Summative Evaluation Report
Dragonfly TV SciGirls
Grantee Outreach Program

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Submitted by

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Executive Summary

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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 approaches 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 and 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.

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)**
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 *Organization where SciGirls project was incomplete at time of evaluation and therefore excluded from the analysis.*	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)* *Organizations where staff members who worked on or were familiar with the SciGirls program had left. These projects were excluded from the analysis.*

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 sources 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 emerged in coding were resolved with the assistance of a third coder.

Findings

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

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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.

Overview of Findings

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 though an email blast from TPT, via third-party notification, at the ASTC conference, or through direct contact with TPT.

➲ **What were grantees' main reasons for applying for a *SciGirls* grant?** When asked to rate the importance of various reasons for their department's decision to apply for a *SciGirls* grant on a scale from 1 (not at all important) to 7 (very important), the two most highly rated reasons were forming new community partnerships (mean rating, 6.7) and starting a science program focused on girls (mean rating, 6.2). Three other reasons were also rated important, although the mean ratings 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 implemented (mean rating, 3.8).

➲ **Did grantees' have prior experience implementing science programs geared to girls?** While 10 grantees said they did not have prior experience implementing science programs geared specifically to girls, 7 grantees did. Among this group of 7, 1 reported extensive experience conducting multimedia initiatives for girls focused on STEM topics. The other 6 grantees pointed to collaborative programs run through organizations such as the Girl Scouts, Girls Inc, or other

organizations that serve girls, or youth more broadly. Grantees without prior experience in a girls' only science program most often cited lack of: funds, awareness of need, staffing, resources and/or training.

➲ **How did grantees first learn about the *SciGirls* grant opportunity?** Grantees' learned about the *SciGirls* grant opportunity through a few different sources. Email blasts from TPT (n=5) were most frequently mentioned followed by third-party notification (n=4) through a teacher, grant writer, or a National Center for Outreach (NCO) news blast. Other sources included the ASTC Conference (n=3), direct contact with TPT (n=2), or an online posting (n=1). A couple of grantees couldn't recall how they learned of the grant program.

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.

Overview of Findings

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: 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.

➲ **Did grantees participate in the *SciGirls* training provided through the grantee program?**
All but one grantee participated in the *SciGirls* grantee training program. The one grantee who did not attend pointed to a scheduling conflict.

➲ **What did grantees perceive to be the most valuable aspect of the training program?**
Grantees typically found three aspects of the training program 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 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) or its introduction to the *SciGirls* resources (n=3).

➲ **To what extent did grantees perceive the training event to be well organized, run, and effective?** Grantees were consistently positive about their experience with the training program. When asked to rate how much they agreed or disagreed (on a scale from 1-7) with a series of statements, they 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).

When given an opportunity to explain their ratings, grantees touched on various aspects of the training, but most often appreciated the new ideas and activities they learned about as well as the new tools they acquired.

➲ **Did grantees' have suggestions for improving the training program?** While 6 grantees had no suggestions for improving the training, 11 recommended TPT: provide more background research on girls and science learning, have better materials preparation, cover training costs in *SciGirls* funding, 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.

Overview of Findings

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. Although not quite as strongly, grantees also agreed 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.

➲ **How did grantees rate their experience as a *SciGirls* grantee?** Grantees were extremely positive about their experiences as a *SciGirls* grantee. 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 strongly agreed that: 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 their department formed beneficial partnerships with local community groups (mean rating, 6.7).

Grantees further agreed, although not quite as strongly, that: they received all the *SciGirls* materials that they expected to receive from TPT (mean rating, 6.6); they had a good understanding of the *SciGirls* program goals (mean rating, 6.6); they were confident that their project advanced the *SciGirls* program goals (mean rating, 6.6); and they felt positive about the benefits their department received from participating in the *SciGirls* program (mean rating, 6.5). When invited to explain any of their ratings, the main theme that emerged across their responses

was the positive support received from TPT. Other comments focused on how *SciGirls* assisted them with forming new relationships, how the *SciGirls* program was a success with the targeted girls, and how the materials were applied to other programs.

⮞ **What kinds of challenges did grantees encounter while administering their *SciGirls* grants*?*** When asked about specific challenges they faced in administering their grants, grantees most often pointed to financial constraints (n=9) and time constraints (n=6). One or two grantees each mentioned: resistance to gender themes, competing institutional priorities, linking or connecting with their local PBS stations, broken communication with an outreach partner, or difficulty promoting the program among partners where *Dragonfly TV* did not air in their market.

⮞ **How else did grantees fund their activities involving *SciGirls?*** Most of the grantees supplemented their *SciGirls* grant with additional funding. The major sources of funding were partner contributions (n=9) and folding the costs into another related program or budget (n=7). Two grantees reported charging participant fees. Other types of assistance mentioned by individual grantees included: volunteers, participant fees, donations, and equipment sponsorship.

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.[1]

Overview of Findings

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 designing a girls' only program. 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

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[1] 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

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.

➲ **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?" Grantees were also provided with a list of these research findings to refresh their memory. While several grantees (n=7) expressed difficulty recalling the research findings, the majority (n=10) were able to discuss the findings and relate how they were incorporated into their project design, promotions, or implementation. A few grantees said they heavily relied on the research findings to design their projects because they lacked familiarity with designing a girls' only program. The remaining grantees either said that the findings directly influenced how they implemented or promoted their projects or qualified that the findings basically reinforced information they already knew based on prior experience with girls' programming.

➲ **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 department's awareness of research findings on how girls learn and enjoy science. On a scale of 1 (didn't increase at all) to 7 (increased very much), the mean ratings for all 7 findings fell within a one point range (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." 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).

➲ **Did grantees feel that any increased awareness within their departments was attributable to the *SciGirls* training or resources?** Following from the previous question, 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?* Eight (n=8) grantees pointed to the training, 3 grantees pointed to a combination of the training and resources, 3 pointed to the resources (particularly in the context of observing the girls use the resources in their programs), and 1 felt that neither had impacted awareness.

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.

Overview of Findings

When choosing partners for their *SciGirls* projects, grantees most often focused on organizations that serve youth. 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. The grantees often noted that the partners were able to offer the missing pieces they needed for their projects, typically including 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 at the project design phase, sometimes at inception, and sometimes after a project had come to an end. A few challenges were frequently noted, including: 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 enrollment over time. Other challenges raised by one or two grantees involved: overcommitted partners, leadership struggles, partners not used to spending funds, or difficulty following-up with staff. Some grantees also discussed challenges that occurred within their *SciGirls* programs for which their partners were at least partly responsible, such as: lack of parental involvement, student behavioral issues, field trip logistics, and guest speaker unreliability.

⮕ **What types of partners did grantees choose to work with on their *SciGirls* projects?** Youth organizations were the most frequent type of partner chosen for *SciGirls* projects, with many grantees choosing to work with more than one. 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).

⮕ **Did grantees form new partnerships for their *SciGirls* projects or did they work with existing partners?** Nearly half the grantees (n=7) formed 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).

⮕ **What did grantees perceive to be the main types of assistance their partners provided?** When asked to describe the main types of assistance their partners provided, four types of assistance were most frequently reported: site/spacing (n=11), followed by staffing (n=10), recruiting (n=9), and guest speakers (n=8). Grantees also pointed to other types of assistance, although less frequently, including: planning (n=6), transportation (n=6), resources or supplies (n=6), promotion/advertising (n=5), and fieldtrips (n=5). One grantee noted evaluation assistance was provided.

⮕ **How successful did grantees feel their partnerships were?** Grantees generally agreed that their partnerships were overall quite successful. On a scale of 1 (not at all successful) to 7 (very successful) the mean rating was 6.1. 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* to the success of the project, and as yielding collaborations that were *natural* rather than forced and/or worked like *clockwork*.

⮕ **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. The three most frequent challenges were: attendance inconsistency and attrition (n=5), turnover in staff working with girls trained on *SciGirls* (n=4), and finding a fit or aligning *SciGirls* programming with established youth agency programs (n=3). Grantees who discussed attendance issues observed that their partners who agreed to provide or recruit girls produced lower than expected enrollment, or decreased enrollment over time. Other challenges raised by one or two grantees involved: overcommitted partners, leadership struggles, partners not used to spending funds, or difficulty following-up with staff. Some grantees also discussed challenges that occurred within their *SciGirls* programs for which their partners were at least partly responsible, such as: lack of parental involvement, student behavioral issues, 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 *ScGirls* projects. Grantees reported on the nature and scope of the audiences they recruited, the kinds of activities in which they were engaged, the impacts of these activities, and whether and how the impacts were evaluated.

Overview of Findings

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. Generally, camps, and specifically summer camps, were the most common type of project offered by the grantees, followed by after-school programs, sleep over or day-long events, and club or class series.

With the exception of one project that targeted educators, the *SciGirls* projects principally 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, Girls Inc, or school or other community based programs.

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 girls with special needs, girls residing in rural regions, and girls from militarily families.

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 the above project outcomes, however, or they relied 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 them. Several other grantees, however, did not encounter any resistance, and instead met enthusiastic support and encouragement largely because, in their view, they were focusing on a girls-oriented initiative.

➲ **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. The majority of projects served between 12-40 participants, although a small cluster of projects served between 300-512. The projects with the highest number of participants were after school programs, summer camps, or in one case 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 were served as target audience members across the _SciGirls_ grantee projects included in this report. This sum doesn't reflect the participation of youth targeted in projects not included in this report, nor the partner staff and others who had an opportunity to become exposed to _SciGirls_ resources and training.

➲ **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 though, among the 16 grantees that served girls directly, 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 or school based programs (n=3). Other sources of girls pursued by one or two grantees included: 4-H, YMCA, Vista, and other community based programs serving low income residents.

➲ **What grade level of girls did grantees most often target?** Grantees most often targeted middle school students in their projects (n=14), followed by high school students (n=6) and elementary school students (n=5). More often than not, projects catered to a range of ages, most typically in the 5th - 9th grade level. One project specifically targeted educators who were in turn trained to implement _SciGirls_ activities with their students.

➲ **What types of _SciGirls_ programming did grantees most frequently offer ?** Camps, and specifically summer camps, were by the most common type of project offered by the grantees (10). After-school programs, sleep over/day events, and club/class series were each offered by 3 grantees, with one focusing on an educator training.

➲ **What did grantees perceive to be the main things that girls gained from their _SciGirls_ experiences?** Grantees reflected that as a result of their _SciGirls_ projects, girls gained in one or more of the following five ways: 1) they became more confident/empowered to participate in science as they viewed it as more open to them (n=6); 2) they took away an increased understanding of inquiry process, and that it's okay to question, or how 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).

➲ **Did grantees evaluate the outcomes of their *SciGirls* projects, and if so how?** Nearly half of the grantees (n=7) did not conduct a formal evaluation to assess the girls' gains described in the previous section or other project outcomes or they relied on informal feedback from program participants and/or staff. Six (6) grantees had girls complete surveys at the end of their projects while 4 grantees had parents complete surveys. Two (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. Grantees' main reasons cited for not including an evaluation were time constraints or oversight. Five grantees suggested TPT consider providing evaluation assistance or template forms for future grant projects.

➲ **Did grantees' projects help facilitate use of *SciGirls* resources among traditionally underserved or disadvantaged populations?** One of the *SciGirls* program goals is to facilitate use of its resources among traditionally underserved or disadvantaged populations. Grantee representatives 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 militarily families.

➲ **Did grantees encounter resistance in offering a girls' only project?** Ten (10) of the 17 grantees said that they had encountered some form of resistance, while 7 had not. Among those who had encountered some resistance, the following kinds of factors were given:
- In 4 projects, parents found out about the program offering and wanted the same opportunity for their male child(ren). One project has considered offering such a program.
- In 1 project, the 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 girls went on trips and boys got enrichment activities at the site. Since from the beginning the program staff knew it would be an obstacle, they built this into the design. Both groups worked well separately, and didn't mind the separation, even though this was a new thing for the program.
- 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, why single them out.
- One grantee was also running a co-ed summer camp that anyone could pay for. The materials showed events in the past which mostly portrayed girls. The parents of boys saw all the pictures of girls and asked whether it was for girls only and why.

Several other projects however did not encounter any resistance, with a couple of grantees noting that they only met encouragement, particularly given their girls-oriented focus. 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*. In this case the project had enrolled a couple of girls whose parents signed them up and while they resisted being in the program early on, they ended up being highly engaged.

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.

Overview of Findings

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 dynamic blogging or data representation. Other suggestions were also offered by individual grantees, while a few grantees said they didn't see the need for any new or additional materials.

<u>**Videos**</u>
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) not having access to materials required for certain activities; 2) the content areas not matching the content focus of their project; or 3) preferring participants to come up with their own investigations. Some grantees offered suggestions, including that standards information be added to the guides' activities or 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.

- ➲ **How did grantees rate the relative value of the *SciGirls* resources to their projects?** Grantees found all of the *SciGirls* resources to be of value, but when asked to rate each resources on a scale of 1 (not at all valuable) to 7 (very valuable) the videos rated highest (mean rating 6.1), followed by the print activity guide (mean rating, 5.7), and then the website (mean rating, 5.1).

- ➲ **What in the grantees' estimation stood out about the *SciGirls* resources?** Grantees indicated that one of three things about the *SciGirls* resources stood out for them: 1) the portrayal of girls enjoying science, having fun, and working together (n=10); 2) the inquiry process modeled within and across the resources and the activity guide (n=8); and/or somewhat less often 3) the T-shirts which became an identifying and bonding element for the girls (n=5).

➲ **Did grantees recommend any additional resources for future *SciGirls* projects?** 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 suggested something relating to the T-shirts, either updating the style or notifying grantees of their availability. A couple more suggested web applications that could be added, either dynamic blogging or data representation. Ten (10) other suggestions were also offered by individual grantees, while 4 grantees said they didn't see the need for any new or additional materials.

~ *SciGirls* Videos ~

➲ **With whom did grantees use the *SciGirls* videos?** All but 1 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.

➲ **How did the grantees use the *SciGirls* videos?** Grantees used the videos with the girls participating in their projects in diverse ways. Most often they were used as a warm-up/icebreaker at the start of the program sessions (n=7) or to model the scientific inquiry process prior to girls starting an investigation (n=6). Less frequently they were used as part of a lunchtime activity (n=3), to model career options (n=2), as a culminating activity (n=2), or as a take-home activity (n=1).

➲ **How frequently did grantees use the videos in their projects?** Few grantees regularly used the videos in their projects, while several grantees (n=6) often or sometimes (n=5) used them, and a few (n=3) rarely used them.

➲ **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 was 6.1 wth 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 the programming sessions), and the highest rating being a 7.

➲ **What did grantees perceive to be the most valuable aspects of the videos?** 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 own 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 less frequently, including: 3) the short –format being a good tool as an icebreaker/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.

➲ **What did grantees perceive to be the least valuable aspects of the videos?** When asked to describe the least valuable aspects of the videos, grantees tended to focus on how or where the videos weren't a fit for what they were trying to accomplish in their projects. Most often they reported that: their setting lacked access to materials or the environment depicted in the investigations (n=7); their priority was to get the girls active, doing their own "live" inquiries; (n=4); or their projects ended up focusing on topics for which the video content didn't match (n=2). Less often grantees noted

DVD/VHS accessing or formatting issues (n=2) or that the scientist profiles seemed somewhat contrived, or didn't resonate with the girls in their projects (n=2).

~ *SciGirls* Print Activity Guides ~

● **With whom did grantees use the print activity guides?** Thirteen (13) of the 17 grantees used the activity guides with girls in their *SciGirls* project and 13 used them as a professional development training tool, beyond any formal training received from TPT. One project didn't use the guide in either context.

● **How did the grantees use the print activity guides?** The 14 grantees that used the activity guides did so in somewhat different ways. While all but one used the Icebreakers activities (n=13), 7 used the Investigations activities as written and 7 loosely modeled or adapt them.

● **How frequently did grantees use the print activity guides?** Among the 14 grantees who used the guides in their projects, only one grantee regularly used them, but several grantees often (n=8) or sometimes (n=4) used them. One grantee reported rarely using the guides.

● **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. 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.

● **What did grantees perceive to be the most valuable aspects of the print activity guides?** 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).

● **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 of lesser value or could be improved. Their comments focused on: 1) not having access to materials required for certain activities; 2) the content areas not matching the content focus of their project; 3) preferring participants to come up with their own investigations; 4) desiring standards information be added to the guides' activities; or 5) desiring activities be adapted for parent and home use.

~ *SciGirls* Website ~

● **How did grantees use the website?** 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 or print 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.

➲ **How valuable did grantees find the website to their projects?** Grantees generally found the website to be of value to their projects. 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. 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 experienced technical or access issues with their local computers.

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.

Overview of Findings

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.

➲ **To what extent did Grantees plan to expand their projects?** Six (6) grantees said they were in the process of expanding their *SciGirls* projects. One grantee planned to duplicate its project and have its affiliates do it in other markets to expand the effort into a summer program. One grantee planned to expand from 1 camp to 2 and will evaluate to see if running the 2 groups in the 2 different places will attract 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. Another grantee was working on a 5 year plan to get their project to be a year round offering. One grantee anticipated expanding the *SciGirls* project through the school year to help counteract a problem they saw with girls' returning to school after a positive summer experience with science and becoming discouraged.

➲ **To what extent did grantees plan to fold SciGirls into their existing programs?** Five (5) grantees said they were working on ways to fold *SciGirls* into their other existing programs rather than replicate, reconfigure, or expand it, as follows: One grantee planned to use the activity guides and in particular the Icebreakers and saw *SciGirls* as already ingrained with their programming given the process and inquiry steps. Facing conflicting institutional priorities in

light of lower than expected enrollment for its *SciGirls* project, one grantee did not expect to offer a repeated program in the near future but would in the interim integrate it into existing programs. One grantee was uncertain about initiating a new project but planned to: draw people to the *SciGirls* website, distribute *SciGirls* materials at an after school conference this summer, and show copies of the DVD and to students. One grantee planned on maintaining its partnerships and ultimately doing a variation of the project, but in the meantime will use the resources in existing conferences. One grantee had yet to find a match but in the interim will fold it into outreach work with families.

➲ **To what extent did grantees plan to develop variations of their projects?** Four (4) grantees said they were planning variations of their projects, such as a co-ed version, the use of outreach kits, or a more focused and scaled back version. One grantee planned to offer the project as a co-ed program and expected to keep the same partners. One grantee was almost finished creating kits based on the *Dragonfly TV*, which includes resources from *SciGirls*. One grantee was putting together a variation of the same camp for summer 2008 and expects it will be similar but scaled back and include 1 field trip overall instead of 1 trip a day. One grantee was looking to host a boys and girls program, contingent on funding.

➲ **To what extent did grantees continue with the project model?** Two grantees said they were working on continuing with the same project this year. One grantee which had two years of *SciGirls* projects, expected to be able to sustain the project for another year or two with girls, and then anticipated looking for new sources of community funding. One grantee planned to have another round of programming this summer with grant money coming in from another partner, and the project will keep the same basic configuration.

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 goals and obligations, 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.