 Did grantees evaluate the outcomes of their *SciGirls* projects, and if so how?

As Table 24 shows, nearly half of the grantees (n=7) did not conduct a formal evaluation to assess their projects' outcomes or they relied on informal feedback from project participants and/or staff. Six (n=6) grantees requested girls complete surveys at the end of their projects while 4 grantees had parents complete surveys.⁷ Two (n=2) grantees had staff or outreach partners complete written surveys or telephone interviews at the end of the project period or as a follow-up.

Although the evaluation did not formally assess whether grantees that conducted evaluations included their results, or the evaluation instruments used to assess project outcomes, in their final reports, it was evident looking through the final reports and talking with grantees that not all provided this information. Main reasons cited for not including the results were time constraints or oversight.

Table 24	
Whether and how grantees evaluated <i>SciGirls</i> outcomes	
	(n=17)
No formal evaluation or relied on informal feedback	7
Girls completed survey at end	6
Parents completed survey at end	4
Staff or outreach partners completed surveyed phone interviews at end or as follow-up	2

Grantee suggestions for evaluating future projects

Five grantees suggested TPT consider providing evaluation assistance or templates for future grant projects, as follows:

- *We could do it but it would lend credibility if SciGirls came back and selected a random sample of participants so they could evaluate a level higher than we did. The person who ran this was a woman who was getting her PhD in math and she was finishing her PhD and it was the middle of the summer.*
- *We didn't. I think TPT should have provided that. Even if it was for the camp counselors. But being that I am not an evaluation person I would hate to take a guess as to what they would want to see and not see. All I have is feedback from the counselors about how it went. Even a group evaluation at the end, it would be possible with them.*
- *We would have liked to have assistance from TPT in evaluation assistance. Had there been an eval instrument there it would have been there to use, yes there was a missed opportunity due to getting busy.*
- *I think it would be great to have more evaluative material.*
- *Maybe we could have used some resources or encouragement. I don't remember that being a requirement of the proposal. I see the value of it as well and it could be specific for what to evaluate.*

⁷ Note overlap here as all of the projects that surveyed parents also surveyed girls.

6.7 Did grantees projects help facilitate use of *SciGirls* resources among traditionally underserved or disadvantaged populations?

As one of the *SciGirls* program goals is to facilitate the use of resources among traditionally underserved or disadvantaged populations, grantees were asked to describe whether and how their work contributed to this goal. While grantees typically could not verify the types or numbers of underserved youth participating in their projects, all stressed that their projects were specifically designed with this goal in mind and that their partners were in part selected to help them reach this goal. Grantees most often described serving girls from low income, followed by racial minority backgrounds. Less frequently they described serving girls with special needs, girls residing in rural regions, and girls from military families.

6.8 Did grantees encounter resistance in offering a girls only project?

As Table 25 shows, 10 of the 17 grantees encountered some form of resistance, while 7 did not. Among those who had encountered resistance, the following kinds of factors were at play:

- In 4 projects, parents found out about the program offering and wanted the same opportunity for their male children. One project has considered offering such a program.
- In 1 project, staff at an after-school program that served boys and girls shared concerns about going to the district saying it was for girls only. Enrollment was kept open but while girls went on the fieldtrips, boys got enrichment activities at the site. Since from the beginning the program staff knew it would be an obstacle, they built the potential for resistance into their project design and according to the grantee “*it worked out...boys weren’t envious.*” Both groups worked well separately, and didn’t mind the separation, even though this was a new thing for the program.

	(n=17)
Yes	10
No	7

- One grantee received letters from older men in the community after receiving media coverage in the local paper. They questioned the focus on girls only, and asked why the girls are singled out.
- One grantee was also running a co-ed summer camp that anyone could pay for. The materials showed events in the past that mostly portrayed girls. The parents of boys saw all the pictures of girls and asked if the program was for girls only.

Several other projects however did not encounter any resistance, with a couple of grantees noting that they only met encouragement, partly because they were working with girls-oriented programming, as in *Girls are already there, it’s a captive audience, meeting as girls*. One grantee talked about not receiving negative feedback, but qualified that it was difficult getting full enrollment in their program, partly because *the target age was tough* and partly because *The girls want to be with boys. It isn’t compelling to be with just girls*. In this case the project had enrolled a couple of girls whose

parents enrolled them and while they resisted being in the program initially, they ended up being engaged: *We had some resistance about just being with girls. It appeals to parents and funders and the pedagogical culture of getting girls to science but it doesn't translate to the girls themselves.*

Part 7

Grantees' use of and reactions to the *SciGirls* resources

Part 7 of the evaluation focused on grantees' use of and reactions to the *SciGirls* resources, first overall, and then specifically in relation to the videos, activity guides, and website.

7.1 How did grantees rate the value of the *SciGirls* resources to their projects?

Grantees found all of the *SciGirls* resources to be of value to their projects. But as Table 26 shows, when grantees were asked to rate each resource on a scale of 1 (not at all valuable) to 7 (very valuable) they generally rated the videos highest at 6.1, followed by the print activity guide at 5.7, and then the website at 5.1.

Table 26								
Grantees' assessment of the relative value of the <i>SciGirls</i> resources to their projects (mean ratings, n=17)								
	Not at all valuable						Very valuable	
	1	2	3	4	5	6	7	
Videos								6.1
Print activity guides								5.7
Website								5.1

7.2 What in the grantees' estimation stood out about the *SciGirls* resources?

As Table 27 shows, the top three things that stood out about the *SciGirls* resources for grantees were: 1) the portrayal of girls enjoying science, having fun, and working together (n=10); 2) the modeling of the inquiry process within and across resources (n=8); and/or somewhat less often 3) the T-shirts which became an identifying and bonding element for the girls (n=5).

Table 27	
What stood out about <i>SciGirls</i> resources for grantees	
	(n=17)
The portrayals of girls - <i>enjoying science, having fun, working together</i>	10
The inquiry process modeled within and across resources – <i>well designed, linked</i>	8
The T-shirts – <i>identifying, bonding</i>	5

A selection of grantees' observations relating to these three themes is provided below:

Portrayal of girls – enjoying science, having fun, working together

- *Something I haven't thought about is they have done a good job of developmental appropriateness for 8-12 year olds. The people who developed it just really knew the developmental nature of that age range.... All these things hit the kids in a spot where they just love it. It is one of those things where you don't know if they are going to roll their eyes and since the other campers are out having their fun yet the girls were so into their SciGirls mode. That is a real testimony; their nose was to the grindstone.*
- *I love them. They really do focus on girls and that is important in comparison to other materials. It is easy for the girls to identify with them and also for the teachers to see since they are important to see that we are promoting girls to go into the science field. So it was great for both. Loved the enthusiasm. The girls and teachers laughed, you could identify with them. You could see that science could be fun, not dry in a classroom.*
- *I like the fact that they show the girls in the everyday world having fun with science. They are all having fun doing basic fun things. A lot of time you think of stereotypic people not having any fun, science is alive, it is everywhere, and anyone can do it. Like the waterslide. I'm sure every girl has been on one. The weather one is awesome with grandmother's big toe and the bees and everything you hear of it everyday but it's awesome to see the science behinds it.*
- *Definitely. We used some other resources and obviously this is more focused on how they relate to science and the videos show that and they show how girls enjoy science and having fun.*
- *The girls seemed interested and in action and even when I saw the pictures the girls look excited doing these activities and that this was something that was fun and they were learning.*
- *The girls focus was the best thing for me. Also some of their investigations had boys, talking to me, and including them, that was good but it had girls in a leadership role. I don't think I've seen any educational resources like this one. Girls are having fun doing science. That women have careers in science. That women make good scientists that science is cool.*

Inquiry process modeled within and across resources – well designed, linked

- *The excitement when they first do the icebreakers. To watch their little faces and watch them get it. It is really a neat experience. The icebreakers start and end the whole process. As the week gets along, there is an experience of ah I get it. The inquiry process becomes part of their nature. They don't have to pull out their cue cards. It becomes a part of their nature. I think one of the*

things was they could see girls actually doing things to gain knowledge. They didn't have to have a right answer. They were finding out. They didn't have to have set things to come up with. It's like a mystery and to bring it down to earth to things that were not the hating.

- They do stand out. The actual activities are things I've seen in other places. So wouldn't say curricula was that unusual. It was linking it with video and that the inquiry process. Good curriculum weaves its way into programming. As a curriculum as a whole, should the opportunity arise if another group wants to use it would be in my toolkit.
- They are different in a couple of ways. We have to have permission in our programs to use certain DVDs. So like we have permission to use Bill Nye... but his approach is not the same way in terms of process like I'm going to ask question and here is how we are going to about it. The videos did a great way of modeling the science process... I haven't seen anything else like that.
- I think the main thing was that they focused on girls specifically and the inquiry method and a strong math and science focus.... Just emphasis on questioning and finding out and asking questions relevant to the project. A question and resources can be limited to what is in your environment. If you are interested in animals, here is an experiment you can do to find out more.

T-shirts – identifying/bonding

- It is hard to tell. Some of the outreach materials were based on Dragonfly and not specifically SciGirls. So if we had glittery stuff for Dragonfly or posters some things were used that weren't specifically SciGirls. The one distinguish item were the T-shirts. And those were a big hit. Apparently apparel is an identifier. For this age group this was a big deal. They wore them all the time...
- Everyone obviously loves the T-shirts and girls and counselors wore them, and boys were very jealous.
- The T-shirts are very important. Especially in the setting we are in. It helps them stand out and get the feeling of a girls club.
- T-shirts were great – loved pink and it was fun with real nice touch.

The following sections in Part 7 look more in-depth at grantees' reactions to each resource, beginning with the videos, then the print activity guide, and finally the website.

~ SciGirls Videos ~

7.3 With whom did grantees use the SciGirls videos?

Table 28	
Audiences with whom SciGirls videos were used	
	(n=17)
Girls in SciGirls project	16
As a professional development SciGirls training tool	11

As Table 28 shows, all but one of the 17 grantees used the videos with girls in their SciGirls project while 11 used the videos as a professional development training tool, beyond any formal training received from TPT's SciGirls staff or associates.

7.4 How did the grantees use the *SciGirls* videos?

As Table 29 shows, grantees used the videos in their projects in diverse ways, but most often they were used as a warm-up/icebreaker at the start of a program session (n=7) or to model the inquiry process prior to starting an investigation (n=6). Less frequently they were used as a lunchtime activity (n=3), to model career options (n=2), as a culminating activity (n=2), or as homework (n=1).

	(n=17)
Warm-up/icebreaker at start of session	7
Modeling of science inquiry prior to investigations	6
Lunch activity	3
Modeling of career options/scientist profiles	2
Culminating/end of session activity	2
Assigned as homework/take-home assignment	1

7.5 How frequently did grantees use the videos in their projects?

As Table 30 shows, few grantees regularly used the videos in their projects (n=3), but several grantees (n=6) often or sometimes (n=5) used them. Just a few grantees (n=3) reported they rarely used them.

	(n=17)
Regularly	3
Often	6
Sometimes	5
Rarely	3

7.6 How valuable did grantees find the videos to their projects?

Grantees generally found the videos to be of high value to their projects. On a scale of 1 (not at all valuable) to 7 (very valuable) the mean rating, as Table 31 shows, was 6.1 with the lowest rating among the group being a 3 (for a project that assigned the videos as homework and didn't use them as part of their project sessions), and the highest rating being a 7.

	1	2	3	4	5	6	7		
Not at all valuable								6.1	Very valuable

7.7 What did grantees perceive to be the most valuable aspects of the videos?

As Table 32 shows, grantees found the videos to be valuable in multiple ways, but most often they pointed to: 1) the modeling of scientific inquiry and the opportunity for girls to relate their investigations to those demonstrated (n=8); and 2) the portrayal of girls doing science and having fun on the show (n=7).

Other aspects were pointed to a little less frequently, including: 3) the short-format being a good tool as an icebreaker or transitioning/focusing tool; 4) the depiction of women in scientific careers as a powerful role modeling experience; and 5) the professional development applications for educators and partners.

Excerpts of grantees' comments are provided below for greater context:

	(n=17)
Modeling of scientific inquiry and opportunity for girls to relate their investigations	8
Seeing real girls do science – <i>motivating, empowering for participants</i>	7
Short format – <i>good for icebreaker, Transitioning/focusing</i>	5
Powerful depiction of women in scientific careers – <i>good role modeling</i>	4
As a professional development resource – <i>enlightening, exciting to educators and partners</i>	3

Modeling of scientific inquiry/relating own investigations

- *The videos are good at showing give and take and keeping them on track and how to do an experiment from beginning to how do I chart it and explain it to a group. They have to show their data and how to reflect. Interactive, challenging, well researched.*
- *Anything they saw in the video we tried often to do the experiments in the video. Since we had great resources and environment we were able to do that.*
- *Several girls sat and watched them and reflected on them as progress throughout the day. We used them at different points. It was more to give them a sense of the concept or inquiry method and we used them as a demo for problem solving strategies. They saw that there were different ways so look at a problem.*
- *Every week we used the videos. We had to make sure they had power so we could use them. This was probably one of the most intriguing things for the girls. The whole segment was only like 10 minutes. We did it as culmination. We would talk, do an icebreaker, do an experiment, and then watch the video and see how it related to what we did.*
- *Videos helped making the connection of what we were doing and why we were doing it. I can relate any video to make sense to what we are doing. In my opinion you can make them work. They all work with the scientific method. Even if the theme was different the process was the same, they all showed charting for example and we did that.*
- *We watched all the videos and a couple were incorporated in the class. Big thing we got girls were coming up with questions, designing their own way of doing the experiment, and journaling, and doing the data recording. We had them come up with questions designing their own data sheets and making those.*
- *They really picked up with the process. Not only were they learning but able to take it in a different situation and apply to.*

- *They were a model for helping, like of what a science investigation would look like. We could evaluate them in that sense. We also used them to model specific science inquiry skills. These are some of the ways they represent.*

Seeing girls like themselves doing science – motivating, empowering

- *Girls really related to the other children in the videos. Definitely sparked an interest.*
- *Enthused girls. Seeing other girls do science.*
- *Girls see other girls doing the things they are about to do.*
- *The parts we did show to the girls they identified, “That’s like us.”*
- *One of the things we really liked is how it overcame the barrier that girls can do science. That it is okay to be smart Good match in terms of girls we served.*
- *It is a motivator. It connects you to outside world. It feels like you are part of a bigger thing.*
- *Girls watched them, they enjoyed it... They got to see girls. They are our age and they can do this and so we can too. It made it less intimidating to them. Modeling inquiry/ way to reflect on activities in the program.*

Short format – good for icebreaker, transitioning, focusing

- *It was a nice way too to keep them focused and transition to next activities... I did both.*
- *I used them as an icebreaker and then throughout the activities and even when we did lunches and so forth, we would show them then. It kept them focused and it helped right away to see girls.*
- *I liked the way they were designed they were short enough. We used them for some other programming and that they were short and specific in target was great.*
- *We used as introductory to give the girls some kind of idea or they would use portions for an idea. Mainly to get them enthusiastic about what they were going to do and show what kinds of things we were planning for them.*

Powerful depiction of women in scientific careers - role modeling

- *Career segments prove a modeling and that is important. I would think doubly important to girls who don’t have access to this.*
- *We used both the episodes with the girls and we loved the women scientists. The profiles have been very powerful. This is where they see themselves relating to a science field...because the women are different ages and have different interest, the girls grasp a lot out of seeing those.*
- *Video profiles of scientists – we modeled that at the end of our camp and we had women come in who talked about science careers. It was great to show to girls, and their parents, and as a model for us to pick scientists. Girls found them engaging. It is hard to find people in the community that are engaging and able to talk to young people.*
- *Role model interviews were wonderful. Some people asked me to use them again.*

As a professional development resource – enlightening, exciting to educators and partners

- *Videos were great for in particular our teachers. They took them home and based a lot of their lessons around them. It gave them new ideas for how to teach science and it reenergized them. Gave them a training module and thinking out of the box and how to great science. Same with all our partners. It was great to use them.*
- *Used with the trainers and they used it with the students. As far as the trainers go, they thought and were very intrigued with the video because for them they thought it was a great enhancement and complements. Lots of ah ha moments and learning about modeling of science process and inquiry, everyone was fascinated by that.*

- *And the teachers were engaged. We used it as a model of what we wanted to see happen. It showed process. The presenter who did the first presentation said that the teachers left very motivated and I think they want back to the field sites and tried to replicate activities they saw. There were three people trained after our training and people left excited and wanted to follow up.*

7.8 What did grantees perceive to be the least valuable aspects of the videos?

As Table 33 shows, when asked to describe the least valuable aspects of the videos, grantees tended to focus on how the videos weren't a fit for what they were trying to accomplish in their projects. Most often they pointed to their setting lacking access to the kinds of materials or environments depicted in the video investigations (n=7).

A few grantees noted other issues, such as: their priority was to get the girls active, doing their own "live" inquiries (n=4); they encountered DVD/VHS access or format issues (n=2); they perceived that the scientist profiles were somewhat contrived, or didn't resonate with the girls in their projects (n=2); or their projects focused on topics for which the video content didn't match (n=2).

Table 33	
What grantees perceived to be the least valuable aspects of the videos	
	(n=17)
Lacked access to materials/environment depicted in the investigations	7
Priority was on getting girls active, inquiring/had many live activities planned	4
DVD/VHS access or format issues	3
Scientists profiles seemed somewhat contrived, didn't resonate with girls	2
Video content didn't match program focus	2

Excerpts of grantees comments on these themes are provided below for greater context.

Lacked access to materials/environments depicted in investigations

- *Like there was one about frogs, we don't have the ones featured in these show. In the future if they want to have detailed labs or activities, then maybe add some extension notes. Its fun for kids to do it on TV and then have supplemental labs or activist. It's fun to see and then do.*
- *No we didn't really copy any of the experiments they seemed to be pretty highly produced. Required a lot of planning and preparation. You couldn't just pick up and do an investigation and think about where you would visit and the materials you would find.*
- *A lot of the experiments we can't do. We don't live near the water so we can't do experiments with boats. So rather than look at the actual experiment's we looked In terms of process.*
- *Typically we did a totally different experiment. It was difficult to replicate some of those things in the show. Like for [xxx] girls to make their own model boat you are talking about very expensive.*
- *Some of the activities we couldn't do due to materials and because some were planned so well in advance. Most seemed doable though.*
- *We had some we didn't use because we didn't have access to what they had used but we never intended to use them all anyway.*

- *Investigations – like one teacher wanted to do the slide one but we just don't have one around here. So one teacher was frustrated because she liked the idea so much that it was so playful. But in other ways we were able to go further.*

Priority was to get girls active, inquiring/had many live activities planned

- *We didn't use them that often in the camp but the first day they watched a couple of episodes. After that, not so much because we had so many live activities. It is a little counter-intuitive showing girls' outdoors when we could get outdoors. Whole point is to get out there. We are doing it. It is a good resource for back pocket.*
- *Use with the girls could have been stronger... We were trying to pack them into much. Design of program was we didn't have them sitting down together a lot. They were constantly working... We weren't in a formal setting where they could watch them.*
- *We did not do their exact experiments. It would be mimicking if they did that it wouldn't be inquiry*
- *Too many live activities planned.*

Encountered DVD/VHS access or format issues

- *Would have preferred DVD. First time I think I had to use tapes and then I got some DVDs, but to find things with DVD would be better. It seemed like for a while I was using VHS and then got DVD for ease of use*
- *We just had VHS. Would have liked DVD. It is so much easier because we could have used a laptop if not a TV.*
- *It was really good. We used as much as we could and when technology was available. Because of school setting we didn't have access to them and was there a plug available. We used them in workshops not the other events.*

Scientists' profiles seemed somewhat contrived, didn't resonate with girls

- *Scientist profiles – not as interesting to the girls. Not connecting with the girls but not sure why. But when we did field trips and they met behind the scenes people ...there really interested in that. Being face to face and seeing the personalities. And they were able to meet with people who had careers in science.*
- *Scientists profiles were maybe a little contrived, didn't so much appeal to me. All the other instructors were real role models of women doing science. We didn't have to use strangers.*

Video content didn't match project focus

- *We used them but not extensively, as an intro to what they were doing. Not all of them matched the activities.*
- *They didn't do the actual experiment. Just the logistics of how our camp ended up being developed and focused on a different topic.*

~ *SciGirls* Print Activity Guides ~

7.9 With whom did grantees use the print activity guides?

As Table 34 shows, 13 of the 17 grantees used the activity guides with girls in their *SciGirls* projects and 13 used them as a professional development training tool, beyond any formal training received from TPT. Three (n=3) grantees didn't use the guides in either context.

Table 34 Audiences with whom the print activity guides were used	
	(n=17)
With girls in <i>SciGirls</i> project	13
As a professional development training tool	13
Didn't use	3

7.10 How did the grantees use the print activity guides?

As Table 35 shows, among the 14 grantees that used the activity guides, all but one used the Icebreaker activities (n=13), and 7 used the Investigations as written, while 7 loosely modeled or adapted them.

Table 35 Ways that grantees used the activity guides	
	(n=14)
Used Icebreaker	13
Used Investigation	7
Loosely modeled/adapted Investigations	7

7.11 How frequently did grantees use the print activity guides?

As Table 36 shows, only one grantee regularly used the activity guides in their projects, but several grantees often (n=8) or sometimes (n=4) used them. One (n=1) grantee reported rarely using the guides.

Table 36	
Frequency with which print activity guides were used	
	(n=14)
Regularly	1
Often	8
Sometimes	4
Rarely	1

7.12 How valuable did grantees find the print activity guides to their projects?

Grantees generally found the activity guides to be of value to their projects. As Table 37 shows, on a scale of 1 (not at all valuable) to 7 (very valuable) the mean rating was 5.7 with the lowest rating among the group being a 1 (for a project that didn't use them in their project sessions because the content didn't match their session focus), and the highest rating being a 7.

Table 37							
Grantees' assessment of the overall value of the <i>SciGirls</i> print activity guides to their projects (Mean ratings, n=17)							
	1	2	3	4	5	6	7
Not at all valuable						5.7	Very valuable

7.13 What did grantees perceive to be the most valuable aspects of the print activity guides?

As Table 38 shows, grantees most frequently pointed to the guides' versatile activities (n=6), the Icebreakers activities in particular (n=5), or the clear, attractive, and user-friendly design (n=4). A few grantees also pointed to other aspects of the guides such as the: graphing/charting features (n=2), recording/journaling features (n=2), or the accurate science content (n=1).

Grantee's comments on these features are included below.

Versatile, adaptable activities

- *We used specific lesson plans and in one setting we set up zones for 4 of the lesson plans and then had people go through and model the hands on activity. Some of my trainers did that themselves and then added other things. There was one that one of them did to modify for a younger age group. Used in trainings and I drew people to the website so they could do that as well. Main thing people needed was more time to do the activities and from what I understand they are still using*
- *We didn't adapt the activities but we pulled those that were appropriate. We built our learning triangles around them. Many times we used those from day 1. We knew about those from the training.*
- *But it worked very well as when they looked at something it worked very well, and we could look at it and incorporate.*
- *We did use the activity guides along with the videos. From the lesson plans I didn't see anything used exactly but they did incorporate. This is consistent with how we do things. By and large those teachers who use them. I used a portion of it and did it the way I want to do. All my staff wanted the video and activity guide to keep.*
- *Don't use investigations exactly but as an example like the csi one on who ate the cake. That became a hook of an idea of crating a unit in the camp...*
- *When we initially had our training we had the camp counselors and consultants we were going to use. The first thing we did was to go through the guide and talk about how to use the scientific inquiry process. And it was through the icebreakers and activity. And many of the ideas from the workshops themselves was from the guide. Like the one on robots we knew we couldn't do that but the girl scouts were doing a unit on that so we gave them the activity.*

Table 38	
What grantees found to be the most valuable aspects of the activity guides	
	(n=17)
Versatile, adaptable activities	6
Icebreakers	5
Well designed – clear, attractive, user-friendly	4
Graphing/charting	2
Recording/journaling	2
Accurate science content	1

Icebreakers

- *They were great. Perfect size, just the right amount of information, use icebreakers, used in after school, they were easy and just like simple materials, and we could get things around our office. This made it easier for the girls to relate the whole science concept.*
- *Icebreakers mostly – early in session or when weather was bad or time to fill.*
- *Not so much. We were mission oriented. We used icebreakers. Chewing gum activity.*
- *And what all that mean through the icebreakers. At middle of the week they were given the choice to develop their own investigation, something to do with the camp, like the swings, or slides, and then they had ideas and came up with a material list and then we went to Wal-Mart and bought materials. Some things are constant like measuring cups...Then culmination is to present their findings and their whole experiment at large. Girls loved to have them stand out. It was a neat thing to then share with the other campers that they spent the week with.*
- *Really invaluable in helping the girls see how to do it. With icebreakers how do you apply that to real hands on experiment? How they are going to come up with an experiment. Where does the idea come from? They have to work together and one doesn't want to do something so how do they work together?*

Well designed – clear, attractive, user-friendly

- *Used in both. They were easy to read, easy to follow. Nice because they weren't just for science center profession. Educators and even scout leaders felt comfortable.*
- *Colorful well designed and good.*
- *Like the guide is beautiful and it was important to be able to leave that with them. I like the format. I found them easy to use, like the icebreakers. Easy to use and get the materials together without a huge amount of preparation without a lot of background reading to get up to speed.*
- *Yes we used those a lot, especially with after school program it was really effective to start out with those experiments and they were fun. Well thought out, simple use to use, steps were really clear.*

Graphing/charting

- *Even beside the camper I used dragonfly a lot the activities are definitely relevant they work well with the shows they provide. A math requirement here is graphing, I like that they show that. And for teachers this can be hard so to have it right there it is nice to have pencil and paper right there... I like that with Dragonfly in general. They are detailed in their instructions.*
- *And like the charting, we used all that. We used bits and pieces to fit it in.*

Recording/journaling

- *We wanted girls to keep a journal and record not just data but also questions, their feelings, about their experiences and so forth. At times it was a matter of only having a couple of minutes to do that.*
- *At first they thought it was a chore but it became something they enjoyed. We gave the 3 or 4 minutes to record however they wanted of their experience Some rewrote impression, some did poetry and sketches. Then we would bring it back in. In that time period, by focusing in that setting, it was a way to relive stress and calm down.*

Accurate science content

- *No pushback from anyone about the validity of the science.*

7.14 What did grantees perceive to be the least valuable aspects of the print activity guides?

Only a few grantees discussed aspects of the guide that they found to be less valuable or that could be improved. Their comments focused on: 1) not having access to the materials required for certain activities; 2) the content not matching the focus of their project; 3) a preference for participants to develop their own investigations; 4) a desire for standards information be added to the activities; or 5) a desire for the activities to be adapted for parent and home use. Comments included:

- *Put in standards information for teachers that would be great.*
- *For us, we didn't use the actual activities. We were trying to use the camp and we wanted them to be involved at the camp and what was available there. That way they could select an area of the camp they were interested in and then make it work as far as their experiment went. Main thing was having the surroundings and what we had available. Like building the milk carton boats, we don't have that many. We could collect it for a year. We thought it would be better to use a concept...*
- *I don't think she relied a lot on the print materials. It didn't go in the direction we were headed. Content area wasn't so relevant.*
- *I think it is just creating more lessons or activities that are smaller. Some of the supplies are just...when you are talking about 30 girls and getting the supplies. Everyone wants their own and don't want to share. Or here is your main activity, and then here is another way to do it. I think the activity guide is great but like I mentioned quick activities you could show a parent that they could do with their children. What we had was not something you could give a parent. So parent activities, especially with our environment, parents could have been given.*
- *I guess I would say maybe they could be a little more content oriented so that if an educators wanted to use the materials and didn't have the background – but that might weight it down, so maybe references to other things...like if you want to find out about sound, you could reference other areas. But it seems like it is more process oriented than content. But if you could refer people to resources somewhere that are user friendly.*

~ SciGirls Website ~

7.15 How did grantees use the website?

As Table 39 shows, the majority of grantees used the website early on, during their grant or project planning stages (n=14). More than half (n=9) said they continued to use it as a reference tool or to download materials. Several grantees (n=6) noted that they referred partners, teachers, or girls to the site. Just a few grantees (n=3) however, actually used the site with girls. Those who did either used the Message Board feature, watched an episode that related to a topic they were covering that wasn't in their package of videos, or had the girls generally browse the site.

Table 39	
How grantees used the SciGirls website	
	(n=17)
Grant/project planning	14
Reference tool/download print materials	9
Referred partners, teachers, girls to it	6
Used with girls – to post a message, to browse, or to watch episode not included in package of materials	3

7.16 How valuable did grantees find the website to their projects?

Grantees generally found the website to be of value to their projects. As Table 40 shows, on a scale of 1 (not at all valuable) to 7 (very valuable), the mean rating was 5.1 with the lowest rating among the group being a 2 (for a grantee who only used the website when applying for the grant), and the highest rating being a 7.

Table 40							
Grantees' assessment of the overall value							
Of the <i>SciGirls</i> website to their projects (mean ratings n=17)							
	1	2	3	4	5	6	7
Not at all valuable					5.2		Very valuable

Grantees' comments on their ratings

Grantees who used the site for project or grant planning said they used the site to see if they qualified for the grant, for grant writing support, or for background knowledge. Grantees who discussed using the site with girls said they used the Message Board, or qualified that they experienced technical or access issues with their local computers. Grantees' comments are provided below for additional context.

Project and grant planning

- *Helping in the formation but not so useful in project. Went in to see if I was qualified to do the project. It was a perfect fit.*
- *I was on it a few times I didn't spend a significant amount of time on there. I spent more time on website until we got our box and then we started using those resources. It was helpful in writing the grant and what they do.*
- *I wasn't as impressed as I thought because it was everything we already had. Used it for background knowledge and how it came about from NSF, and we sent our partners there so they could learn about it.*
- *I used it for the grant and directing. We had the information on our website and that worked very well.*

Use with girls

- *I used it looking for different activities but there wasn't much use of it. I wish we could have used some of the blogging. Kids didn't have resources to get to the computer. There wasn't as much computer access as there should have been. It would be more valuable if we didn't have the other resources.*
- *We did, we could have used it more but because of the location and our situation at the schools. We didn't have access to computers and rooms. If we had a laptop we would show them the website. It was the offline version and hoped they would visit it.*
- *I think they need to be challenged more on the blog there. Instead of just going in there to say science rules they need to be challenged and given more provocative questions and gaming. AT*

that time it was called bulletin boards. It was an add-on that made sense for the girls. It was a fall-back when we didn't have a video.

- It was sometimes hard to tell them *SciGirls* is this and it is part of *Dragonfly*. So watch TV and then to see how *SciGirls*. I don't know what they were doing but I think it gave them a sense of how they were different.
- We had so many activities; many were hands on some where wasn't much time. It helped me design the project though. I don't know how much they wanted the kids to use it there were probably links to follow but given the nature of our project there wasn't a need.
- I used that the least I don't know if teachers used it. I know we told the girls about it but I didn't measure it. We talked about using the blogging for the current camp. I wasn't so comfortable a couple of years ago.
- We pointed parents to the website so they could see how to use it at home so their kids could do something. I gave out a sheet that they could use to go to the site. And we put a link on our site as well so they could go to it. We showed students who went on our tours the site and they didn't want to turn it off they wanted to play and look around.

Part 8

Current status of grantees' activities involving *SciGirls*

Part 8 of the evaluation focused on the status of grantees' activities involving *SciGirls*, and in particular the extent to which grantees expected to replicate, modify, or expand their projects.

As Table 41 shows, all 17 grantees reported that their departments were still conducting or planned to conduct projects involving *SciGirls* as follows. Six (n=6) grantees were focused on expanding their projects, 5 grantees were focused on folding *SciGirls* materials into an existing project, 4 grantees were focused on developing variations of their original *SciGirls* projects, and 2 grantees planned to continue with the same project model.

Table 41	
Status of grantees' activities involving <i>SciGirls</i>	
	(n=17)
Expanding project - new sites, more students	6
Folding use of resources into existing programs	5
Developing variations of project – <i>co-ed, kits, scaled back</i>	4
Continuing with same project model	2

Grantees' comments on expanding their projects

Six (n=6) grantees were focused on expanding their *SciGirls* projects as summarized below:

- One grantee planned to duplicate its project and then have its partner expand the effort into a summer program in another market: *This allowed us to pilot and now we can replicate and do it bigger and elsewhere. Seeing girls do science in this unique way is paramount. We are reformatting it would work best as summer camp but we can't do that. But others can. We now have a design, a format, and way to do that.*
- One grantee planned to expand from 1 camp to 2, with a focus on evaluating the camps to see if running the 2 groups in the 2 different places attracts a greater and more diverse group of girls.
- One grantee was working on acquiring funding to run the same basic project but expand to other sites: *There are other sites so we want to expand to these areas so we can reach more girls and serve other areas. It is a big if, if no funding we will continue but in a more limited way.*
- One grantee was working on a 5 year plan is to get their project to be a year round offering: *"to keep the interest up through the school year....but its baby steps....we hope to continue to double as we go forward."*
- One grantee anticipated expanding the *SciGirls* project through the school year to help counteract girls' returning to school after a positive summer experience with science and becoming discouraged: *We are looking at how to expand this through the school year. They go back to school and get discouraged about science again. This could help them get through the school year. How we engage teachers is important in the planning rather than just delivering to them what they are going to do. Before we had a lead teacher and assistant and now we will have 2 teachers. And they will be from the schools.*

Grantees' comments on folding SciGirls into their existing programs

Five (n=5) grantees were working on ways to fold *SciGirls* into its other existing programs rather than replicate, reconfigure, or expand it, as follows:

- One grantee planned to use the activity guides, particularly the icebreakers, in other programs, and considered that *SciGirls* was already ingrained with their programming as process and inquiry steps, noting: *I think I will always refer back to the icebreakers.*
- Facing conflicting institutional priorities in light of lower than expected enrollment for its *SciGirls* project, one grantee did not expect to be able to offer a repeated program in the near future but expected in the interim to integrate into existing programs: *We will 100% be using DVDs and experiments and resources in our programs. In terms of doing a girl's only camp, if it was up to me we would do that. But like an organization there is a hierarchy.*

- One grantee planned to draw people to the *SciGirls* website, distribute *SciGirls* materials at an after school conference in the summer, or get copies of the videos and show them to students. The grantee was uncertain about initiating a new project though and noted: *These things keep it evergreen. So where it is harder is where you have to pay for in person work.* The grantee also expects to use the activities with the kids who come through to do tours to see us. *We have themed tours and SciGirls has a good fit as we have a request for older students. We used it as a challenge between girls and boys. It was so much fun. And they loved it. And typically we will give something to the teachers and we often print them off and bind them ourselves and give them to people who come through. We had 35 last year.*
- One grantee planned on maintaining their partnerships and one day doing a variation of the project, but in the meantime expected to use the resources in existing conferences, as follows: *The partnership is there, we will someday. The only problem we have is we are short on staff. When I taught more you had things you had to do. Here you put some much time into something and it is fun and then you have to move onto something else. Staff is invited to a conference here and we will be doing some things with the resources. I can't give exact dates. I like to work with teachers but I really like to get to the students. The girl scouts are a nice group and I foresee it in the summer but maybe shorter. If we do a week long, have an issue with the girls to get there.*
- One grantee had yet to find a match but expected in the interim to fold it into outreach work with families: *It is definitely one of our projects. We will find a match – just not yet. We do outreach to families and activities at community events. If there is an ability to do a version of the activity book as a thing for parents to have and to teachers, maybe making it simpler and shorter, but that would be great...the phone is always ringing for things and it can be offered... we try not to sign into program we don't see being used beyond grant period. When signing on we knew that getting training was key and then doing this in a pilot way would grow it.*

Grantees' comments on developing variations of their projects

Four (n=4) grantees planned variations of their projects, such as a co-ed version, the use of outreach kits, or a more focused and scaled back version, as follows:

- One grantee planned to offer the project with its existing partner as a co-ed program *but with increasing awareness of how to make sure girls are fully engaged and voices heard.*
- One grantee was almost finished creating kits based on *Dragonfly TV*, which includes resources from *SciGirls*.
- One grantee was organizing a variation of the same camp for summer 2008 that would be scaled back and held half days with 1 field trip overall instead of 1 trip per day. The grantee also planned to offer 4 middle school classes for boys and girls with limited staff to keep costs minimal.
- One grantee was looking to host a boys and girls program, contingent on funding: *I would love to be able to do this camp again. If I offer a camp where kids have to pay I would get*

mostly only boys. The materials are wonderful I hope they go on TV and will inspire liked doing the girls so much that I will try to do this I am likely to advertise a separate one and one for both. I will have to find grant money though. Girls won't attend and pay on their own.

Grantees' comments on continuing with the project model

Two grantees said they were working on continuing with the same project this year, as follows:

- One grantee that had run two years of *SciGirls* projects expected to be able to sustain the project for another year or two, and then anticipated looking for new sources of community funding: *Every year we tweaked and doing so again as we plan for our 3rd year. This year [a partner] was able to get the funding and our station for the first time ever our station is shopping around for sponsors. That will give us an opportunity to provide scholarships. And we would like to provide tee-shirts, a reception, and we shoot some footage that we will run on air we find it valuable to let the community to know, and we run our piece on website and on the air. It will be a 2 week camp and we will continue to invite former SciGirls and they bring a lot of value and act as mentors to young girls.*
- One grantee planned another round of programming, keeping the same basic configuration for the upcoming summer, supplementing it with grant money coming in from another partner.

8.1 Did grantees recommend any additional resources for future *SciGirls* projects?

As Table 42 shows, a handful of grantees (n=5) suggested the development of supplemental/take home materials that have a regional and/or family focus. A few (n=3) others recommended *SciGirls* journals that are branded and/or waterproof. A couple of grantees (n=2) each suggested something relating to the tee-shirts, either updating the style or being sure to notify grantees of their availability. A couple more (n=2) suggested web applications involving dynamic blogging or data representation.

Ten (n=10) other suggestions were also offered by individual grantees as detailed below, while 4 grantees said they didn't see the need for any new or additional materials.

Table 42 Additional resources grantees suggested for future <i>SciGirls</i> projects	
	(n=17)
Supplemental/take home materials – <i>regional and/or family focus</i>	5
<i>SciGirls</i> journals – <i>branded, waterproof</i>	3
T-shirts – <i>update style, notify of availability</i>	2
Web applications – <i>dynamic blogging, data representation</i>	2
Other	10
No – <i>all needs were covered</i>	4

Grantees' comments are provided below for additional context.

Supplemental/take home materials – regional or family focus

- *Supplemental materials that have a direct connection to the videos.*

- *Maybe have regional resources like your Midwest would have a certain type, like with the geocache. So instead of having sand dunes have snow things. Or provide training to adapt those like from sand dunes to snow.*
- *Just take homes for the girls and parents maybe as well. They did take a journal home. It would be nice to give them activities they could do at home that they could do with their friends...we need things for kids and parents to do together. We could see these being turned into parent take home activities. We have a family literacy program and any kind of take aways are available.*
- *I think the activity guide is great but like I mentioned quick activities you could show a parent that they could do with their children. What we had was not something you could give a parent. So parent activities, especially with our environment, parents could have been given those.*
- *Only thing I can think of is their DVDs with experiments. I would like literature or extension to follow-up on those. Here are some suggestions you could do with your kids.*

SciGirls Journals – branded and waterproof

- *We did do journals and they would love that – and waterproof. Posters too.*
- *It might be neat if they branded a notebook so the girls would feel part of it. Or stickers. As a person who is doing national stuff it makes sense to do posters and give them out nationally. If they have to run somewhere and have overrun, give it all there. I think they are giving things salient to all programs.*
- *I had also got the girls science journals but they weren't that conducive. They were from dragnly not SciGirls it would be nice to have a log book or something that ties into the show. And stickers as well. Not just Dragonfly.*

T-shirts – update style, notify of availability

- *Tee-shirts – could they be made in more modern style and more stylish.*
- *No I can't think of anything different. Did not get tee-shirts – would have liked those.*

Web applications – dynamic blogging, data representation

- *It would be useful to be able to do research on the web but not so much gaming. Data representation might be interesting to see different ways to representation and interpret data.*
- *It is our strength to get kids to blog. We are blessed to have a whole suite of laptops. In our programs we used to have trouble with journaling but now we are seeing much more thoughtful writing. Would have used blog and post photos and see what other projects are doing.*

Other

- *More money.*
- *I would encourage even longer in-depth of the woman scientists. Seeing the women is very powerful to them.*
- *Some people were unsure why we were doing a girls only camp we had fewer girls enrolled than I would have liked to see. I think I would pick a title that was different. We made it sound pretty technical so our terminology was tough...and if a parent doesn't know what [the field] is then they can't see value for the kids.*
- *The DVDs – I would have liked to have more copies to give to the camps.*
- *I think it would have been nice to know what other projects were doing.*
- *Biggest for us was getting a DVD player that worked. Dance of where the DVD players go. It was built into each day so we had to have access to them.*
- *It was difficult because Dragonfly wasn't aired here. So it was hard to get them excited. Like cyberhcase it was easy to get kids excited.*

- *Just note we didn't use lesson plans because idea is to have inquiry.*
- *The new cans when you do the one with the rolling it the new cans don't work so well. The rounded bottom I think was the problem. When you take the older kind the worked well. Otherwise we did very well.*
- *Training - having that professional development component is hard pressed to replicate. I would use my master teacher now and she would provide to other teachers in our region and I had cultivated it.*

No need for additional resources

- *I don't think so, we felt very supported in the implementation of the project. We thought someone was accessible and available. The materials were sent.*
- *Contact was made well before the training and they knew what format we needed things in. Things ran like clockwork.*
- *I will see that we begged a lot and I think the resources were the draw and catch for us and there was so much support given through the grant. It made the partners sit up and say that this is something we are going to do and need to do and made it a priority. Every one of the coordinators did participate and that was a mandate and then from there there was more flexibility. They were amazed at all the materials, the DVD, resources, and web received there immediately and to see the men getting excited about this was good too. They really got involved in it, the fact that it was modeled and came from dragonfly and they sent someone to do the training and had the passion and this translated and it as Focus on girls – it just complemented what they were doing. They were excited we did it for girls.*
- *It covered all of our needs. We could put money in for staffing, facility rental, and advertisements.*

Conclusions

Part 1 **Grantees' feedback on** **the *SciGirls* grant application process**

Part 1 of the evaluation focused on the *SciGirls* grant application process. Grantees reported on their source for learning about the *SciGirls* grant, their reasons for applying, and their prior experience conducting science programs targeting girls.

Grantees' typically applied for a *SciGirls* grant for two reasons: 1) the opportunity to form new community partnerships, and/or 2) the chance to start a science program focused on girls. Three other reasons were also considered important, but to a lesser degree: wanting to expand or build on an existing science program focused on girls, the opportunity to continue working with existing community partners, and a positive history of working on projects with TPT.

Prior to beginning their work on *SciGirls*, just under half of the grantees had some experience developing programs focused on girls, typically collaborative programs with organizations that serve girls, such as the Girl Scouts, Girls Inc, or various school-based programs. Those without prior experience most often said it was due to a lack of: funds, awareness of need, staffing, resources, and/or training.

Grantees learned of the *SciGirls* funding opportunity through a variety of sources. Most often they learned about the grant through an email blast from TPT, via third-party notification, at the ASTC conference, or through direct contact with TPT.

Part 2 **Grantees' feedback on** **the *SciGirls* training**

Part 2 of the evaluation focused on grantees' experience in the *SciGirls* training program. Grantees reported on how well organized and run they felt the training was, what they found to be most valuable, what they gained from the experience, and as a result, how well prepared they felt to implement their local projects.

All but one grantee participated in the *SciGirls* grantee training program. Those who attended felt it was a worthwhile experience and typically identified the most valuable aspects as: 1) the hands-on activities; 2) the knowledge and enthusiasm of the trainer who facilitated the event; and/or 3) the opportunities they had to connect with other staff and partners. A few grantees also pointed to the training's focus on scientific inquiry and its introduction to *SciGirls* resources.

Grantees were also very positive about organizational and administrative issues surrounding the training program, with the group generally agreeing that they received sufficient information before the training event and that the event itself was well run and organized. Grantees also agreed: that the training gave them a better understanding of the *SciGirls* program goals; that they gained knowledge that was best acquired by attending in person; that they learned valuable ways to use the resources in their local setting; and that they felt better prepared to use the resources.

Grantees were a little more divided about whether it would have been preferable to dedicate more training time to a couple of issues, specifically: 1) how the materials related to their needs and experiences, and 2) the research findings on which *SciGirls* is based, relating to how girls learn, experience, and enjoy science. When asked if they had recommendations for improving future training events, about one-third of the attendees felt no changes were needed, while two-thirds suggested one or more of the following: include more information on how girls learn and enjoy science; fold the training costs into the *SciGirls* funding; improve the materials' organization process; and/or offer a follow-up video conference call/webex.

Part 3

Grantees' experience administering their *SciGirls*' grants

Part 3 of the evaluation focused on grantees' experiences administering their *SciGirls* grants, and in particular issues surrounding: their correspondence with TPT, receipt of resources, challenges in administering their grants, and efforts to fund their projects from other sources.

Grantees were overwhelmingly positive about their experiences with the *SciGirls* grantee program. Most grantees strongly agreed that: they found valuable ways to use the *SciGirls* materials, they received the materials they expected to receive and in a timely manner, and they received sufficient direction and support from the TPT *SciGirls* staff. Grantees also agreed, although not quite as strongly, that: they had a good understanding of the goals of *SciGirls* grantee program, their project advanced the *SciGirls* goals, their departments benefited from *SciGirls*, and they formed beneficial partnerships with local community groups. When given an opportunity to explain their ratings grantees most often took the opportunity to praise TPT for the positive ongoing support they received.

Grantees also acknowledged some challenges while administering their *SciGirls* grants. Most often they pointed to time or financial constraints. In the later case, most grantees said they found ways to supplement their *SciGirls* grants, usually through partner contributions or by folding the costs into another related program budget. Less often they pointed to the use of grants, volunteers, participant fees, donations, and/or equipment sponsorship. A small number of grantees encountered other types of challenges, including: resistance to their program's gender themes, competing institutional priorities, or challenges linking with their local PBS stations.

Part 4

The impact of research findings on how girls learn and enjoy science on grantees' projects and departments

Part 4 of the evaluation focused on whether and how research findings that informed the development of the *SciGirls* program, relating to how girls learn and enjoy science, influenced grantees' project design, use of materials and departmental awareness.

Nearly three-fifths of the grantees incorporated research findings on how girls learn and enjoy science into their *SciGirls* project design, promotions, and/or implementation. Grantees that strongly relied on the findings said the findings were essential when they designed their projects because they lacked experience in this area. Grantees that relied little on the findings noted that the findings basically reinforced information they already knew given their prior work in the area. About two-fifths of the grantees, meanwhile, had some difficulty recalling the research findings. In these cases grantees stated that either too much time had lapsed for them to clearly remember the findings or that the findings weren't prominently enough featured in the *SciGirls* training program or materials for them to take notice. Grantees generally agreed that participating in *SciGirls* moderately increased their department's awareness of seven different research findings on how girls learn and enjoy science.

Overall, the finding that seemed to have the most significant impact on departmental awareness was: *Girls need a hassle-free zone for discussion and participation*. The finding with the least impact was: *Girls like to challenge dominant ways of thinking about science, and typically do not have that opportunity in traditional science environments*. The other five findings were comparably rated and are listed below. When given an opportunity to explain their ratings, grantees most often noted that where the findings didn't have a significant departmental impact it was because they already knew the findings from their prior work or because they couldn't readily recall the findings.

When asked to reflect on whether any increase in departmental awareness was more attributable to the *SciGirls* training or resources, grantees more often pointed to the *SciGirls* training, as opposed to the resources, or they pointed to their combined impact.

Part 5

Grantees' reflections on their *SciGirls* partnerships

Part 5 of the evaluation focused on grantees' *SciGirls* partnerships, and in particular: the kinds of partners the grantees' choose to work with, whether grantees worked with new or existing partners, the kinds of assistance partners provided, and how successful grantees felt their partnerships were.

When choosing partners for their *SciGirls* projects, grantees most often focused on youth organizations. Scientists from either educational or commercial institutions were also frequently selected, followed by museums, media organizations, schools/teachers, or environmental/ outdoor clubs or associations. In some cases, grantees formed entirely new partnerships for their *SciGirls* projects, while in others they worked with existing partners or a combination of new and existing partners.

Grantees generally found their partnerships to be successful, and frequently praised them as: offering leverage, being easy to approach or get buy-in from, being critical to the success of the project, and yielding collaborations that were natural rather than forced. Partners were able to offer grantees the missing pieces they needed for their projects, typically some combination of: site/spacing, staffing, recruiting, and guest speaker support. Program planning, transportation, resources or supplies, promotion/advertising, and fieldtrips were also provided depending on the situation.

While grantees stressed that their partnerships were essential to their project's success, the partnerships also created challenges for the grantees, sometimes during the project design phase, sometimes during implementation, and sometimes after a project had come to an end. The most frequently noted challenges were: attendance inconsistency and attrition, turnover in staff assigned to work on the *SciGirls* projects, and difficulty finding a fit or aligning *SciGirls* programming with that offered by their partners' established youth programs. Grantees who discussed attendance issues observed that their partners who agreed to provide or recruit girls produced lower than expected enrollment, or decreased attendance over time. Other challenges raised by one or two grantees involved: overcommitted partners, leadership struggles, partners not being used to spending funds, or difficulty following-up with staff. Some grantees also pointed to challenges that occurred within the context of their *SciGirls* programs, but as a result of their partnerships, including: student behavioral issues, insufficient parental involvement, field trip logistics, and guest speaker unreliability.

Part 6

Audiences targeted and impacted by the grantees' *SciGirls* projects

Part 6 of the evaluation focused on the audiences grantees targeted for their *SciGirls* projects. Grantees reported on the nature and scope of the audiences they recruited, the kinds of activities they hosted, the impacts of these activities, and whether and how the impacts were evaluated.

The number of participants served by *SciGirls* projects ranged widely, from a low of 12 to a high of 512. While the average number of girls served across the projects was 112, the majority of projects served between 12-40 participants. After school programs, summer camps, or sleepover events produced the largest number of participants. However, camps, and specifically summer camps, were the most common type of project offered by the grantees, followed by after-school programs and sleep over or day-long events.

With the exception of one project that targeted educators, the *SciGirls* projects targeted girls, most typically 5th-9th graders, although a range of grades were served, from elementary to beyond high school. To recruit girls, grantees partnered with various youth organizations, most often the Girl Scouts, followed by Boys and Girls Clubs, and Girls Inc.

While grantees typically could not verify the types or numbers of underserved youth participating in their projects, all stressed that their projects were specifically designed with this goal in mind and that their partners were in part selected to help them reach this goal. Grantees most often described serving girls from low income, followed by racial minority backgrounds. Less frequently they described serving girls with special needs, residing in rural regions, and from military families.

When asked to reflect on their projects' impacts on the girls who participated, grantees typically discussed outcomes that were both cognitive and attitudinal in nature. Most often they concluded that their projects: increased girls' confidence to participate in science, deepened their understanding of the inquiry process, broadened their perception that science is bigger than previously thought, increased their awareness of and interest in science careers, and/or showed them that science can be fun and exciting.

Nearly half of the grantees did not conduct a formal evaluation to assess the above project outcomes, however, or they relied solely on informal feedback from program participants and/or staff. Those who did conduct an evaluation most often asked the participating girls and/or their parents to complete written or telephone surveys at the end of their projects. Some grantees also sought staff or outreach partner feedback. The main reasons grantees cited for not conducting an evaluation were time constraints or oversight. Five grantees suggested TPT consider providing evaluation assistance or template forms for future grant projects.

More than half of the grantees said they had encountered some resistance in offering a girl's only project. Most often the issue concerned parents of male children finding out about the program and wanting the same opportunity for their sons. Several other grantees, however, did not encounter any resistance, and instead met enthusiastic support and encouragement largely because, in their view, they focused on a girls-oriented initiative.

Part 7

Grantees' use of and reactions to the *SciGirls* resources

Part 7 of the evaluation focused on grantees' use of and reactions to the *SciGirls* resources, first overall, and then to the videos, activity guides, and website in particular.

Grantees felt that two aspects of the *SciGirls* resources most stood out for them: 1) the portrayal of girls enjoying science, having fun, and working together, and 2) the inquiry process modeled within and across the resources. While grantees found all of the resources valuable for their projects, they tended to most highly rate the videos, followed by the print activity guide, and then the website. In

addition, a handful of grantees noted the T-shirts as being an identifying and bonding element for the girls.

When asked to recommend additional resources for future *SciGirls* projects, no one suggestion stood out, although a few grantees each suggested the development of: supplemental/take home materials that have a regional and/or family focus, *SciGirls* journals that are branded and/or waterproof, updated T-shirts, and/or dynamic blogging or data representation. A few grantees said they didn't see the need for any new or additional materials.

Videos

All but one grantee used the videos with the girls participating in their *SciGirls* projects and more than half used the videos as a professional development training tool, beyond the formal training received from TPT. While few grantees reported regular use of the videos, most rated them to be of high value to their projects, and found ways to use them at least occasionally. When used with girls, they were most often used as a warm-up/icebreaker at the start of the program sessions or to model the scientific inquiry process prior to doing an investigation. Less frequently they were used as part of a lunch-time activity, to model career options, as a culminating/end of session activity, or as a take-home activity.

Overall, grantees indicated that the most valuable aspects of the video were twofold: 1) the portrayal of girls doing science and having fun, and 2) the modeling of scientific inquiry. Many grantees also pointed to the video's short format, noting that it was a good icebreaker or transitioning/focusing tool. Others focused on the depiction of women in scientific careers as a powerful role modeling experience or the professional development applications for educators and partners.

When asked to comment on what they found least valuable, grantees tended to focus on one of two issues. For some grantees the videos weren't a fit for what they were trying to accomplish in their projects, usually because their priority was to get the girls active, doing their own "live" inquiries or because their projects ended up focusing on topics for which the video content simply didn't match. For others, the videos depicted materials or environments in the investigations that weren't readily available in their region. A couple of other issues were raised less frequently by grantees, and involved DVD/VHS access or format issues or a perception that the scientist profiles were somewhat contrived or didn't resonate with the girls in their projects.

Activity Guide

All but one grantee used the print activity guides in their *SciGirls* projects, with about two-thirds using the guides with girls, and two-thirds using the guide as a professional development training tool. While few grantees reported regular use of the guides, most rated them to be of value to their projects, and found ways to use them at least occasionally. When used with girls, grantees most often implemented the Icebreaker activities, and while fewer than half of the grantees used the Investigations as written, several loosely modeled or adapted them.

When asked to discuss the value of the guides, grantees most frequently pointed to the guides' versatile activities, the Icebreakers, or the clear, attractive, and user-friendly design. Less frequently mentioned were the graphing/charting features, the recording/ journaling features, or the accurate science content. Only a few grantees discussed aspects of the guide that they found to be of lesser value, and they tended to focus on one of three issues: 1) lack of access to materials required for some activities in the guide; 2) content mis-matches between the focus of their project and the focus of activities in the guide; or 3) a preference for participants to come up with their own investigations. Some grantees also desired that

standards information be added to the guide activities or suggested that the activities be adapted for parent and home use.

Website

Grantees generally found the website to be of value to their projects, although as noted earlier, among the three main *SciGirls* resources, this one received the lowest mean rating. The majority of grantees used the website early on, during their grant or project planning stages to see if they qualified for the grant, for grant writing support, or for background knowledge. More than half said they then continued to use it as a reference tool or to download or print materials. Several grantees said they referred partners, teachers, or girls to the site although few actually used the site with girls. Those who did either used the Message Board feature, watched an episode that related to a topic they were covering that wasn't in their package of videos, or had the girls generally browse the site.

Part 8

Current status of grantees' activities involving *SciGirls*

Part 8 of the evaluation focused on grantees' current or future plans involving *SciGirls*, and in particular the extent to which they expected to replicate, modify, or expand their projects.

All of the grantees reported that their departments were still conducting or planned to conduct programming involving *SciGirls*. While only a couple of grantees actually planned to continue with the same project model, a few discussed expanding their projects, a few discussed folding *SciGirls* materials into other existing projects, and a few more talked about developing variations of the projects they originally conducted through the grantee program.

Final Remarks

The evaluation managed to gather feedback from 17 of the 24 grantees funded by TPT, representing a 71% response rate overall, and 100% of those approached about the evaluation opportunity. The 7 grantees that were not featured in the evaluation did not employ staff familiar with the funded *SciGirls* project or, in one case, had not yet completed the grant. Although additional information, issues, and insights could have been captured by including these 7 projects, the 17 grantees whose work is featured in this report included a balanced representation of projects from PBS and science center/museum organizations, and a broad cross-section of project types.

As noted earlier, the evaluation occurred after all but one of these grantee organizations had completed their projects. Being retrospective in nature, and relying on secondary data sources and

the reflections of the principal staff responsible for directing the grantee activities, the evaluation design was somewhat limited, and restricted the evaluators' ability to explore comparisons over time. The weaknesses of this design has been discussed with TPT, however, and future *SciGirls* outreach projects will incorporate summative evaluation procedures earlier in the process so that front-end measures can be available before a project begins, implementation measures can be incorporated as it unfolds, and outcome and follow-up measures can be administered once it concludes.

To conclude, it is appropriate to return to the beginning of the report, which introduced the goals and obligations the grantees were asked to meet. Combined, these included:

- 1) participate in a *SciGirls* training;
- 2) strengthen proposed community partnerships and act as lead coordinator among partners;
- 3) reach diverse audiences;
- 4) use *SciGirls* resources to reflect the inquiry and authentic investigation approaches in *Dragonfly TV*;
- 5) deliver hands-on science encouragement and career guidance in creative and dynamic ways;
- 6) complete a final report documenting the project's outcomes; and
- 7) demonstrate sustainability beyond the completion of the grant.

Even with the retrospective design limitations, the findings show that the *SciGirls* grantees met these 7 goals and obligations. And as these goals and obligations are fundamental to the grantee program's larger mission of *encouraging girls' interest in science by building capacity among outreach professionals in the area of gender-equity teaching and learning* (page 1), TPT was successful in fulfilling its mission. Via the NSF Program for Gender Equity grant, TPT awarded 24 PBS stations and science centers/museums with outreach grant awards over a 3 year period that were typically under \$10,000 each. As reported by the 17 organizations accounted for in this report, TPT also efficiently delivered to them multimedia resources that incorporated authentic investigations, scientific inquiry, and research findings on how girls learn and enjoy science. The resources were well-utilized by the grantees across diverse project sites, due in part to opportunities created through the grant award, but also, according to the grantees, the resources' high internal value. Additionally, the support provided by TPT, most notably through the *SciGirls* training, and by local partner collaborations, also played a critical role. These two levels of national and local support, TPT and community partnerships, respectively, were in turn highly valued, well-utilized, and ultimately integral to the grantees' success in sustaining, modifying, or even expanding their *SciGirls* projects after the grant period.

Finally, grantees were overwhelmingly positive about their experiences with their *SciGirls* projects. While acknowledging some challenges in administering their grants, typically involving time or financial constraints, most grantees strongly agreed that they found valuable ways to use the *SciGirls* materials, that they received the materials in a timely manner, and that they received sufficient direction and support from TPT. Grantees also agreed that they had a good understanding of the goals of the *SciGirls* grantee program, that their project advanced these goals, and that their departments benefited from *SciGirls*.

Grantees did suggest a few ways to modify or expand the *SciGirls* grantee guidelines, training program, multimedia resources, and final reporting requirements. The following issues may be worth exploring for the future:

- The grantee guidelines
Offer strategies for how grantees can: supplement grant awards, form and maintain successful partnerships, address resistance to girls-only programs, maximize participant enrollment, minimize participant attrition and staff turnover, and find a fit between *SciGirls* programming and that offered by partnering youth-based programs.
- The training program
Add more information on: how girls learn and enjoy science, include training costs into the grant awards, and follow-up with a video conference call/webex.
- The multimedia resources
Expand the resources to include: grade level/standards information, supplemental take home materials with a regional and family focus, branded and waterproof *SciGirls* journals, updated T-shirt styles, dynamic blogging, web-based data representation, and activity-based materials and environments that are available and relevant, respectively, across diverse regions.
- The final reporting requirements
Include evaluation assistance or templates that enable grantees to report on common indicators while capturing their project outcomes in ways that also reflect their unique *SciGirls* outreach goals.

The full report details grantees' perspectives on all the above issues and offers specific ways to address each suggestion.