Latina SciGirls:

A summative evaluation of family and STEM professional involvement in the partner outreach programs

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Knight Williams Inc.

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Table of Contents

Introduction **3**
Background **3**
Method **7**
Findings **8**
Part 1. Family and STEM professional involvement within the partner programs **8**
1.1 Overview of the partner programs 8
1.2 Partners' reporting and reflections relating to their focus on family involvement 15
1.3 Partners' reporting and reflections relating to their focus on STEM professional involvement 17
1.4 Partners' reporting and reflections on their programs' overall impact 22
Part 2: Family and STEM professional involvement within the partner Family Fiestas **28**
2.1 Overview of the Family Fiestas 28
2.2 Partners' reporting and reflections relating to their focus on family involvement 31
2.3 Partners' reporting and reflections relating to their focus on STEM professional involvement 33
2.4 Partners' reporting and reflections on their Family Fiesta impacts 37
2.5 STEM professionals' Family Fiesta reporting and reflections 44
2.6 Youth and parent/guardian Family Fiesta feedback 56
2.7 Three illustrations of Family Fiestas 72
Discussion **80**
References **97**
Appendix 1: Partners' use and perceived value of *SciGirls* activities and websites **100**
Appendix 2: The reach and breadth of the *Latina SciGirls* broadcast program and online components **101**
Appendix 3: *Latina SciGirls* Family Fiesta observation form **105**
Acknowledgements **111**

Introduction

With funding from the National Science Foundation (NSF), Twin Cities Public Television (TPT) directed the four-year *Latina SciGirls* project from 2015 – 2018.[1] As introduced in the project's NSF proposal, *Latina SciGirls* was "*rooted both in research-based strategies proven to engage girls in STEM and in the need to address specific barriers that prevent many Hispanic girls from engaging in STEM*." The cornerstone of the project was the television series *Latina SciGirls*, which premiered on PBS in 2018 as the fourth season of *SciGirls.* The series featured six half-hour Spanish-language episodes, each of which followed a different group of Hispanic girls and their STEM professional mentor as they investigated culturally relevant science or engineering problems. These episodes were accompanied by twelve short format "role model" profile videos (nine in Spanish, three in English) hosted on the SciGirls CONNECT website, each of which highlighted a different Hispanic STEM professional woman, with the emphasis in this case on portraying their everyday lives as scientists or engineers.

In addition to producing and disseminating the *Latina SciGirls* episodes and STEM profile videos, TPT also supported community-based informal STEM outreach programs for Hispanic girls. These programs were implemented by a network of Hispanic-serving partner organizations in diverse communities around the U.S. Similar to prior *SciGirls* outreach programs, the *Latina SciGirls* programs were designed to engage 5th to 8th grade girls in STEM through the use of *SciGirls* strategies, events, hands-on activities, and media resources. Focusing specifically on Hispanic middle school girls in this case, the *Latina SciGirls* outreach programs also prioritized the involvement of families and in-person STEM professionals, both of which were required programming elements.

Specific to the *Latina SciGirls* outreach programs, NSF funding further supported an independent research study on the development of STEM identity among participating girls, as well as an independent summative evaluation, the subject of this report, that examined the role of family and STEM professional involvement within the partner outreach programs in engaging Hispanic middle school girls in STEM.

Background

Project deliverables

As summarized in the NSF proposal, *Latina SciGirls* had three programmatic objectives/ deliverables:

- Objective/Deliverable One: Develop a six-episode Spanish-language television series following groups of Hispanic middle school girls and their Latina STEM professional mentors as they investigate scientific or engineering problems.

[1] *SciGirls* launched on PBS Kids Go! in 2010.

- Objective/Deliverable Two: Develop a series of 12 Spanish-language "role model" profile videos of Latina STEM professionals that portray the everyday life of a scientist or engineer.

- Objective/Deliverable Three: Provide the *SciGirls* network of Hispanic-serving partner organizations with media resources, professional development, and opportunities to connect Hispanic girls and families with Latina STEM professional role models.

Role of independent evaluation

As part of TPT's development of the first two deliverables, the television program and STEM profile videos, the independent evaluation firm Knight Williams Inc.[2] conducted front-end and formative evaluations focused on gathering input from *Latina SciGirls*' primary public audiences (Hispanic girls and their parents/guardians) and professional audiences (the project's advisors and partners). These evaluations provided an opportunity for TPT to assess, prior to and during production, the extent to which the feedback validated the project team's key assumptions in planning *Latina SciGirls*, including: the importance of developing a Spanish-language program, incorporating authentic and culturally appropriate story lines, and showcasing Hispanic STEM professional women as role models. These assumptions were based on TPT's prior experience directing past *SciGirls* projects, previous external evaluations of *SciGirls en Familia* and *SciGirls en Español*, and review of the literature. The front-end and formative work helped to serve as a check on the assumptions as applied to *Latina SciGirls* and also helped inform specific production decisions.[3]

As part of TPT's implementation of the third deliverable, the evaluation team conducted a summative evaluation of the *Latina SciGirls* partners' second and final year of outreach programming, during which the new *Latina SciGirls* media resources and activities were released and available for use.[4]

Focus on barriers to STEM engagement

As stated in the NSF proposal, a primary goal of the *Latina SciGirls* project was to *"test the Latina SciGirls model by applying specific strategies that address STEM engagement barriers among Hispanic girls and families."* [5] To address this goal, the project's research study investigated whether the *Latina SciGirls* outreach programs promoted the development of positive STEM-related identities among the Hispanic girls who participated (McLain et al., 2019). The summative evaluation offers additional insight into this question by examining the

[2] Knight Williams specializes in the development and evaluation of informal science media and outreach projects targeting diverse audiences. The firm has directed the evaluations for several recent NSF-funded informal science media-based projects designed for Spanish-speaking youth and family audiences including: *SciGirls en Español, SciGirls en Familia, EarthSky en Español, Hispanic Pathways to Family Science Literacy and Green Jobs*, *Pulso del Planeta,* and *Evidencia.*

[3] Copies of the front-end and formative reports may be found on TPT's STEM evaluation site.

[4] Although Season 4 didn't premiere until February 2018, *Latina SciGirls* partners were given early access to the season's video materials and activities.

[5] For information about the *Latina SciGirls* model as described by TPT, please see the Program Implementation Requirements document.

Latina SciGirls focus on two of the STEM engagement barriers highlighted in the proposal, specifically, limited exposure to STEM professionals and low parental engagement in daughters' STEM education.[6] As described in the proposal:

> *Research also shows that Hispanic girls have less support and exposure to STEM professionals than their Caucasian peers (Modi et al., 2012). There is a lack of Latina STEM professionals acting as role models, and limited exposure to STEM professions. Interestingly, Hispanic girls who have not been exposed to family members who are successful in STEM-related fields are unlikely to take math and science classes in high school (Chute, 2009). Compounding the problem is the language barrier that many Hispanics face. According to 2011 report by the Pew Hispanic Center, 14% of Hispanic girls within the SciGirls target audience (ages 5-17) have poor English language skills. This challenge is compounded by the fact that 41% of Hispanic adults (18+) have poor English language skills (Pew Hispanic Center, 2011). This statistic creates a second barrier: low parental engagement in their daughters' STEM education process. Parental encouragement is one of the strongest influences on Hispanic student's development of STEM career aspirations and to their persistence in pursuing a STEM major (Arbona & Nora, 2007; Leslie et al., 1998) … It is critical to engage and educate key family members to build students' networks of support and encouragement (Engelman et al., 2011).*

The outreach component of *Latina SciGirls* was designed to address these two barriers by prioritizing the involvement of both families and STEM professionals within the partner programs. Specifically:

- The **family involvement** focus largely centered around a one-time required event, the Family Fiesta for girls and their families. As envisioned by TPT, the Family Fiesta offered "*STEM celebration opportunities to engage families and girls in hands-on activities, media viewing and role modeling by Latina STEM professionals*" (*Latina SciGirls* Outreach Partner Expectations document). Partners were also encouraged to coordinate a welcome event for families as they launched their programs.

- The **STEM professional involvement** focus encompassed in-person visits by STEM professionals during the partner programs and Family Fiestas, as well as media portrayals of STEM professionals in two formats: a) the *SciGirls* episodes in which STEM professionals guide girls through a STEM project, and b) the *SciGirls* STEM profile videos, which spotlight individual STEM "role models," their jobs/careers, and their personal backgrounds. TPT envisioned that the in-person and media-based *Latina SciGirls* STEM professionals would primarily be Hispanic women and that they would serve as role models to engage Hispanic girls in STEM. While intentionally attributing the "role model" characterization to the *Latina SciGirls* STEM professionals, TPT also recognized the need for research on whether and how girls exposed to the

[6] Other barriers to STEM engagement addressed in the proposal included: low-to-moderately-low socioeconomic status, low youth knowledge about STEM fields, low parental/guardian knowledge about STEM fields, non-STEM identifying families, low access to family-based programs, low English proficiency amongst youth, and low English proficiency amongst parents/guardians. The extent to which the participating girls faced these barriers, as reported by the partners, is addressed on page 14.

Latina SciGirls STEM professionals (presented in the various in-person and media-based formats TPT envisioned) would perceive them as role models. As explained in the proposal:

> *A focal point for the research is role modeling, upon which much of the project design and deliverables are based. The Latina SciGirls video productions, online components and in-person outreach programs will include nested role-modeling on at least two levels: (1) Featuring Hispanic women who are successful STEM professionals in a variety of personal and professional contexts, and; (2) Featuring Hispanic girls interacting with these women through STEM-related activities. Additionally, many participants will be interacting directly with Hispanic women STEM professionals through the project's outreach components.*
>
> *However, currently we know relatively little about the complexities and internal processes at work in role modeling of these types (combined video, web-based and in-person formats) and how they specifically apply to this audience, including the unique combined elements of culture, gender, age, language barriers and family influences. And, girls within this age group are entering a life-stage of critical identity development in all respects. The interaction of these factors with the intended STEM awareness and learning outcomes of the project is central to our investigation.*

Evaluation Approach

Reflecting the *Latina SciGirls* overall emphasis on barriers to STEM engagement, and the outreach program's focus on family and STEM professional involvement, the summative evaluation focused on examining, from multiple perspectives, the role of these two outreach elements in engaging Hispanic girls in STEM. It is important to note that the evaluation's consideration of STEM engagement as an overarching project goal was intentionally broad, based on a review of the NSF proposal, partner communications, and exchanges with the project team, recognizing that the partners' outreach programs would, by design, encompass a wide range of STEM subjects and careers.

Focusing on the role of family and STEM professional involvement in the partner programs, the evaluation prioritized capturing:

i) the partners' experience of implementing and subsequently reflecting on their outreach programs, prioritizing activities that related to family and STEM professional involvement; and

ii) the experience of the key audiences involved in each partners' Family Fiesta, as this required program event was both family-focused and incorporated both in-person and media-based STEM professionals (including the *SciGirls* episodes and STEM

profile videos).[7] [8] The four key audiences involved in the Fiesta events included youth, their parents/guardians, the educators at the partner sites that organized and hosted the events, and the STEM professionals that provided in-person visits.

Method

Procedure

The evaluation team initially intended to examine the activities of 16 partner organizations, although six organizations did not complete one or more of the required evaluation surveys for partners, youth, or parents/guardians. In order to have comparable data to review across sites, this report focused on the 10 outreach partner programs that completed all of the basic survey requirements.

As noted above, the evaluation gathered input from multiple audiences – outreach partners, STEM professionals, youth, and parents/guardians – and relied on diverse methods to capture feedback from these audiences. The specific methods used in each case are summarized below and, where appropriate, described in greater detail in the relevant sections of the report.

- Part 1 of the report, which looks at the focus on family and STEM professional involvement within the context of the partner outreach programs, relied on a reporting and reflection form completed by the outreach partners at the end of their programs.

- Part 2 of the report, which looks at the focus on family and STEM professional involvement within the context of the partner Family Fiestas, relied on the use of a partner Family Fiesta reporting form, a STEM professional reflection survey, youth and parent/guardian feedback forms available in English and Spanish completed at the conclusion of the events, and site visit observations conducted at three Family Fiesta events.

Analyses

Basic descriptive statistics were performed on the quantitative data generated from the evaluation. Content analyses were performed on the qualitative data generated in the open-ended questions. The analysis was both deductive, drawing on the project's goals and objectives, and inductive, looking for overall themes, keywords, and key phrases. All analyses were conducted by two independent coders. Any differences that emerged in coding were resolved with the assistance of a third coder.

[7] The evaluation team also examined use of the *SciGirls* activities in the partner programs. This summary is provided in Appendix 1.
[8] The evaluation team also worked with TPT to summarize the data that was available to measure the reach and breadth of the broadcast program and online components. This summary is provided in Appendix 2.

Findings

Part 1. Family and STEM professional involvement within the partner programs

1.1 Overview of the partner programs

1.1a Program structure

As shown in Image 1, the 10 partner programs took place in seven states around the United States, with one state (Texas) being the site of four programs.

Image 1. Partner program locations

Program types and settings
As shown in Table 1, most of the partners held afterschool programs, while a few held other types of programs, including a summer camp or a winter weekend program. With respect to setting, half of the programs were held in academic institutions such as schools or universities, a few were held in community centers, and a few were held in other settings, such as a zoo/science center or a local non-profit.

Program length and duration
As shown in Table 1, program length and duration varied widely. The partners' programs ran from one week to several months, the number of sessions (per program) ranged from a few to 20, and session length ranged from half an hour to 16 hours.

Total program hours also varied widely across the sites, as the programming dedicated to youth ranged from a few to 40 hours, while the programming dedicated to parents/guardians ranged from one and a half to nine hours.

Use of Spanish
As shown Table 1, all but one partner conducted *some* of their youth programming in Spanish. Additionally, all but one conducted *some* or *most* of their parent/guardian programming in Spanish.

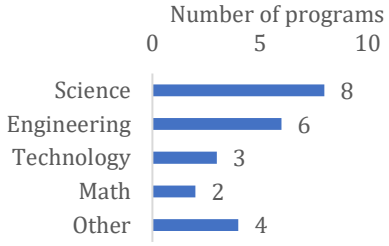
Table 1. *Latina SciGirls* program structure (N=10)

Program types and settings	
Types	Afterschool: 7 Summer camp: 2 Winter weekend: 1
Settings	School/university: 5 Community center: 3 Zoo/science center: 2 Local non-profit: 1
Program length and duration	
Shortest and longest programs	Shortest: 1 week Longest: 8 months
Sessions per program	Range: 3-20 Average: 9
Session length	Range: 30 minutes-16 hours
Total hours for youth	Range: 4-40 Average: 22
Total hours for parents/guardians	Range: 1.5-9 Average: 4
Use of Spanish	
Youth programming	None: 1 Some: 9 Most: 0 All: 0
Parents/guardian programming	None: 1 Some: 5 Most: 4 All: 0

Topics covered

Figure 1 shows the number of partner programs that reported covering different STEM topics. Most programs covered science topics, more than half covered engineering, and a few programs covered technology, math, and/or other topics, such as dance and stop-motion.

Figure 1. Topics covered



1.1b Inclusion of program elements

The outreach partners were expected to meet several implementation requirements listed in the *Latina SciGirls* Program Implementation Requirements document. These included:

- Offer a 16-32 hour (or more) program.
- Include at least 10 girls in grades five through eight.
- Host a Family Fiesta.
- Include at least three female STEM professionals throughout programming, including at least one at the Family Fiesta.
- Use the new *Latina SciGirls* Spanish-language resources, including the activities, episodes, and STEM profile videos.
- Incorporate strategies from the *Engaging Latino Families Guide*.
- Incorporate the *SciGirls Seven* strategies for engaging girls in STEM.

Table 2 details whether and how the individual outreach partners met these requirements.

Table 2. Fulfillment of Year 2 *Latina SciGirls* requirements (N=10)

	Minimum 16 Hours	At least 10 girls in grades 5-8	Held Family Fiesta	At least 3 in-person STEM professionals in program	At least 1 in-person STEM professional at Fiesta	Used new *Latina SciGirls* resources	Used *Engaging Latino Families Guide*	Used *SciGirls Seven* strategies
Partner 1	Yes (23)	Yes	Yes	Yes (6)	Yes (4)	Yes (1 episode, 3 profile videos, 1 activity)	Yes	Yes
Partner 2	Yes (30)	Yes	Yes	Yes (4)	Yes (3)	Yes (1 episode, 2 profile videos, 1 activity)	No	Yes
Partner 3	Yes (18)	unknown	Yes	No (2)	Yes (2)	Yes (2 episodes, 3 profile videos, 7 activities)	Yes	Yes
Partner 4	Yes (18)	Yes	Yes	No (1)	Yes (1)	Yes (2 episodes, 1 activity)	No	Yes
Partner 5	Yes (40)	unknown	Yes	Yes (3)	Yes (1)	Yes (2 episodes, 1 activity)	No	Yes
Partner 6	Yes (23)	Yes	Yes	Yes (7)	Yes (2)	Yes (5 episodes, 4 activities)	Yes	Yes
Partner 7	Yes (18)	unknown	Yes	Yes (3)	Yes (1)	Yes (1 episode, 1 activity)	No	Yes
Partner 8	Yes (32.5)	Yes	Yes	Yes (3)	Yes (2)	Yes (8 profile videos, 3 activities)	No	Yes
Partner 9	No (4)	unknown	Yes	No (1)	Yes (1)	No	No	Yes
Partner 10	Yes (17.5)	Yes	Yes	Yes (14)	Yes (1)	No	Yes	Yes

While most partners met the majority of the requirements, only two partners met all eight. In general, there did not appear to be a predominant model for partners' *Latina SciGirls* programs in terms of hours of programming and use of events and resources, other than that all programs had a Family Fiesta, all incorporated at least one in-person STEM professional, and most held programs that were a minimum of 16 hours in length.

Looking at each requirement listed in the Program Implementation Requirements document:

- **Offer a 16-32 hour (or more) *Latina SciGirls* program.** While the number of program hours varied widely across the 10 partner programs (from four to 40), all but one partner met the required 16 total hours.

- **Include at least 10 girls in grades five through eight.** Six programs were known to have had at least 10 girls in grades five through eight. It is unknown if the remaining four partners met this requirement, as they did not provide enough information about their youth participants to determine either way.

- **Host a Family Fiesta**. All 10 partners hosted a Family Fiesta.

- **Include at least three female STEM professionals, including at least one at the Family Fiesta**. The number of STEM professionals included in the partner programs varied widely, from one to 14, with seven partners meeting the minimum of at least three. All 10 partners met the requirement of including least one STEM professional at their Family Fiesta.

- **Use new *Latina SciGirls* Spanish-language resources.** Eight partners used at least one of the new *Latina SciGirls* Spanish-language media their programs. Among this group of partners, a few solely used episodes, a few used episodes and STEM profile videos, and one solely used the profile videos. With respect to the new activities, all but two partners used the new materials developed by TPT; however, because the Spanish-language versions were not available until after the end of the *Latina SciGirls* program period, all of the activities were used in English. The same two partners who did not use the new Spanish-language media also did not use the new activities.

- **Incorporate strategies from the *Engaging Latino Families Guide*.** Building from its prior projects, *SciGirls en Español* and *SciGirls en la Familia*, TPT created a guide for their Hispanic-serving partners, Engaging Latino Families: Key Ingredients for Successful STEM Programs. The purpose of the guide is to provide practitioners with six research-based strategies for developing culturally relevant approaches.[9] TPT disseminated the guide to the *Latina SciGirls* outreach partners, although six of the 10 partners indicated that they did not use the resource to help guide or inform their program.

- **Incorporate the *SciGirls Seven* strategies for engaging girls in STEM.** Although partners were not asked to comment on the extent to which their programs used each of the *SciGirls*

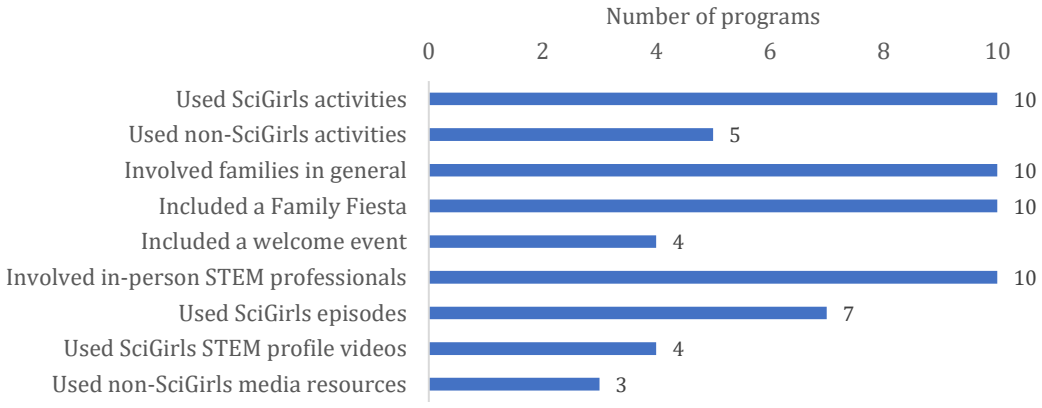
[9] The strategies include: 1. Build relationships and establish trust, 2. Offer programming that engages the entire families, 3. Integrate experiences that are culturally relevant and personally meaningful, 4. Emphasize the program's educational merit, 5. Include a focus on careers, and 6. Be willing to try new approaches to programming.

Seven strategies, all of the partners indicated that their programs had youth collaborate in groups and engage in hands-on, open-ended projects and investigations, two elements of the *SciGirls Seven*. In terms of other elements of the *SciGirls Seven*, all but one partner indicated that their youth had opportunities to: approach projects in their own ways, receive specific positive feedback, use critical thinking, express their individual viewpoints within a group setting, and develop relationships with role models or mentors. Meanwhile, seven partners indicated that their youth worked on a project designed to be personally relevant and meaningful, seven indicated their youth communicated findings through a variety of techniques, and six indicated that their youth used solid evidence to support their claims when communicating findings.

Inclusion of Latina SciGirls activities, events, and resources

Figure 2 shows the number of programs that incorporated *Latina SciGirls* activities, events, and resources.

Figure 2. Programs that included *Latina SciGirls* activities, events, and resources (N=10)



While all of the programs incorporated activities, families, and in-person STEM professionals as generally envisioned by TPT, not all incorporated the media resources featuring STEM professionals. Specifically:

- *Activities*: All of the programs incorporated *SciGirls* hands-on activities, and half also incorporated non-*SciGirls* activities.
- *Family involvement*: All of the programs incorporated families in some way. All included a Family Fiesta, and just under half also held a welcome event for families.
- *STEM professional involvement*: All of the programs incorporated in-person STEM professionals. Not all of the programs used the media resources featuring STEM professionals, however. While most programs included the *SciGirls* episodes, less than half included *SciGirls* STEM profile videos. Additionally, a few programs included non-*SciGirls* media resources, at least one of which featured a STEM professional.

The partners who did not include one of the elements listed in Figure 2 were asked to briefly explain why not in each case. Four partners shared the following reasons:

- *The only times we really worked with the parents were at the Orientation and Family Fiesta, where most of our time was spent addressing the needs of the kids.*
- *We were not able to get a Hispanic role model, not even with [TPT's] help, that could come in person which makes a huge difference. We only had two opportunities to engage parents during Family Fiesta and kick off and it is such a short period of time. We touched on it informally through conversation.*
- *[We] did not show STEM media because [we] did not have equipment set up to show the students.*
- *Our program is not designed well for family participation. We have multiple other camps going on for the entire summer and we cannot allow parents to be … participating in camp for liability reasons. That being said, we did bring several of the activities that the girls did throughout the week to the Family Fiesta so that they could teach their parents what they learned.*

Table 3 provides additional detail relating to the number of *SciGirls* episodes, profile videos, and activities that each program incorporated. Although the programs varied widely in how many resources they used, most used at least one activity, most used at least one episode, and less than half used a profile video.

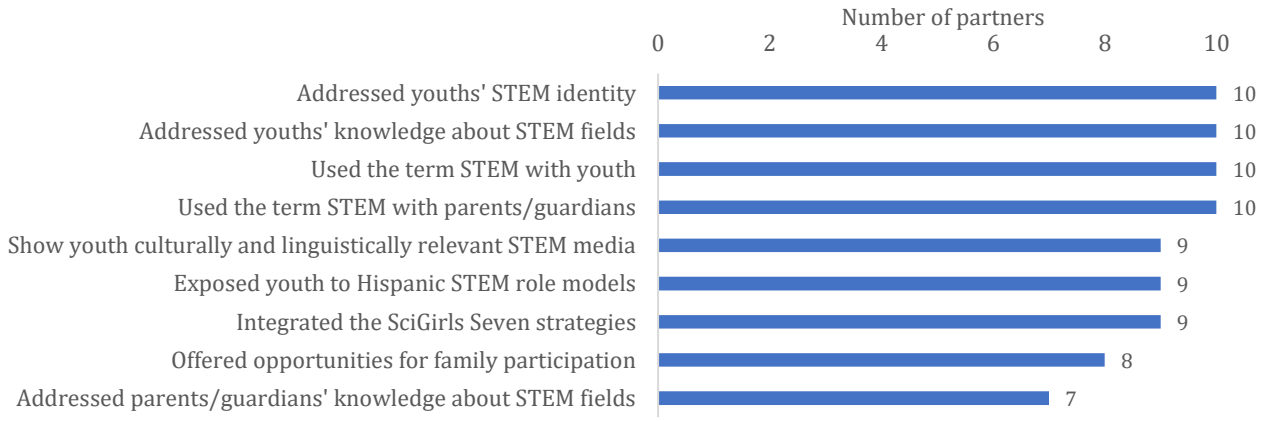
Table 3. Number of *SciGirls* resources used at each partner program

	***SciGirls* episodes**	***SciGirls* profile videos**	***SciGirls* activities**
Partner 1	5	3	1
Partner 2	11	2	1
Partner 3	2	3	7
Partner 4	2	0	1
Partner 5	5	0	1
Partner 6	6	0	4
Partner 7	6	0	1
Partner 8	0	8	3
Partner 9	0	0	0
Partner 10	0	0	0

Inclusion of Latina SciGirls strategies or approaches

Figure 3 shows the number of partners who thought their programs incorporated nine different *Latina SciGirls* strategies or approaches. All of the partners indicated that their programs addressed youths' STEM identity and knowledge of STEM fields, and that they used the term STEM with youth and parents/guardians. All but one in each case thought their programs showed youth relevant STEM media, exposed them to Hispanic STEM role models, and incorporated the *SciGirls Seven* (although, as shared on the previous page, all of the partners indicated that their programs included elements of the *SciGirls Seven*). Most thought their programs offered opportunities for family participation and/or addressed parent/guardian knowledge of STEM fields.

Figure 3. Partners who thought their programs incorporated *Latina SciGirls* strategies or approaches (N=10)



1.1c Youth participants

Table 4 summarizes basic demographic and background information for the 196 youth that participated in the 10 partner programs.

Youth demographics and background information

- *Gender*: Of the youth for whom gender was reported (n=184), more than nine-tenths were girls.
- *Grade level*: Two-thirds of the youth were in grades six through eight, while just under one-third were in grades three through five.
- *Racial/ethnic background*: More than nine-tenths of the youth were of Hispanic origin.
- *Types of communities drawn from*: The majority of partners reported that their programs drew youth from urban communities, although a few pointed to suburban communities, and a couple to rural communities.
- *Whether attended Year 1 programming*: About one-fifth of the youth also attended Year 1 *Latina SciGirls* programs.

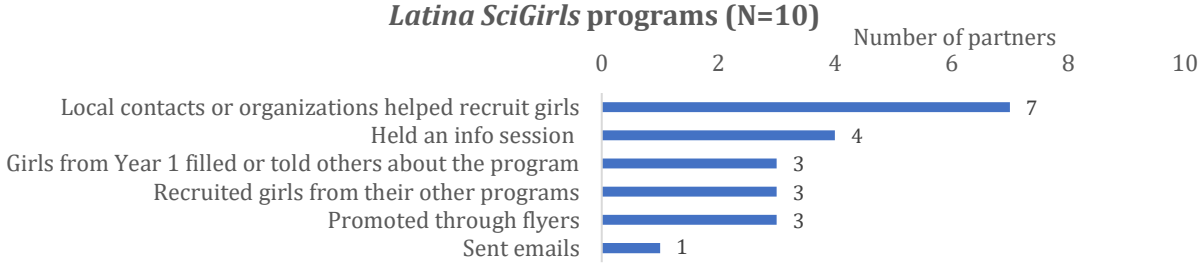
Table 4. Demographics and background information of youth participants

Total attendance (N=10)	196
Gender (n=184)[10]	Girls: 94% Boys: 6%
Grade level (N=196)	Grades K-2: 1% Grades 3-5: 30% Grades 6-8: 66% Grades 9-12: 1%
Racial/ethnic background (N=196)	Hispanic/Latino: 92% White: 6% African-American/Black: 2%
Communities youth were drawn from (N=10)	Urban: 7 Suburban: 4 Rural: 2
Whether attended Year 1 (N=196)	Yes: 21% No: 79%

Program recruiting

As shown in Figure 4, most of the partners said they used local contacts or organizations to help recruit girls. In each case, a few partners said they held an info session, indicated that girls from Year 1 filled or told others about the program, said they recruited girls from their other programs, and/or promoted through flyers. Only one sent emails.

Figure 4. How partners recruited girls to their *Latina SciGirls* programs (N=10)



Examples in each case are shown below.

Local contacts or organizations helped recruit girls (7)

- *The community liaison at [a local middle school] emailed teachers with a program description so they could tell students about SciGirls.*
- *We partnered with a local non-profit focused on engaging and supporting Hispanic youth and their parents…They promoted all programming and recruited the girls (and parents) to participate.*

[10] Nine of the 10 partners reported the gender of 184 of the participating youth.

Held an info session (4)

- *We held an Open House/Registration at [a] community center and gathered over 30 kids in that evening!*
- *I then did a lunch time recruitment where I handed out permission forms … SciGirls Rulers and sunglasses.*

Girls from Year 1 filled or told others about the program (3)

- *Almost half of our girls were returnees and most of the new girls had been told about it by the returnees. It seems that the program last year did the recruiting for itself!*

Recruited girls from their other programs (3)

- *We talked to the girls in our afterschool program. After we started doing activities, girls that did not originally want to join came to us asking about the program and wanting to join.*

Promoted through flyers (3)

- *… we handed out flyers at the holiday celebration as well as door to door of homes with girls in the right age group. We also printed the flyers in both English and Spanish and made them colorful.*

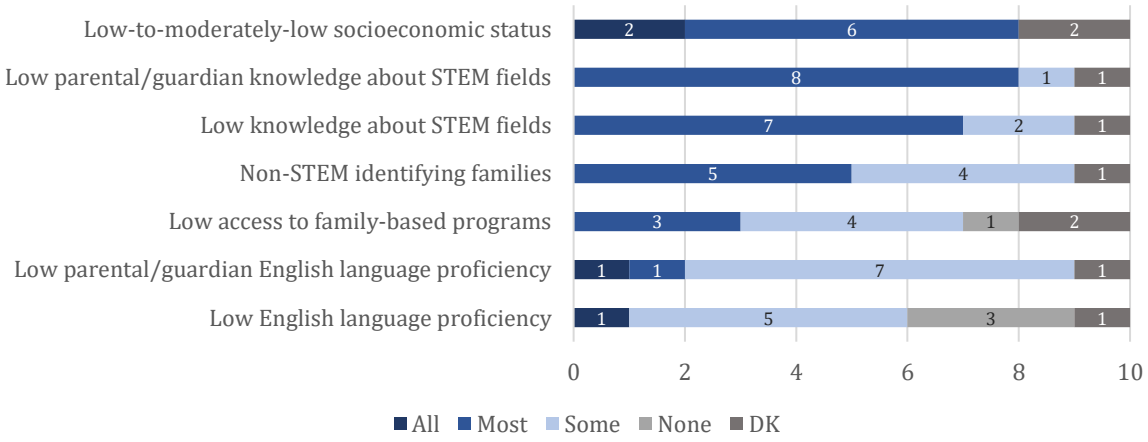
Sent emails (1)

- *We also sent out emails to all our partner agencies …*

Barriers to STEM engagement

Figure 5 shows the number of educators who said that *all*, *most*, *some*, or *none* of the youth in their program faced seven STEM barriers prior to participating in *Latina SciGirls*. These barriers were among those described in the NSF project proposal as the types preventing Hispanic girls and families from fully engaging in STEM.[11]

Figure 5. Partners' assessment of youths' barriers to STEM engagement (N=10)



Most of the partners thought that *most* or *all* of their youth were of low-to-moderately-low socioeconomic status, had parents/guardians with low knowledge about STEM fields, and/or had low knowledge about STEM fields. Half of the partners thought that *most* of their youth had non-STEM identifying families, while a few thought *most* of their youth had low access to family-based programs. Low English proficiency amongst youth or parents/guardians was not cited as a barrier by more than one or two partners in each case.

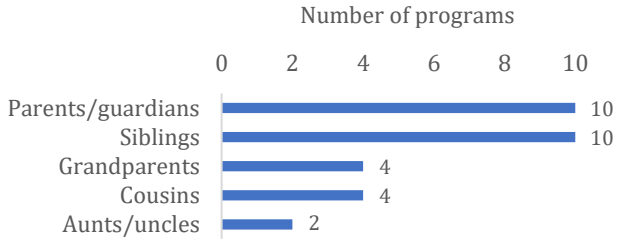
[11] The evaluation intended to ask partners how many of their youth participants experienced an eighth barrier to STEM engagement, low exposure to Hispanic STEM role models and mentors. However, there was an error in the wording of this question in the partner survey; thus, it was removed from the analysis.

1.2 Partners' reporting and reflections relating to their focus on family involvement

1.2a Types of family members involved in the programs

Figure 6 shows that all of the programs involved parents/guardians and siblings, while fewer than half each involved grandparents and cousins, and a couple involved aunts/uncles.

Figure 6. Programs that involved family members (N=10)



1.2b How partners incorporated families and the perceived impact

Welcome event

Four partners said their programs incorporated a welcome event for families. These partners generally found it was a chance to provide information about the program, increase family members' familiarity and comfort, and/or encourage parental involvement, as in:

- *It allowed them to get acquainted with our facilities [and] meet our staff and mentors … Overall, I think all the parents/guardians left with a great deal of comfort and familiarity with the program.*
- *The event helps explain our event to the parents and therefore encourages their involvement.*

Of the six partners who did not host a welcome event, two thought it would have been a good idea, as it would have allowed parents/guardians to learn more about the program, while three felt it wouldn't have been necessary, citing family members' limited availability or parental involvement in other aspects of the *Latina SciGirls* programs.

Family Fiesta

All 10 partners incorporated a Family Fiesta into their program. These partners generally found that the event impacted youths' pride, interest in and awareness of STEM careers, STEM learning, and/or connection to or the support of family members, while parents/guardians seemed to experience pride and open-mindedness about youths' interests and capabilities and expressed positive feelings about their children's involvement in *Latina SciGirls*.[12]

[12] Note that Part 2 provides a more detailed look at the perceived impact of the Family Fiestas on youth and parents/guardians and that only a general overview is provided here.

1.2c Partners' perceptions of the helpfulness of the *Engaging Latino Families Guide*

Figure 7. Whether partners used the *Engaging Latino Families Guide* (N=10)

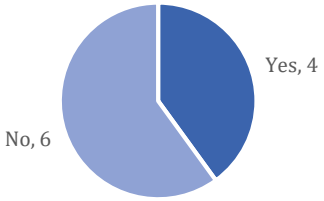


Figure 7 shows that just under half of the partners used the *Engaging Latino Families Guide* in their program planning. When asked if and how they found the guide helpful or not helpful, three praised the guide, as follows:

- *It was helpful in regards to language used in describing the program to parents.*
- *Yes! More helpful during year one, but also used during year 2.*
- *Helpful – good reminders.*

Among the partners who didn't use the guide, two pointed to time constraints, one said she was unaware of the guide, and another explained that her organization's program hadn't focused on engaging families, as in:

- *I believe it was used more in Year 1. [Also], not enough time.*
- *We really did not have time to look at it to be honest, but we have good relationships with our families.*
- *We are unaware of this guide.*
- *I did not make engaging families my main focus.*

1.2d Partners' reflections on the impact of the project on their knowledge of and/or skills around how to engage Hispanic families

Figure 8. Whether programs improved partners' knowledge/skills of how to engage Hispanic families (N=10)

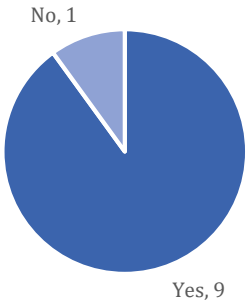


Figure 8 shows that all but one partner thought their involvement in *Latina SciGirls* helped improve their knowledge of and/or skills around how to engage Hispanic families in learning about STEM fields, with the remaining partner explaining, "*We have not done much to incorporate the families besides the Family Fiesta, so I do not feel as though I learned much of how to do so.*"

Those who felt their knowledge and/or skills in this area improved were asked to explain how the project helped in this respect. One cited events that had engaged families ("*Family Fiesta and kick off*"), while others commented on the value of incorporating Hispanic STEM role models, using Spanish in resources and events, facilitating communication and participation, and/or engaging in STEM learning, as in:

- *Engage role models to help and provide content in Spanish*
- *Provide Latina mentors, Latina educators, Spanish speakers to develop comfort with the vocabulary around STEM*
- *During the Family Fiesta, I wanted to make sure that parents felt confident and could easily understand some concepts in STEM. The Latina SciGirls activities were simple and easy to duplicate at home. We also had mentor profiles visible and translated in Spanish.*

1.3 Partners' reporting and reflections relating to their focus on STEM professional involvement

1.3a STEM professional involvement through in-person visits

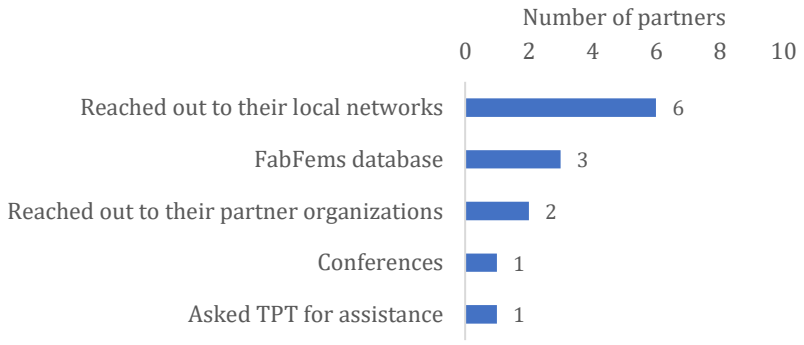
Number and background of participating STEM professionals

All ten partner programs incorporated at least one in-person STEM professional, although the number of STEM professionals included in each program varied widely, from one to 14. In some but not all partner programs, these STEM professionals were Hispanic and/or bilingual. Specifically, six programs incorporated STEM professionals who were Hispanic and seven included STEM professionals who were bilingual. All told, among the 44 STEM professionals who participated in the *Latina SciGirls* partner programs featured in this report, not quite half (48%) were Hispanic and less than half (45%) were bilingual in Spanish and English.[13] [14]

How partners located STEM professionals for their programs

Figure 9 shows that more than half of the partners used their local networks to locate STEM professionals for their programs. A few partners used the National Girls Collaborative Project's FabFems database in their search, with one adding that her program had successfully located three STEM professionals and another saying she "*had no success using FabFems for local role models,"* despite her best efforts. Two partners reached out *their* partner organizations to locate STEM professionals, one connected with potential contacts at conferences, and another asked TPT to help them find STEM professionals in their area.

Figure 9. How partners located STEM professionals for their programs (N=10)



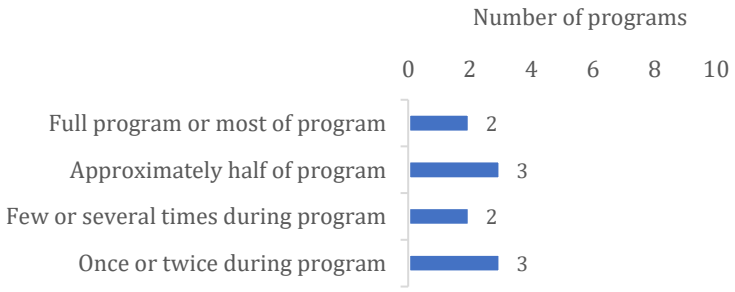
[13] Although additional background information wasn't gathered about all of the participating STEM professionals, the 13 who completed the Family Fiesta evaluation survey were all women, as detailed in Part 2 of this report.

[14] Additionally, six programs utilized the expertise of STEM students, i.e., STEM professionals-in-training. These six programs featured between one and eight STEM students each. In some but not all partner programs, these STEM students were Hispanic and/or bilingual. Specifically, six programs incorporated STEM students who were Hispanic and four included STEM students who were bilingual. All told, among the 18 STEM students who participated in the *Latina SciGirls* partner programs featured in this report, just over half (56%) were Hispanic and less than half (44%) were bilingual in Spanish and English.

Extent to which partners incorporated STEM professionals in their programs

The partners' estimates of the number of hours the STEM professionals were directly involved with their youth ranged from two to 23 hours, averaging eight per partner.[15] Additionally, as shown in Figure 10, half of the partners indicated that STEM professionals were involved with youth at about half or more of their sessions, while half said they worked with youth at fewer than half of their sessions.[16]

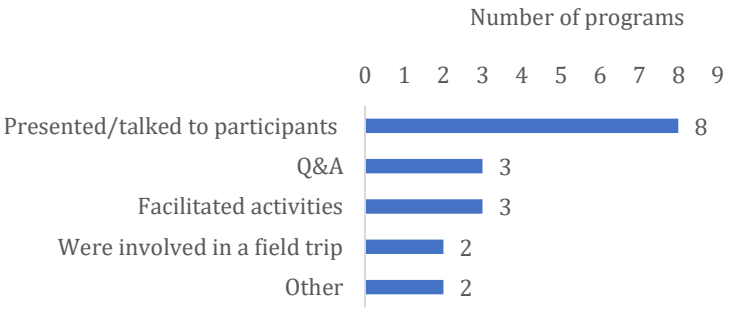
Figure 10. How often STEM professionals worked with youth over the programs (N=10)



How partners incorporated STEM professionals in their programs

Figure 11 shows that, among the nine partners who shared a response, all but one indicated that their STEM professionals presented and/or talked to participants about their lives or careers. In two or three instances each, they led Q&As, facilitated activities, were involved in a field trip, or were involved in other ways. Examples of their responses are shared below.[17]

Figure 11. How STEM professionals were incorporated into programs (n=9)



Presented/talked to participants (8)

- *Spoke about their careers, education and cultural background.*
- *STEM Professional #1 Talked about her experience as a student at the [local university] and the research she's doing. She talked about the importance of STEM and how STEM helps make the world a better place.*
- *We had three female STEM professionals (health care and finance) come in for a career panel. They were able to talk about the work that they do and how they became a professional.*
- *Role models speaking of their career to the girls during meetings and they presented at Family Fiesta.*
- *All three STEM professionals met with the girls over lunch one day out of the week to talk to them about what they do, how they got into their position, and what obstacles they overcame. One of the role models came to the Family Fiesta and spoke to the parents about what she does.*

Q&A (3)

- *The students were then able to ask them various questions regarding their schooling and specifics for the work that they do.*
- *They conducted a Q&A as well.*

[15] Among the six partners who utilized STEM students, when asked to estimate the number of hours they were directly involved with youth, partners' responses ranged from one to 27 hours, averaging nine per partner.
[16] In terms of how often STEM students worked with youth, three partners said they participated once or twice over the course of their programs, two noted they participated in most or all of their program sessions, and one explained that they participated several times over the course of the program.
[17] In all six of the programs that utilized STEM students, they talked to participants. At half of these programs, the STEM students helped with the logistics of the programs. They also answered participant questions at two programs and helped facilitate activities at one program.

Facilitated activities (3)

- *Facilitating SciGirls activities … and even leading their own non-SciGirls STEM activities*
  The mentor did several projects with the girls in the school … She also came to the Family Fiesta and did a project with the parents.

Were involved in a field trip (2)

- *The rest of our STEM professionals we met during [a field trip to a mine], they discussed mining safety, different careers within the mining industry, mining and the environment, and technology.*

Other (2)

- *Translating for parents …*

Partners' perceptions of the value of involving STEM professionals in their programs

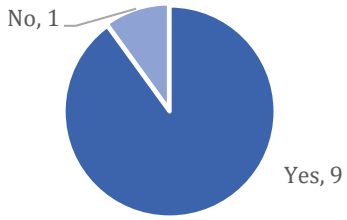
Using a scale from 1.0 (*not at all valuable*) to 5.0 (*extremely valuable*), the partners generally found the STEM professionals *extremely valuable* (median 5.0) to their programs[18], with half of the partners elaborating on their value, as follows:

- *Both the STEM professionals and students were very valuable to our program. These women were able to introduce their STEM career to a younger audience and show these girls that they can also be a STEM professional one day! I think my girls were inspired and encouraged to know that they have the support and ability to go into a STEM career.*
- *The girls really react differently when someone else comes in and does something with them. We are old hat and the fact that these women are smart, approachable and confident is invaluable to making the girls see themselves in these roles. I feel like this is really the strongest part of the program. I cannot stress that enough.*
- *We had two ladies who work at [our local zoo] and one who works at the [local wetlands] speak to the girls-the girls LOVED hearing about their careers and had many questions for them.*
- *I am white, so it was great for the girls to talk with someone who is Latina … As for the STEM professionals, overall they were extremely valuable in providing different perspectives culturally and professionally.*
- *Girls were able to ask question in regarding education and careers, in the classroom and on site at the mine.*

Partners' reflections on the impact of participating in Latina SciGirls on their knowledge of and/or skills around how to integrate Hispanic female STEM professionals

Figure 12 shows that all but one of the partners thought their involvement in *Latina SciGirls* helped improve their knowledge of and/or skills around how to integrate Hispanic female STEM professionals into youth and family programming, with the remaining partner explaining, "*We were already doing this.*"

Figure 12. Whether participating in *Latina SciGirls* improved partners' knowledge/skills of how to integrate Hispanic STEM professionals (N=10)



[18] Using the same scale, the partners also generally found the STEM students *extremely valuable* (median 5.0) to their programs. Three partners elaborated on their value, as follows: "*I was so glad we had the younger STEM student join us too - the girls loved hearing from her*," "*Both the STEM professionals and students were very valuable to our program*," and "*We couldn't have pulled off such a large enrollment without all of these volunteer helping hands! With so many kids, we often taught in field trip-style rotations, with the kids rotating from activity to activity every 20 minutes or so. So, we obviously needed a ton of educators to help out!*"

Those who felt their knowledge/skills in this area had improved were asked to explain how the program had helped in this respect. In response, one partner said she had "*never thought to just ask*", another explained how they had improved upon this element of their program for Year 2 of *Latina SciGirls*, and three commented on the STEM professionals' enthusiasm and impact on the programs. For example:

- *Never thought to just ask. Plus all the women out there willing to mentor that SciGirls connects us to.*
- *It was very easy to do this. The first year was very much a learning experience with how to incorporate role models, but this year we had no issues because we simply had them come eat lunch with the girls and discuss their careers.*
- *I don't think you need a Latina program to attract this sort of talent, but our mentors greatly appreciate these efforts to appeal to their community. They love to participate and are searching for more opportunities like this one.*
- *Having Hispanic female STEM professionals present was very important for this program. Having them come in to share their experiences, education, and career with the group just adds to the quality of the program. Having the opportunity to ask questions during STEM Career Day or listening to a story during the family fiesta was beneficial to the growth and learning process for these students.*
- *Overall, exposure and sharing their experiences and interactions.*

1.3b STEM professional involvement through *SciGirls* media portrayals

SciGirls episodes

In total, seven partners used *SciGirls* episodes in their programs. Table 5 details the episodes these partners used, by season as well as title.[19] The partners used between two and 11 episodes each, averaging five per partner. Additionally, these seven partners indicated that they used one or more of the Spanish-language *Latina SciGirls* (Season 4) episodes.

Using a scale from 1.0 (*not at all valuable*) to 5.0 (*extremely valuable*), the partners generally found the *SciGirls* episodes videos *very valuable* (median 4.0) to their programs. Eight elaborated on the value of the videos, most often explaining what they liked about them, although a few commented on youth preferences for other aspects of their programs. Examples of their responses are on the next page.

Table 5. Partners' use of *SciGirls* episodes (n=7)

ID	Episodes used, by season and title
Partner 1	Season 1: High Tech Fashion, Going Green, Star Power Season 2: Pedal Power, Super Sleuths Season 3: none Season 4: City Chickens
Partner 2	Season 1: none Season 2: none Season 3: none Season 4: Terrific Trees, Awesome Athletes
Partner 3	Season 1: none Season 2: none Season 3: none Season 4: City Chickens, Space Squad
Partner 4	Season 1: none Season 2: none Season 3: Frog Whisperers, SkyGirls, Feathered Friends Season 4: City Chickens, Terrific Trees
Partner 5	Season 1: none Season 2: none Season 3: SkyGirls Season 4: City Chickens, Terrific Trees, Space Squad, Digital Dance, SciGirls Serve
Partner 6	Season 1: Puppet Power, Horsing Around Season 2: Aquabots Season 3: Frog Whisperers Season 4: Digital Dance
Partner 7	Season 1: Puppet Power, Digging Archaeology, Horsing Around, High Tech Fashion, Underwater Eco-Adventure Season 2: Aquabots, The Awesome App Race, Workin' It Out, Pedal Power Season 3: Frog Whisperers Season 4: Space Squad

[19] In terms of the demographics and backgrounds of the STEM professionals featured in the episodes, all were women. Although the number of Hispanic STEM professionals featured in Seasons 1-3 is not known, the women

- *The girls were interested in engineering and we were able to use the city chickens to generate discussion and action plans.*
- *The girls really enjoyed the videos and loved that a lot of the girls switched back and forth between English and Spanish in the Season 4 episodes. Many of the girls are bilingual, so that hit home with them.*
- *It was great to have the students be able to watch the videos and hear different stories and watch different experiences beyond what we were doing in the events. The clips from various videos also reinforced the learning and connections.*
- *The girls enjoyed watching the videos and hearing about the career. Sometimes the videos were lengthy and had to be viewed in parts.*
- *Although we did not have enough time to show videos in class, I believe these videos are of value. This is because they are additional learning opportunities for girls.*
- *I felt like the material in the videos was very helpful and engaging, however it turned out to be the part of the day that my girls least looked forward to. They didn't dislike the videos, but they much preferred to participate in actual activities and would occasionally say "do we HAVE to watch the video? Can't we just do the activity?"*
- *The kids really got into certain episodes (Super Sleuths, Pedal Power), but were more ambivalent toward others. We also had 43 participants, so it was difficult to keep them all focused on a video for very long.*
- *The girls wanted to jump in to the activities instead of watching the video.*

Among the three partners who didn't use the episodes, one said they had instead focused on activities, another pointed to time constraints, and the third declined to elaborate.

SciGirls STEM profile videos

In total, four partners used *SciGirls* STEM profile videos in their programs. These four partners used between one and eight videos each, averaging four per partner. Relating to these same four partners, Table 6 shows how many used each video and the language of each video used.[20] Only one of the four partners used a STEM profile video from Seasons 1-3, whereas the rest of the videos were from Season 4 (*Latina SciGirls*).[21]

Table 6. Number of partners that used *SciGirls* STEM profile videos and the language of each video used (N=10)

Videos from Seasons 1-3 (*SciGirls*)		
Caroline Karanja – Software Engineer	1	Eng.
Videos from Season 4 (*Latina SciGirls*)		
Rebeccah Rodriguez Regner – Sports Medicine Physician	2	Eng.
Amelia Merced – Biologist	2	Span.
Alma Stephanie Tapia – Materials Engineer	2	Span.
Violeta Garcia – Ecologist	2	Span.
Becca Cuellar – Medicinal Chemist	1	Eng.
Victoria Velez – Biomedical Engineer	1	Span.
Natalia Rodriguez – Software Engineer	1	Span.
Omayra Ortega – Data Analyst	1	Eng.
Laura Valencia – Electrical Engineer	1	Span.
Orietta Verdugo – Industrial Engineer	1	Span.
Isabel Rivera Collazo – Environmental Archaeologist	1	Span.
Andrea Chaves – Educator	0	Span.

Using a scale from 1.0 (*not at all valuable*) to 5.0 (*extremely valuable*), the partners generally found the *SciGirls* STEM professional profile videos *moderately-to-very-valuable* (median 3.5) to their programs. Five of the partners elaborated on the value of the videos, explaining why they had or had not used them, as shared on the next page:

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featured in the Season 4 episodes were all Hispanic, and all but one spoke to youth in Spanish. The STEM professionals featured in all of the episodes shown by the partners worked in a range of STEM fields, including engineering, medicine, biology, ecology, forensics, space science, and astrophysics.

[20] In terms of the demographics and backgrounds of the STEM professionals featured in the profile videos, all were female. As shown in Table 6, four of the videos used were in English, while eight were in Spanish. The STEM professionals featured in the videos used by partners worked in a range of STEM fields, including engineering, biology, ecology, medicine, data analysis, and environmental archaeology.

[21] The only *Latina SciGirls* profile video that wasn't used in one of the four programs was the video featuring educator Andrea Chaves.

- *I loved showing the mentor videos because my students were able to learn more about different careers in STEM for Latinas and be inspired that they could do the same thing in the future.*
- *They were valuable, but we have amazing role models we can bring into a setting in person. We used the videos, but we live in a space where we don't have to rely on videos to bring role models connections to our students. We can bring the role models themselves into the events...and can be sure they match the demographics of our participants.*
- *It was good for the girls to watch other people who are successful, but … they wanted to do the activities instead of watching the video.*
- *I don't see the video we show listed that we saw. I think her name was Erin and she was a bat biologist. We did not see the other biologist listed above or we might have showed those. At the point we showed the video the girls were interested in biologist and we wanted them to see how biologist work in the field.*
- *Time did not allow us to use these. [Also] we just chose not to use these as we have wonderful mentors who come in person for our programming.*

1.4 Partners' reporting and reflections on their programs' overall impact

1.4a Whether and how partners evaluated their programs

Figure 13 shows that more than half the partners evaluated what youth learned or gained from their programs. Those who said *yes* were asked to explain how they evaluated impacts on youth.[22]

Figure 14 shows that two partners used verbal evaluations (as in, "*We did a final verbal recap with the girls and had an opportunity to ask them questions*"), two previewed their youths' responses to the research surveys, one used other surveys ("*Through our online STEM survey that aligned with our [organization's] STEM Outcomes*"), and another evaluated the girls' presentations, saying, "*Students gave presentations of their career goals at [the] Family Fiesta and many were STEM careers.*"

Figure 13. Whether partners evaluated their programs (N=10)

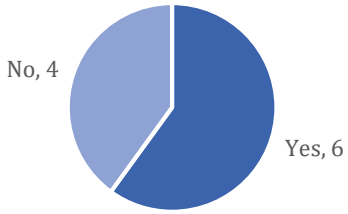
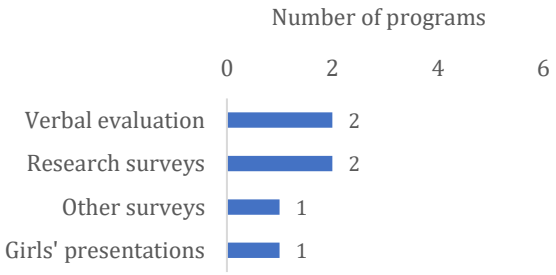


Figure 14. How partners evaluated their programs (n=6)



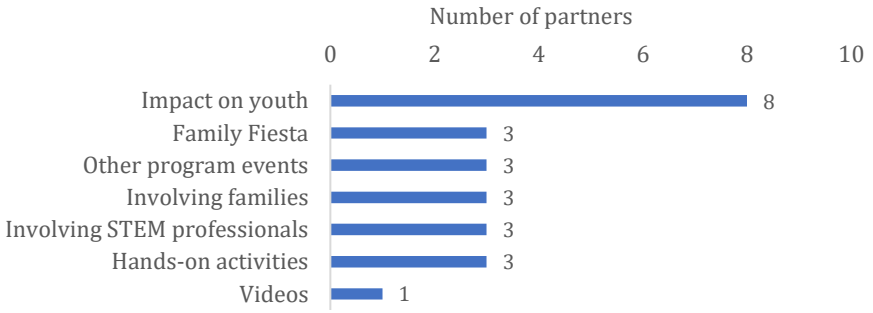
[22] Those who said *no* were asked why not. Of the four partners in this group, two felt the youth filled out enough (research and evaluation) surveys over the course of *Latina SciGirls*, one thought there wasn't enough time, and one said that – although she didn't officially evaluate her program – she could "*see the difference*" and that "*this program this year had a life changing effect.*"

1.4b Partners' perceptions of their program highlights and challenges

Highlights

Figure 15 shows what partners considered to be the highlights of implementing their *Latina SciGirls* programs. Almost all of the partners pointed to seeing the impact on youth, while a few pointed to the Family Fiesta, other program events, involving families, involving STEM professionals, and/or using hands-on activities. One partner pointed to videos. Examples of their comments in each case are shared in Table 7 on the following page.

Figure 15. Program implementation highlights (N=10)



Challenges

Figure 16 shows what partners considered to be the challenges of implementing their *Latina SciGirls* programs. Fewer than half of the partners pointed to a logistical aspect, such as program planning or participant group size. Smaller groups of one or two partners each commented on the challenges of time, issues related to language, engaging or communicating with parents/guardians, engaging or leading youth, and the weather, while one partner said their organization hadn't faced any challenges. Examples of their comments in each case are in Table 7 on the following page.

Figure 16. Program implementation challenges (N=10)

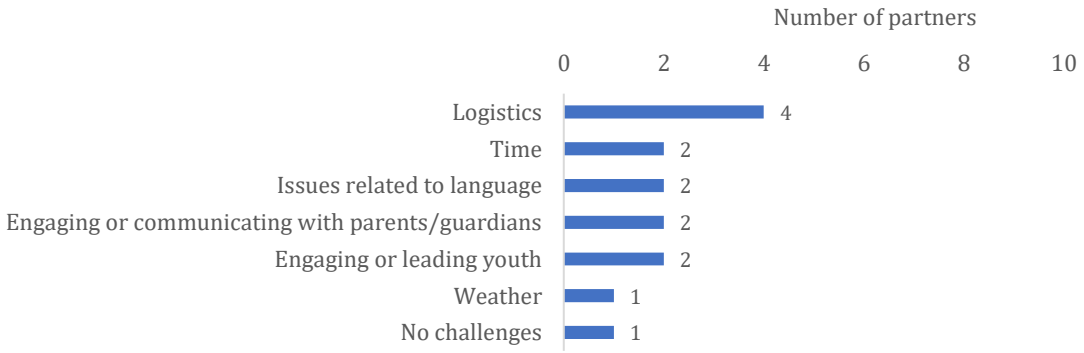


Table 7. Partners' highlights and challenges of implementing their programs (N=10)

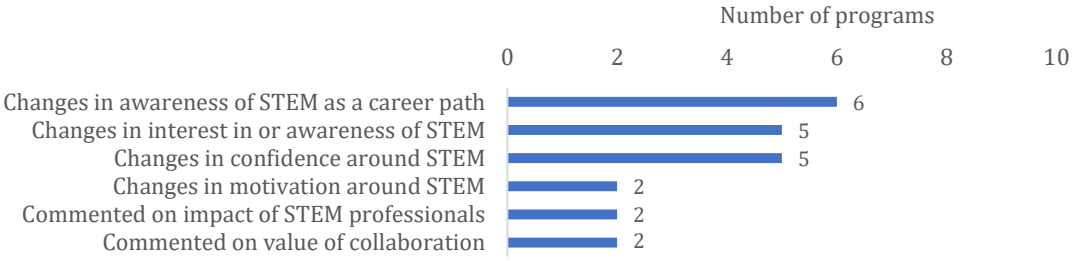
Highlights	Challenges
Impact on youth (8) • *The new friendships formed, new confidence gained as activities were completed, the ability to work through issues as collaborative teams, the fact that the kids wanted to come back to our science center the next day!! [And] seeing students who had cynically started the program fall in love with STEM exploration by the end, especially the middle school students.* • *A number of the girls … are ESL learners … and upon entering the room you get hit by a wave of excitement from the girls and a harmony of different languages being spoken. We have a group made up of four girls who work together on stem challenges, a total of three languages are spoken in the group … [This] communication happens almost instantly and one can see an exchange of ideas and advice fly among the girls as they work on a challenge.* • *The fact that the projects made such a splash at the school I feel empowered the girls.* • *Our field trip to [a university] helped the girls visualize themselves in college and taking courses that would lead them to STEM careers.* • *The girls' enthusiasm and interest.* ***Family Fiesta (3)*** • *Our Family Fiesta is always amazing because it helps bring the family into the educational aspect of our girls' lives and encourages their support.* • *The culminating Familia Fiesta was awesome as we had great engagement from all role models, parents and students…previous ones were great too, but this one just seemed to have a different energy for some reason* ***Other program events (3)*** • *Our field trip to [a local university] …* • *The STEM Career Day and SciGirls Day Camp … were the highlights of the program for me. It was fun to change things up and get out of the classroom for a bit to participate in hands-on activities.* ***Involving families (3)*** • *Our Family Fiesta is always amazing because it helps bring the family into the educational aspect of our girls' lives and encourages their support.* • *Great engagement from … parents* ***Involving STEM professionals (3)*** • *It was also great to get … professionals involved in our career day and fiesta.* • *The projects that the mentor brought, her presence …* ***Hands-on activities (3)*** • *The most fun activity was the box making* • *The projects that the mentor brought …* ***Videos (1)*** • *The most fun video was the robot/dance video.*	***Logistics (4)*** • *Sheer size and capacity with 43 kids! We had to do a lot quicker activities and rotate the kids through the activities.* • *It … took longer than expected to find STEM [professionals] to participate in our fiesta.* • *Running the program as the sole sponsor was hard since our second sponsor moved to another school.* • *We run an afterschool program that is pretty engaging so we sometimes compete with ourselves. This year I did a lot of lunch meetings because it hard for us to get then to give up their workshop time.* ***Time (2)*** • *Lack of time to go in depth on any one topic* • *Some challenges I faced were not having enough time to finish the lesson/activity in class. We would have to use a few days just to finish one activity which threw off my schedule. But we had fun anyway!* ***Issues related to language (2)*** • ***…** communicating with girls who did not speak Spanish and were just learning English. I am thankful other girls helped to translate during our afterschool program.* • *We had some challenges with our video viewing because all we have is an iPad and many of the girls didn't actually speak Spanish. They needed the subtitles, but couldn't all see them due to the size of our screen. We tried to come up with a better solution than an iPad, but at this point in time it was our only option.* ***Engaging or communicating with parents/guardians (2)*** • *The main challenge was engaging parents through the Family Fiesta* • *At first the parents would pick up early from the afterschool program. Even though parents were provided a schedule.* ***Engaging or leading youth (2)*** • *Getting students interested.* • *It is hard to go as in depth with such a large group of kids.* ***Weather (1)*** • *We ironed out a lot of our kinks during year one. The biggest challenge during year 2 was the weather :) We had several major snow storms on event days and it made transport tough!* ***No challenges (1)*** • *None.*

1.4c Partners' perceptions of their programs' impacts on youth and parents/guardians

Perceived impacts on youth

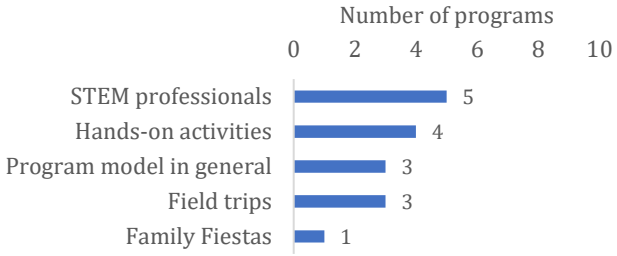
Figure 17 shows that half or more of the partners observed their programs change youths': awareness of STEM as a career path, interest in or awareness of STEM, and/or confidence around STEM. Smaller groups of a couple of partners each thought their programs changed youths' motivation around STEM, commented on the impact of their programs' STEM professionals, or commented on the value of collaboration. Examples of their responses are shared in Table 8 on the following page.

Figure 17. Perceived impact of the programs on participating youth (N=10)



Partners were also asked which aspects of their programs they thought had the greatest impact on youth. As shown in Figure 18, half thought the STEM professionals had the greatest impact, while a few partners pointed to the hands-on activities, the program model in general (i.e., regular meetings of a free and available STEM program for girls), and/or field trips. One pointed to the Family Fiesta.

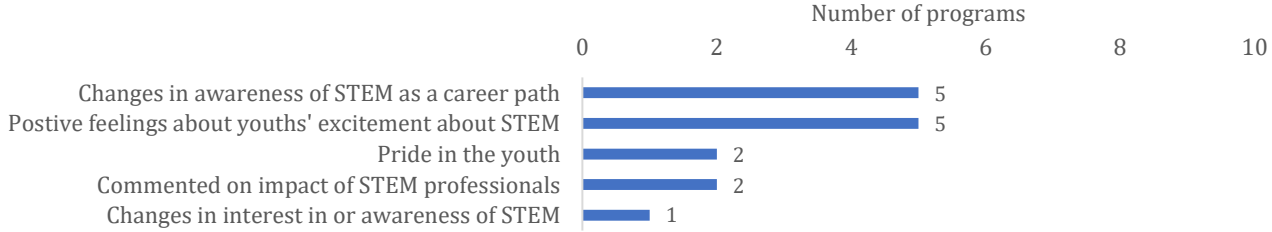
Figure 18. Aspects partners thought had greatest impact on youth (N=10)



Perceived impacts on parents/guardians

Figure 19 shows that half of the partners observed their programs change parent/guardian awareness of STEM as a possible career path for their daughters and/or observed them express positive feeling about youths' excitement about STEM. Smaller groups of a couple each mentioned parent/guardians' pride, commented on the impact of their programs' STEM professionals, or said it changed parent/guardians' interest in or awareness of STEM. Examples of their responses are in Table 8 on the following page.

Figure 19. Perceived impact of the programs on parents/guardians (N=10)



Partners were also asked which aspects of their programs they thought had the greatest impact on parents/guardians. As shown in Figure 20, just under half of the partners thought the Family Fiestas had the greatest impact, a couple pointed to seeing or learning about youths' potential and/or seeing youths' enthusiasm or excitement, and one each pointed to the field trips or hands-on activities.

Figure 20. Aspects partners thought had greatest impact on parents/guardians (N=10)

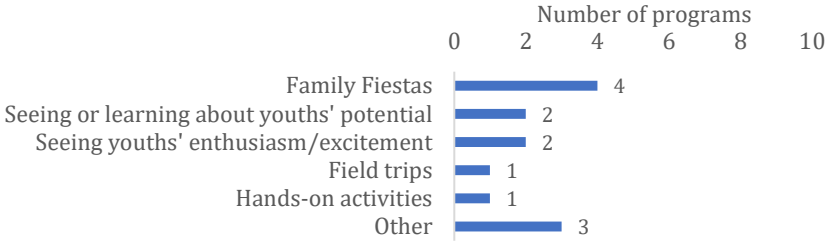


Table 8. Partners' perceptions of their programs' impacts on participants (N=10)

Impact on youth	Impact on parents/guardians
Changes in awareness of STEM as a career path (6) • *Reinforced the idea of following a STEM career* • *A big impact. Girls were interested in careers they had not been exposed to.* • *My girls are all 100% geared up to go be STEM professionals!* • *At the beginning of each session, we talked about career plans and several of the girls mentioned engineering and atmospheric sciences as options at the end!* • *… opened their eyes to different opportunities that they didn't think about before.* ***Changes in interest in or awareness of STEM (5)*** • *Greater appreciation for STEM … Spark in STEM interest …* • *Associating STEM as fun and important to the world.* • *Incredible impact. At the start I had to bribe the girls with food to attend the 1st meeting and even then it was uncertain at first but by the 3rd meeting we had girls asking to join.* • *… they are so incredibly excited about STEM* • *I think the girls who participated both years really got a lot of science exposure* ***Changes in confidence around STEM (5)*** • *Confidence in themselves and their STEM understanding.* • *They were able to build their confidence in areas they felt they were not interested in.* • *They valued themselves more …* ***Changes in motivation around STEM (2)*** • *Greater willingness to try new things …* • *Girls challenged themselves to try new things and pushed each other to reach their goals.* ***Comment on impact of STEM professionals (2)*** • *Exposure to Latina STEM professionals* • *In our perspective, having a Latina STEM mentor present and available to share her story truly during our Family Fiesta made a positive impression on all the girls in attendance. The girls were able to interact with her during the event when the youth and families were participating in the SciGirls activities.* ***Commented on value of collaboration (2)*** • *Greater willingness to … work through harder activities, new friends!* • *Girls practiced their team work skills and participated in multicultural groups.*	***Changes in awareness of STEM as a career path (5)*** • *Learned about STEM careers* • *They walked away with confidence that their child has the support they need to purse a STEM career and that their child CAN do it!* • *Encouraged parents to be supportive of their students' education and provided insight to what a STEM career would mean.* • *Parents also learned about school/major and job opportunities for their children …* ***Positive feelings about youths' excitement about STEM (5)*** • *Saw their daughters get excited about STEM and make connections to real world problems through their SciGirls participation.* • *We believe the parents/guardians were impressed and grateful with their daughters' experience during the program and Fiesta.* • *The fact that parents took time off of work when they live paycheck to paycheck speaks volumes about how they feel about their daughter involvement. I had a lot of parents tell me how excited their daughters were when they related what they did in the program.* • *The parents all told me that their girls came home every evening more and more excited about the material they were learning and it made the parents very excited, as well.* ***Pride in the youth (2)*** • *Immense pride in their children* • *At the Family Fiesta, we raved about the girls. I think it was impactful for the mothers to hear how amazing we think their daughters are.* ***Commented on impact of STEM professional (2)*** • *Met with women in STEM careers* • *They enjoyed … listening to our mentor's story.* ***Changes in interest in or awareness of STEM (1)*** • *Greater belief in the transformative power of STEM*

1.4d Partners' reflections on the impact of their programs on their knowledge of and/or skills about how to address barriers to STEM engagement

All of the partners thought their involvement in *Latina SciGirls* helped improve their knowledge of and/or skills about how to address barriers to STEM engagement that Hispanic girls may encounter. The partners were then asked to explain how the program had helped in this respect. Three described what they learned from STEM professional about barriers, as in, "*I learned a bit from the STEM role models about the issues they have faced in their careers*" and "*Being able to show mentor moment videos in class improved my own knowledge in ways to address any barriers to STEM engagement. The videos were proof to my students that they CAN find a career that they love in a STEM related field."* At the same time, one partner said she liked "*to provide resources and opportunities for our Hispanic girls to overcome barriers*," and five commented on what they learned about specific barriers faced by Hispanic girls, including fear, trust, access, and family support, as in:

- *The biggest barrier is fear. We were able to help the girls try and figure out possible solutions and if it doesn't work try again.*
- *Some of the barriers to access I had never even considered. I've worked a lot with girls in STEM, but never focused specifically on Hispanic girls. We dealt with a lot of trust issues, particularly with our current political regime. Also, I think I expected too much from the parents the first year. We made parent involvement much easier and less time consuming the second year. Finally, having role models that are Hispanic is *so* important.*
- *Saw how important ACCESS (cost, transportation, timing, real-world fears) is to STEM development. We lost a few participants to their fear of ICE exposure, which is a sad thing.*
- *I learned that more often than not it's not families that serve as barriers to STEM it's usually finances, transportation, and time that will be barriers to girls access to STEM. Once you meet girls where they are they are ready and curious to learn about STEM. Girls love STEM!*
- *Ensuring parents understand and are supportive*

Part 2: Family and STEM professional involvement within the partner Family Fiestas

2.1 Overview of the Family Fiestas

2.1a Family Fiesta structure

As shown in Image 2, the 10 Family Fiestas took place in seven states around the United States, with one state (Texas) being the site of four Family Fiestas.

Image 2. Family Fiesta locations

Length
As shown in Table 9, all but one of the Family Fiestas were between one and two hours long, while the remaining Fiesta was a three-hour event.

Participants
As shown in Table 9, all of the Family Fiestas included youth and parents/guardians, while all but one included siblings, four included grandparents, and three included cousins.

Nearly all of the youth who participated in the 10 *Latina SciGirls* programs attended a Family Fiesta (194 of 196). In total, 177 parents/guardians attended Family Fiestas, as well as 116 other family members, though the breakdown by type of other family member (sibling, cousin, etc.) is not known.

Use of Spanish
As shown in Table 9, most of the partners conducted *some* of their youth Fiesta programming in Spanish. Most also conducted *some* or *most* of their Fiesta parent/guardian programming in Spanish. Only one partner conducted an entire Fiesta in English, saying that this was because "*everyone in attendance spoke English and many did not speak Spanish.*"

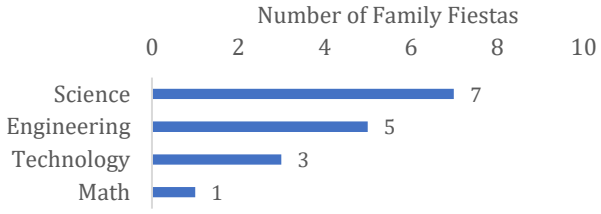
Table 9. Family Fiesta structure (N=10)

Length	
Length	1-2 hours: 9 3 hours: 1
Participants	
Family Fiestas that included youth and family members	Youth: 10 Parents/guardians: 10 Siblings: 9 Grandparents: 4 Cousins: 3
Youth attendance	194 (of the 196 youth who participated in *Latina SciGirls*)
Family member attendance	Parents/guardians: 177 Other family members: 116
Use of Spanish	
Youth programming in Spanish	None: 1 Some: 8 Most: 0 All: 1
Parent/guardian programming in Spanish	None: 1 Some: 4 Most: 4 All: 1

STEM subjects and careers featured

As shown in Figure 21, half or more of the Family Fiestas focused on science and/or engineering subjects. A few focused on technology and one on math.

Figure 21. STEM subjects focused on at Family Fiestas (N=10)



Almost all (8) of the Family Fiestas also focused on specific STEM careers, as detailed in the examples below:

- *Mechanical, Industrial, & Biomedical Engineering, Biology, Archeology, Data Analyst, Educationalist.*
- *Careers in biology, specifically zookeeping and water quality/wetlands management.*
- *Geology, science education and outreach, atmospheric sciences*
- *Teachers*
- *Research at the University level*
- *Careers in tech, finance, education….we kept it broad in our conversations about what you can do with a STEM degree.*

2.1b Inclusion of Family Fiesta elements

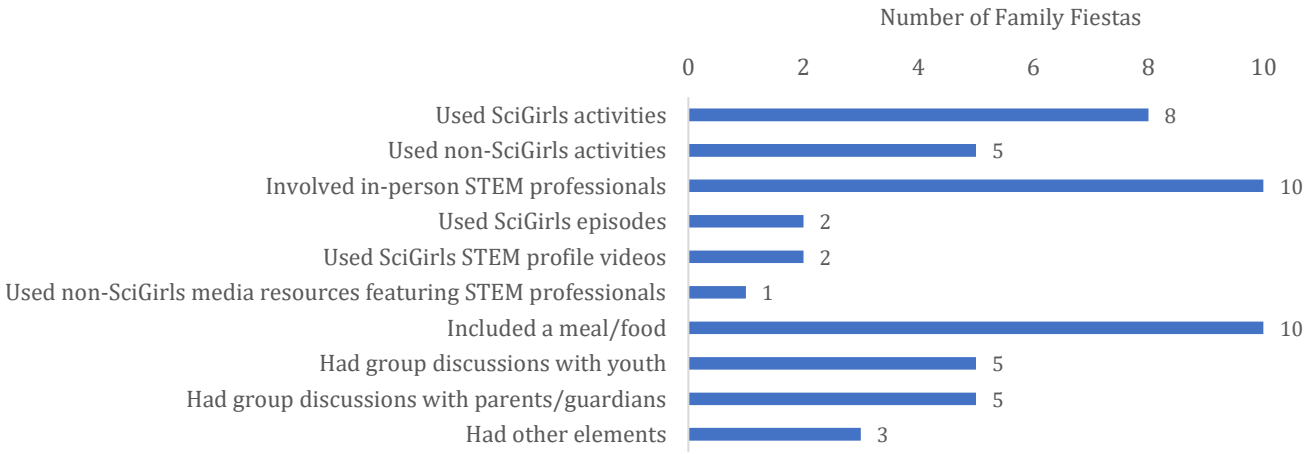
Table 10 looks at each Family Fiestas and presents the total numbers of youth and family participants in attendance. It also summarizes the extent to which each Family Fiesta incorporated in-person STEM professionals, *SciGirls* episodes, *SciGirls* profile videos, *SciGirls* activities, and meals. Overall, there did not appear to be a predominant model for partners' *Latina SciGirls* Family Fiestas, beyond that each event featured at least one STEM professional, each included a meal, and most used at least one *SciGirls* activity.

Table 10. Overview of *Latina SciGirls* Family Fiestas (N=10)

	Number of youth	Number of parents/ guardians	Number of other family members	Used in-person STEM professionals	Used *SciGirls* episodes	Used *SciGirls* profile videos	Used *SciGirls* activities	Included a meal
Partner 1	15	15	(no response)	Yes (4)	No	Yes (2)	Yes (1)	Yes
Partner 2	30	30	20	Yes (3)	Yes (details unknown)	No	Yes (1)	Yes
Partner 3	18	20	6	Yes (2)	No	No	Yes (1)	Yes
Partner 4	17	12	4	Yes (1)	No	No	No	Yes
Partner 5	11	17	12	Yes (1)	No	No	Yes (2)	Yes
Partner 6	12	3	1	Yes (2)	Yes (clips from 2 episodes)	No	Yes (3)	Yes
Partner 7	42	50	35	Yes (1)	No	No	No	Yes
Partner 8	19	18	26	Yes (2)	No	Yes (3)	Yes (4)	Yes
Partner 9	15	7	3	Yes (1)	No	No	Yes (1)	Yes
Partner 10	15	5	9	Yes (1)	No	No	Yes (1)	Yes

Figure 22 shows the number of Fiesta events that incorporated the Family Fiesta elements prioritized by TPT. The two elements that were common to all 10 events were a meal/ food and incorporating in-person STEM professionals. All but two events also incorporated *SciGirls* hands-on activities, while half included non-*SciGirls* activities.

Figure 22. Inclusion of Family Fiesta elements (N=10)



In terms of STEM professional involvement, although all of the Fiestas involved in-person STEM professionals, only a couple included *SciGirls* episodes featuring STEM professionals, while another two included *SciGirls* STEM profile videos, and one included a non-*SciGirls* media resource featuring a STEM professional, specifically, *"One of our mentors … could not attend, so she sent a really nice message of congratulations and thanks to participants. The kids and parents loved it!"* Finally, half of the events each incorporated group discussions with youth and/or group discussions with parents/guardians, and three included other elements, specifically "*free play*" in the partner's exhibit space, a Slip'N Slide, and "*[informal] talks about next year and about attitudes as they did the activities*."

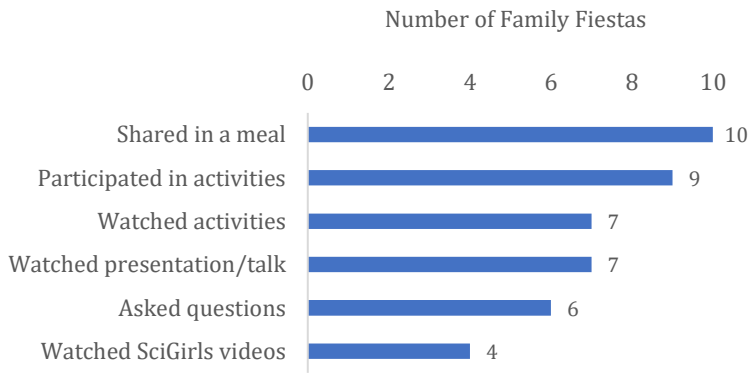
2.2 Partners' reporting and reflections relating to their focus on family involvement

2.2a Family participation in the Family Fiestas

How partners involved parents/guardians in planning their Family Fiestas
Of the 10 partners, only one indicated that a parent/guardian had assisted with Family Fiesta planning, saying this person had "*helped … decide where to get an authentic meal from*."

How partners involved parents/guardians during their Family Fiestas and whether they felt parents/guardians were as actively involved as envisioned
Figure 23 shows how parents/ guardians were involved in the Family Fiestas. At each of the 10 Fiestas, they shared in a meal, and at all but one they participated in activities. At several of the events they also watched the activities, watched a STEM professional's presentation/talk, asked questions of the STEM professionals, and/or watched *SciGirls* videos.

Figure 23. How parents/guardians were involved in the Family Fiestas (N=10)

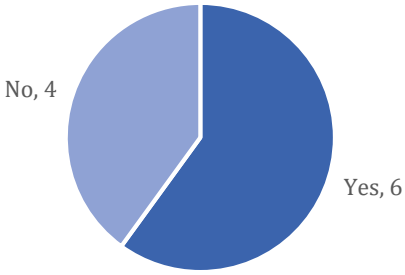


When asked if parents/guardians had been as actively involved in the Fiestas as they had envisioned, eight of the partners said *yes* (for example, "*They were completely integrated and involved in the whole event with their daughters … it was what I'd envisioned…and then some!*" and "*Yes, they were happy and appreciative and engaged with their children's free play*"). One said *no*, the parents/guardians weren't as involved as they had envisioned ("*I was expecting more parents to come to the event*"), and one said *yes and no* ("*They participated in the activities, but weren't as engaged as I would've liked. I believe this was due to the heat*").

2.2b Partners' assessment of the usefulness of the *Family Fiesta Guide*

Figure 24 shows that just over half of the partners used the *Family Fiesta Guide* as a planning resource.

Figure 24. Whether partners used the *Family Fiesta Guide* (N=10)



When asked how useful they found the guide on a scale from 1.0 (*not at all useful*) to 5.0 (*extremely useful*), these six partners generally indicated that the guide had been *very useful* (median 4.0) to their planning.[23] A few elaborated to describe how useful they found the guide, as in:

- *It was very helpful because it had a checklist, activity ideas, and everything that was needed for the event right there on one form.*
- *The Family Guide was helpful in organizing the event.*
- *It was good to see what … components would help the Family Fiesta [be] a success.*
- *It helped more last year, but it was a good resource for planning the Family Fiesta.*
- *We plan events all the time so it's part of our DNA. It was a good checklist, but did not really include anything new for us given our constant event planning and logistics efforts.*

Of the four remaining partners who hadn't used the guide. two cited the issue of time, two said they weren't aware of the resource, and one added that their organization "*didn't need it*."

[23] The six partners who used the *Family Fiesta Guide* were also asked if there was anything missing that they wished it had covered, that would have helped them better prepare for their event. In response, none of the partners shared suggestions for the *Family Fiesta Guide*.

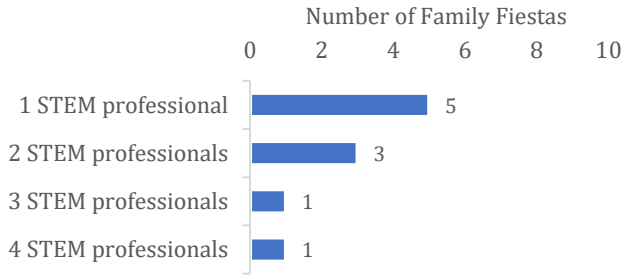
2.3 Partners' reporting and reflections relating to their focus on STEM professional involvement

2.3a STEM professional involvement through in-person visits

Number of STEM professionals involved

The number of STEM professionals at each Family Fiesta ranged from one to four and averaged two per site. As shown in Figure 25, half of the Fiestas were attended by one STEM professional, a few Fiestas featured two, and one each hosted three or four STEM professionals.

Figure 25. Number of STEM professionals at the Family Fiestas (N=10)



How partners located and chose STEM professionals

Figure 26 shows how partners located STEM professionals for their Family Fiestas. No one method was used by the majority of partners. In each case, fewer than half described looking within their own organizations, connecting with someone from a local university or college, using the FabFems database, working with youths' family members, or other methods, such as reaching out through "*our volunteer network*" or asking "*many people*" for assistance in this effort.

Figure 26. How partners located STEM professionals for their Family Fiestas (N=10)

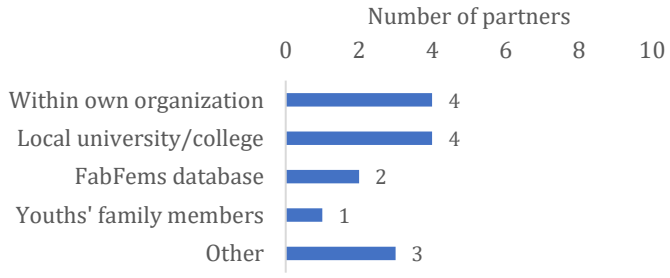
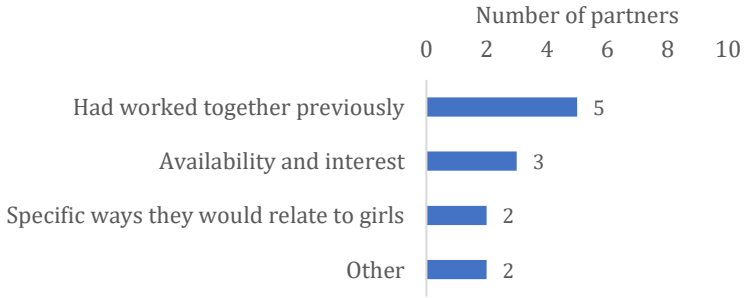


Figure 27 shows how partners chose STEM professionals for their Family Fiestas. Half explained that their decision was influenced by having worked together before, including (in some cases) other parts of their *Latina SciGirls* programs. Smaller groups pointed to the availability and interest of the STEM professionals, specific ways they thought they would relate to their girls, and other considerations. Their comments in each case are shared below.

Figure 27. How partners chose STEM professionals for their Family Fiestas (N=10)



Had worked together previously (5)

- *[She] was a mentor for us throughout our Fall 2017 session, so it made perfect sense to have her there …*
- *They had all participated as role models in other programming we have led. They volunteered for this one.*
- *[She] attended last year and is the closest to my area. The girls requested her to come again. I wanted to try and Skype another role model in but had difficulty locating one.*

- *We chose these particular STEM professionals because they are heavily involved in volunteerism with our organization. They … come out to select STEM related events our organization hosts throughout the year.*

Availability and interest (3)
- *They were local and willing to speak.*
- *She is super excited about working with the Latina community.*

Specific ways they would relate to girls (2)
- *Two were college students and so they related well to the girls on following a STEM path. One was a professional engineer with a lot of experience.*
- *She is a Latina woman and has a PhD in geology. She also has a similar back story as many of the girls in our program (1st generation to grow up in the US). Even though we work together, she approached me at a conference in another location to see about getting involved (I had a Latina SciGirls poster.)*

Other (2)
- *… familiarity with the subject*
- *Of the three role models, two were supposed to come and one of those two got sick.*

Demographics and background of participating STEM professionals

Although demographic and background information wasn't gathered about all of the STEM professionals who attended a Family Fiesta, the 13 who completed the Family Fiesta evaluation survey were all women. Although the total number of Hispanic STEM professionals who attended a Family Fiesta is not known, eight of the 10 Family Fiestas were known to have included Hispanic STEM professionals.

In terms of their backgrounds, the 13 STEM professionals who completed the Family Fiesta evaluation survey held a range of positions, including: science advisor, research technician, biologist, animal care manager, biomedical engineer, and wetlands program coordinator.

How partners incorporated STEM professionals

As shown in Figure 28, most of the partners explained that the STEM professionals involved in their Family Fiestas presented information about their jobs or careers.[24] All of these STEM professionals presented in person, as opposed to via video chat or another mode of communication.

Figure 28. Whether STEM professionals presented on their jobs/careers at the Family Fiestas (N=10)

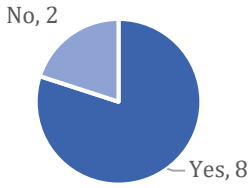
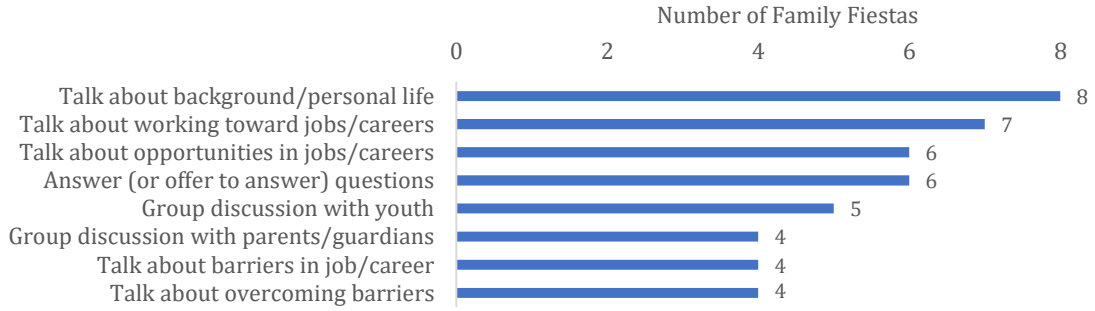


Figure 29 on the next page shows the various ways that STEM professionals presented information about their jobs/careers at the eight Family Fiestas where job/career information was presented. During all eight events, STEM professionals talked about their backgrounds/ personal lives. At the majority of these events they also talked about what is involved in working toward their jobs/careers, talked about opportunities in their jobs/careers, and answered (or offered to answer) questions. At about half or just under half of the events, they

[24] Those who answered *no* were asked why not. In response, one said, "*We decided to focus on the participants' achievements. [Our STEM professional] had already talked to the families about her career and opportunities in prior sessions*," while the other explained, "*Not formally, she talked to parents about her work when she did the DNA project with them. She is pre-med and so she is not currently working in the field. We got permission from [TPT] to use her as our mentor.*"

held a group discussion with youth, had STEM professionals conduct a group discussion with parents/guardians, talked about barriers they had faced in their jobs/careers, and/or talked about overcoming barriers.

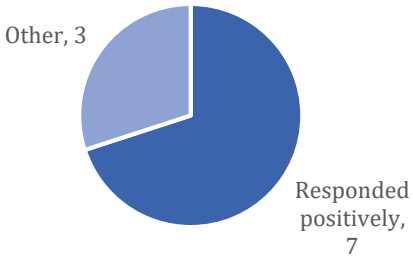
Figure 29. How STEM professionals who presented information about their jobs participated in the Family Fiestas (n=8)



Partners' observations of how youth responded to STEM professionals

Figure 30 shows that most of partners thought their youth responded positively to the Family Fiesta STEM professionals. They elaborated as follows:

Figure 30. How partners observed youth responding to Family Fiesta STEM professionals (N=10)



- *They loved it and were very engaged with her story. She was very easy to relate to.*
- *The girls really liked both women. They asked them questions. The first woman came a lot more often to the events, so they were more comfortable with her. This is the second year that we have had a mentor come multiple times and I think the girls really enjoyed that aspect.*
- *They loved her. What stood out in my mind was how comfortable they were with her and how eager they were to see her and to see what she would do next with them.*
- *The students and families were very engaged and open minded during our role model's speech. What stood out the most that she had talked about was how when she was a child and going to school she did not like math or imagined being an engineer. She told the girls that just because they did not think about it at a young age does not mean it is not a possible future for them. They just need to work hard and never give up. She was very inspiring.*
- *Yes they did. They girls and younger siblings were engaged. She also presented material in English and Spanish. She enjoyed herself and stayed to the very end of the event. It was noticeable that she had a passion for her career and interest in exposing young girls to STEM and STEM careers.*

The few remaining partners shared other responses. One shared unrelated feedback, one commented on the response of parents/guardians (as in, "*The girls had already heard most of what the role model had to say, but the parents were very intrigued to learn about her career and how she got there"*) and one said she thought her youth had been more interested in the hands-on activities (as in, "*They listened respectfully but were not as interested in hearing about her studies as doing something hands on"*).

2.3b STEM professional involvement through *SciGirls* media portrayals

SciGirls episodes

Of the two partners that used *SciGirls* episodes in their Family Fiestas, one explained that they showed clips from Season 4 *Latina SciGirls* episodes that featured Hispanic STEM professional women who spoke to youth in Spanish, one of whom worked in sports medicine and another who was an industrial engineer *(SciGirls Serve* and *Awesome Athletes*). The other partner said they showed "*mini clips on the website over different activities*," without elaborating on which episode clips were shown.

Among those who did not incorporate episodes, one partner pointed to technological barriers and another said that they had instead shown parents how to access the *SciGirls* website. Additionally, six partners said they had used their Family Fiestas for other activities, examples of which are shared below:

- *We did not have enough time to show a full episode so instead we decided to play a slideshow of pictures from our SciGirls class sessions and added clips of mentor videos.*
- *There is no way that they would have come to watch videos. Parents are like kids, they don't want a lot of talk or video, they want hands on. They really like doing the projects. They enjoyed themselves and are more likely to come back because of that, whereas, if we made them watch videos and listen to talk we might not see them back.*
- *The videos were the girls' least favorite part of the camp days.*
- *In 2 hours, we didn't have time to show a full episode and didn't feel that was the best use of the short time.*

SciGirls STEM professional profile videos

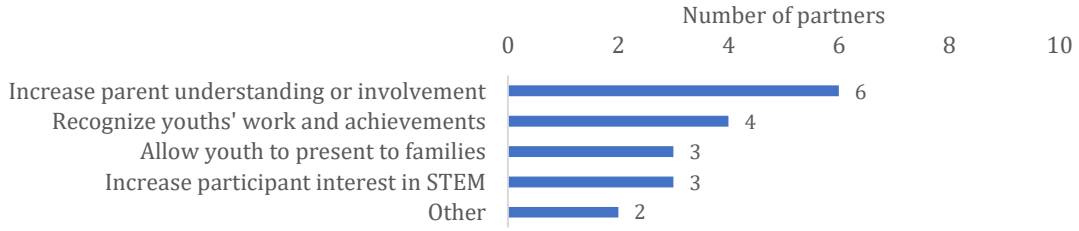
Of the two partners who used *SciGirls* STEM profile videos in their Family Fiestas, neither of whom also used episodes, one showed two profile videos (featuring STEM professionals Natalia Rodriguez and Amelia Merced), and the other showed three videos (featuring STEM professionals Amelia Merced, Orietta Verdugo, and Violeta Garcia). All of these videos were from Season 4 (*Latina SciGirls*) and were in Spanish. All four spotlighted STEM professional women who were Hispanic and spoke in Spanish. They worked in a range of STEM fields, including engineering, biology, and ecology.

2.4 Partners' reporting and reflections on their Family Fiesta impacts

2.4a Partners' Family Fiesta goals and whether they felt they were realized

Figure 31 shows the goals partners had for their Family Fiestas. Just over half the partners shared a goal of increasing parent/guardian understanding of or involvement in *Latina SciGirls*, while a few commented on recognizing youths' work and achievements, allowing youth to present to their family members, and/or increasing participant interest in STEM. Examples in each case are presented below the chart.

Figure 31. Partners' goals for their Family Fiestas (N=10)



Increase parent understanding or involvement (6)

- *To connect with parents and get them excited about the after school program their girls attend and have them participate in a SciGirls Challenge.*
- *The goals for the Family Fiesta was to provide the parents with a glimpse of what the girls have been learning.*
- *That the parents would learn and understand what type of science activities the youth do at the after school club. That the parents would participate with their children in the family fiesta activities.*

Recognize youths' work and achievements (4)

- *To bring together family members, mentors, interns, volunteers, and staff to celebrate the hard work and achievements of our Latina SciGirls participants.*
- *… showcase all the work the SciGirls participants have done during the program for their families.*

Allow youth to present to families (3)

- *For the girls to be able to show their parents what they learned throughout the week …*
- *I wanted the girls to teach what they had learned to their parents. When you teach, you have to learn first and I wanted them to feel empowered.*

Increase participant interest in STEM (3)

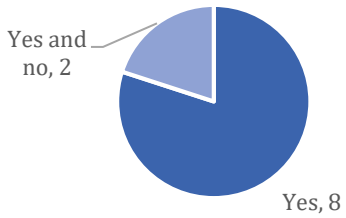
- *Additionally, to spark some interest with families about STEM and STEM Careers.*
- *Excite both girls and moms about STEM*

Other (2)

- *Successfully facilitate the program in both Spanish and English. Provide an opportunity for volunteers (role models) to share their stories and interact with each other and the participants. Foster the partnership with … the organization hosting the event. Complete the final event of the Latina SciGirls program.*

As shown in Figure 32, when asked if their goals had been realized, most of the partners said *yes*, although a couple of partners responded *yes and no*. Examples of their responses in each case are below.

Figure 32. Whether partners' Family Fiesta goals were met (N=10)



Yes (8)

- *Yes, it was an eye opener for some parents. The parents explained that we didn't realize how much their students were learning and participating in.*
- *Yes, we had a great turn out and parents were willing to participate …The girls and parents were very happy when they left. I feel like the longer the girls are in the program, the more that the parents open up to the idea of their daughters following the different STEM careers.*
- *Yes, the girls were great teachers, walking parents through the experiments, making sure they enjoyed themselves and I saw a lot of pride shining through. Lots of smiles and a laid back atmosphere showed no one was nervous and that people liked the safe atmosphere. Also our parents work (many, more than one job) and it is very difficult to get them to come in. So when they show up and they stay past the hour commitment we asked of them it is really gratifying and speaks volumes about their comfort level and enjoyment of the activities.*

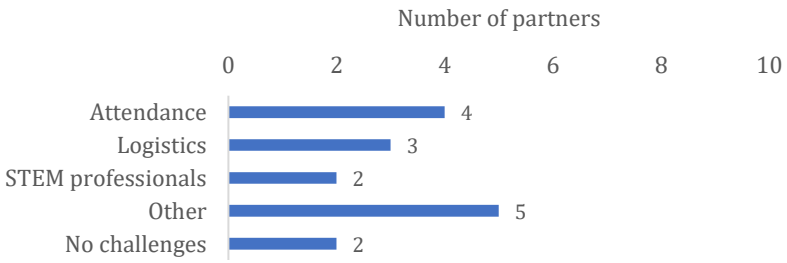
Yes and no (2)

- *Yes, although I do wish more family could have attended. I was happy to even get three moms there!*
- *Yes and no. Yes, they showed their parents the activities and had fun on the slip and slide, but it was also VERY hot, so I'm not sure how much the parents themselves enjoyed it.*

2.4b Challenges partners faced in implementing their Family Fiestas

Figure 33 shows the challenges partners faced in implementing their Family Fiestas. Although no one challenge stood out to the majority of partners, a few partners mentioned issues with attendance and/or logistics, and a couple described issues finding or confirming their STEM professionals. Half of the partners also shared other challenges, and a couple said they hadn't faced any challenges. Examples in each area are below.

Figure 33. Challenges partners faced in implementing their Family Fiestas (N=10)



Attendance (4)

- *It is always hard to get working parents to come in for events. I called each parent personally and polled them about when it would be the best time to make the event (before school, after school, weekend, during school). I talked to them when they picked up their kids after school and sent nice invites.*
- *Getting families to come! 9 of the girls didn't have a parent there and they were a little bummed. However, a lot of our families work on Saturdays.*
- *The recruitment process was difficult because of our unique situation with families. For some of our off-site programs, our facilitators are unable to meet parents face-to-face to sign up for events.*

Logistics (3)

- *Capacity in our [space] – we had to limit the number of family members who could attend. And, with nearly 150 people attending, it was pretty much impossible to lead specific hands-on activities.*

- *It is really not enough time to do all the things that SciGirls would like us to do during the event … We even had to limit how many projects the girls could do because if there was too many, the parents maybe would not go to all of them making the girls feel bad …*

STEM professionals (2)
- *Finding a Latina STEM role model took a long time to schedule than anticipated.*

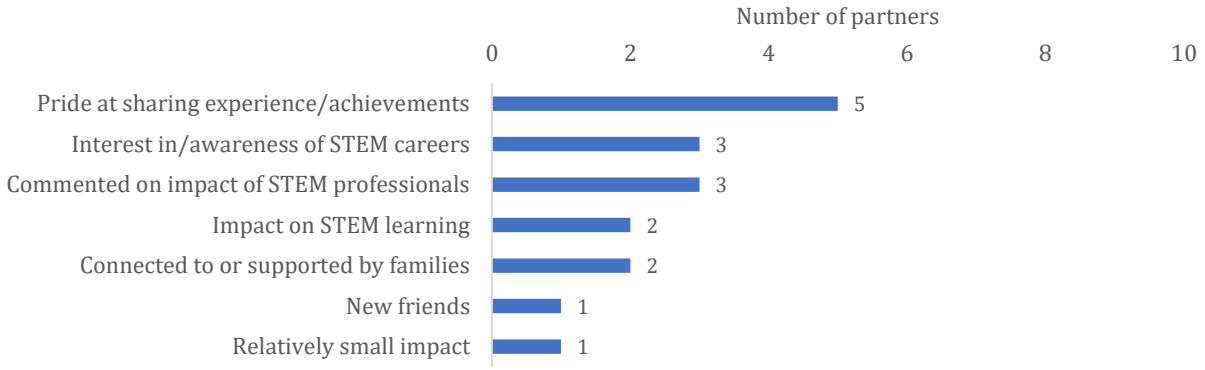
Other (5)
- *Also, transportation is sometimes an issue for families to attend events.*
- *It was hard to plan it with one sponsor. However, it was prepared and implemented well.*
- *It was extremely hot.*

2.4c Partners' perceptions of their Family Fiestas' impacts on participants

Perceived impacts on youth

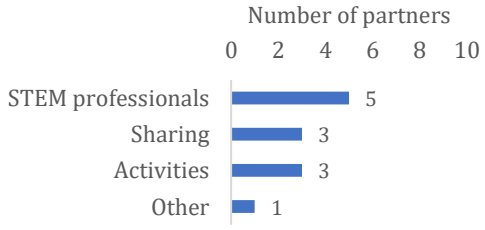
Figure 34 shows that the partners perceived that the Family Fiestas had different impacts on youth. The largest group, comprising half of the partners, felt the event impacted youths' pride in sharing their *Latina SciGirls* experience and achievements. Meanwhile, a few partners each thought the events changed youths' interest in or awareness of STEM careers or commented on the impact of having STEM professionals in attendance, while two each thought the event impacted youths' STEM learning or said their youth felt connected to or supported by their families. One partner said their youth connected with new friends, and another said the event had a relatively small impact. Examples of their responses are in Table 11 on page 41.

Figure 34. Perceived impact of Family Fiestas on youth (N=10)



Partners were also asked which aspects of their Family Fiestas they thought had the greatest impact on youth. As shown in Figure 35, half thought the STEM professionals had the greatest impact, while smaller groups pointed to the opportunity to share what they had learned, the activities, or other elements, specifically, "*Our surprise reveal that we would be providing them with free Family Memberships … It helped the celebration to feel more like a beginning than an end.*"

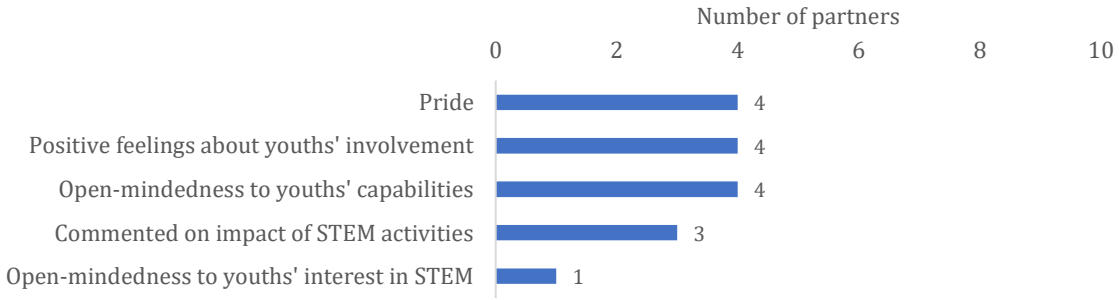
Figure 35. Aspects of Family Fiestas partners thought had greatest impact on youth (N=10)



Perceived impacts on parents/guardians

Figure 36 shows that the partners perceived that the Family Fiestas had different impacts on parents/guardians. In each case, just under half of the partners thought their Family Fiestas impacted parent/guardians' pride, encouraged positive feelings about youths' involvement in *Latina SciGirls*, and/or made them feel more openminded about youths' capabilities. A few partners commented on the impact of STEM activities at the Fiestas, and one observed open-mindedness about youths' interest in STEM. Examples are in Table 11 on the next page.

Figure 36. Perceived impact of Family Fiestas on parents/guardians (N=10)



Partners were also asked which aspects of their Family Fiestas they thought had the greatest impact on parents/guardians. As shown in Figure 37, most partners thought the activities had the greatest impact (as in, "*It showed them that science is fun and interesting*"). Smaller groups pointed to the STEM professionals, seeing youth share what they had learned, or other elements, specifically "*the membership reveal*" that the same partner thought had the greatest impact on youth.

Figure 37. Aspects of Family Fiestas partners thought had greatest impact on parents/guardians (N=10)

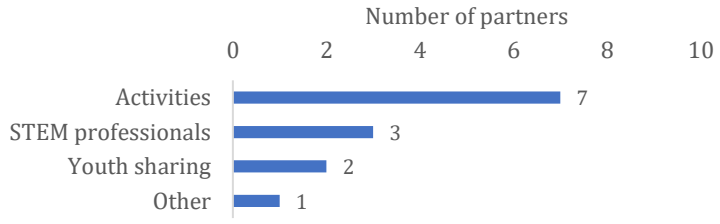


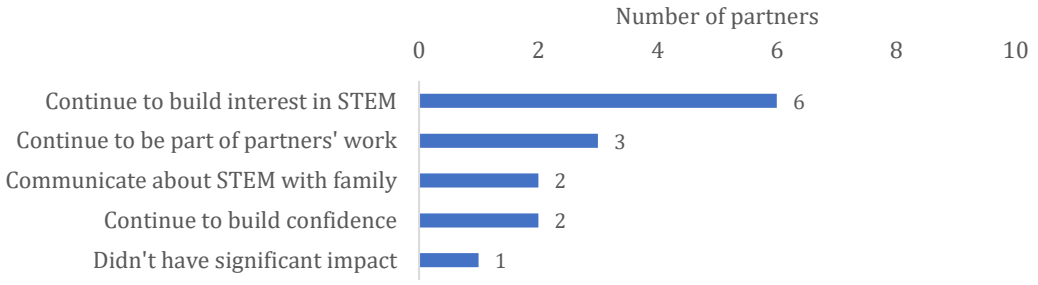
Table 11. Partners' perceptions of Family Fiestas' impacts on participants (N=10)	
Impact on youth	**Impact on parents/guardians**
Pride at sharing experiences/achievements (5) • *They were extremely proud to show off their achievements to their family.* • *The girls liked talking about everything they learned and showing demos to their parents and the other parents.* • *It gave the girls an opportunity to share their knowledge with parents and for some a new found interest in future careers.* • *I think that the biggest impact was the "recognition" of the value of the work. I have come to realize that these types of events and other events such as ribbon cuttings really create an end to a journey rather than it just meandering off. It seems more of an accomplishment to the kids, I feel, when the adults come and celebrate their work and there is the opportunity for them to realize what they have learned/accomplished. An opportunity for reflection.* ***Interest in/awareness of STEM careers (3)*** • *… important information to help them keep engineering careers in mind.* • *… for some a new found interest in future careers.* ***Commented on impact of STEM professionals (3)*** • *They heard from role models who shared stories and laughs and experiences with the students.* • *In our perspective, having a Latina STEM mentor present and available to share her story truly made a positive impression on all the girls in attendance …* ***Impact on STEM learning (2)*** • *Youth walked away having an understanding of the food web and impacts to the environment.* • *They realized success and experienced the engineering design process with the hands-on activity.* ***Connected to or supported by families (2)*** • *… the youth got to work as a team with their parents on an activity that they do not usually do at home.* • *They also felt supported by their families.* ***New friends (1)*** • *They also relished in the new friends they made …* ***Relatively small impact (1)*** • *I do not think that the Family Fiesta had a great impact on the girls or their families, to be honest.*	***Pride (4)*** • *Immense pride* • *The moms were super proud. It was really sweet to see!* ***Positive feelings about youths' involvement (4)*** • *… gratitude for their children's participation and exposure to STEM activities and professionals.* • *Parents walked away knowing that their daughters are having a fun time and learning important things at SciGirls.* • *We believe the parents/guardians were impressed and grateful with their experience during the fiesta* • *I also feel that most parents contact with a school like ours (97% free/reduced lunch) is negative most of the time or they have very little contact unless there is an issue. Events like this gives them the chance to have positive interaction and maybe encourage them to allow their daughters to be more involved in activities.* ***Open-mindedness to youths' capabilities (4)*** • *… they walked away with confidence that their child has the support they need to purse a STEM career and that their child CAN do it!* • *I think for the parents it shows, for some of them, a different view of their daughters, and what they are capable of doing.* • *They also saw this as a possibility for their daughters and possibly themselves.* ***Commented on impact of STEM activities (3)*** • *I think the parents had already heard about the activities, so seeing them in person was great, but not all that life changing for them.* • *Parents got to really take the time to do an activity with their child* • *They experienced success in hands-on project and participated in the engineering design process.* ***Open-mindedness to youths' interest in STEM (1)*** • *Open minded to colleges far away, and careers in the engineering field.*

2.4d Next steps partners hoped participants would take as a result of participating in the Family Fiesta

Next steps partners hoped youth would take

Figure 38 shows that more than half of the partners hoped the Family Fiesta would encourage youth to continue building an interest in STEM, while smaller groups said they hoped youth would continue to be a part of their work, that they would communicate with their family members about STEM, and that they would continue to build confidence. One partner thought their Family Fiesta didn't have a significant impact that could be separated from the rest of their program. Examples of their responses are in Table 12 on the next page.

Figure 38. Next steps partners hoped youth would take (N=10)



Next steps partners hoped parents/guardians would take

Figure 39 shows that more than half of the partners hoped the Family Fiesta would influence parents/guardians to encourage youths' interest in STEM, while smaller groups said they hoped parents/guardians would continue to be a part of their work, that they would communicate with youth about STEM, or shared another response. One partner thought the Family Fiesta didn't have a significant impact that could be separated from the rest of their program. Examples of their responses are shared in Table 12 on the following page.

Figure 39. Next steps partners hoped parents/guardians would take (N=10)

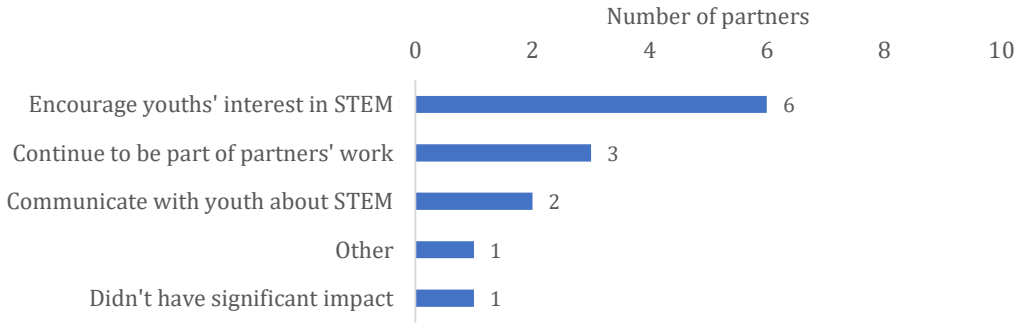


Table 12. Next steps partners hoped participants would take (N=10)	
Youth	**Parents/guardians**
Continue to build interest in STEM (6) • *We hope they … keep working on their STEM interests.* • *The girls are very interested in continuing learning about STEM during summer camp. They want to do more hands-on activities.* • *That they can take some of the Sci Girls activities home …* • *Our hope is that our youth continue participating in STEM related after school programs and continue to work towards their future goals.* • *To attend other STEM-focused events to continue their exploration.* ***Continue to be part of partners' work (3)*** • *We hope they come back to [our organization] as soon as possible …* • *Youth will participate in [another one of our activities].* • *The girls want to raise money to continue the club next year! We had a lot of girls come two years in a row and none of the girls (including the ones who only came one year) wanted it to end.* ***Communicate about STEM with family (2)*** • *Be more open to communicating about their career interest with their families.* • *That they can … continue to do these lessons with their parents.* ***Continue to build confidence (2)*** • *We hope they have more confidence in their abilities and that they can do what they set their mind to.* • *To be more confident in their problem solving abilities when they are in other situations.* ***Didn't have significant impact (1)*** • *I do not believe that the Family Fiesta is going to have a significant impact on the girls that the camp did not already cause.*	***Encourage youths' interest in STEM (6)*** • *Support their student in their goals and career interest.* • *We also gave them ideas on ways to keep the girls interested in science (like local museums, science centers) and were able to hand out coupons. So, hopefully the parents will be taking their children to science centers and museums soon!* • *Our hope is that parents/guardians continue to encourage their children to participate in STEM after school programs, support them in their future goals, and engage in family enrichment events with their children.* • *I hope the parents will support their child's interest and continue to expose them to STEM activities.* • *To encourage their daughters to keep exploring and to consider STEM careers. To support their daughters attending other STEM-focused events.* ***Continue to be part of partners' work (3)*** • *The parents were also interested in how to continue the club.* • *Parents will be more involved in the after school club and the Sci Girls activities.* ***Communicate with youth about STEM (2)*** • *Ask girls what they learn at SciGirls.* ***Other (1)*** • *I feel like we will have more support next year from the parents and will look for ways to include them when possible to build ownership.* ***Didn't have significant impact (1)*** • *I do not believe that the Family Fiesta is going to have a significant impact on the [parents] that the camp did not already cause.*

2.5 STEM professionals' Family Fiesta reporting and reflections

As noted earlier in this report, the partners were required to include at least one in-person STEM professional at their Family Fiesta. Following the event, they were also required to follow-up with the STEM professionals to invite them to complete an online survey about their experience on the independent evaluation team's website. The survey addressed their backgrounds, how they planned or prepared for the Fiestas, how they participated in the events, and the perceived impacts of their involvement. A total of 13 of the 18 STEM professionals who participated in the 10 Family Fiestas considered in the evaluation completed a survey, resulting in a response rate of 72%. This section presents findings from the 13 STEM professionals who completed the online survey.

2.5a STEM professionals' background

Gender and Hispanic/Latino origin

The 13 STEM professionals who completed the Family Fiesta evaluation survey were all women. Although these STEM professionals were not asked if they were of Hispanic origin, eight of the 10 Fiestas were known to have included Hispanic STEM professionals.

STEM fields represented

The 13 STEM professionals who completed the Family Fiesta evaluation survey held a range of positions, including: science advisor, outreach specialist, research technician, animal care manager, biomedical engineer, biologist, and wetlands program coordinator. Examples of how the STEM professionals described their job titles and positions are below:

- *Science Advisor & Latino Engagement Specialist. I help design and implement multi-platform science education programs to engage kids and their families in STEM*
- *Education & Outreach specialist. I work with [our organization] to find different ways of bringing … science to the community.*
- *K-12 STEM outreach coordinator*
- *Educational Designer at [the university]*
- *Candidate Sourcing Lead … procurement, sourcing and matching tech positions with Latinx candidates …*
- *Research technician, I carry out experiments and keep the lab organized and supplies*
- *Aquatics Animal Care Manager*
- *Graduate research fellow, currently a PhD candidate in Biomedical Engineering*
- *Program coordinator. I coordinate all activities at the … wetlands.*

Years working in STEM

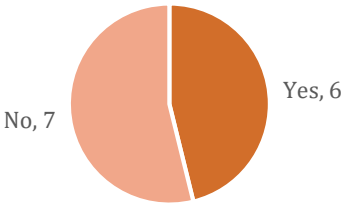
Figure 40 shows that the largest groups of STEM professionals were students or had eight or more years of experience working in STEM. A few had two to four years of experience, while one had a year or less and another had five to seven years of experience.

Figure 40. STEM professionals' years of experience in STEM (N=13)

Past role model work

Figure 41 shows that just under half of the STEM professionals indicated they had experience with other STEM programs for youth within the past three years. When asked how their prior experiences compared with *SciGirls*, a few of these STEM professionals shared a response. Three said *SciGirls* compared favorably, and one shared feedback about the impact of STEM professionals in general. Their responses included:

Figure 41. Whether STEM professionals had experience with other STEM programs for youth within past 3 years (N=13)



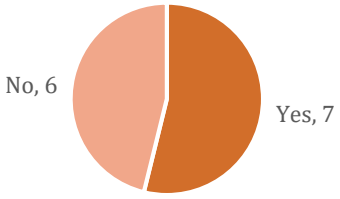
- *SciGirls is unique because it targets the Latino community, who doesn't typically see careers in the geosciences as options. It was great to share the opportunities in the field with the girls and their parents. This program is unique because there is that interaction with the parents – it's not just an afterschool program, but rather a family program.*
- *My experience with SciGirls was more intimate, interacting one on one with the families than my previous experiences.*
- *My experience compares fairly well with prior experiences as I am also a Flipgrid role model and have set a great example for participants of SciGirls. Definitely having fun with the program!*
- *I have been part of many clubs, such as SHPE, SWE, MAES and we go speak to schools about STEM careers and then we do workshops with them, such as spaghetti bridge competitions, creating vehicles from recycled objects, science experiments and much more. Our goal is to cultivate their desire towards STEM careers and to show them it's not boring and not just letters and numbers, there's more that meets the eye when it comes to STEM and can be related to everyday life.*

2.5b Planning/preparing for the Family Fiesta

Perceived usefulness of the Role Model Strategies Guide

As shown in Figure 42, just over half of the STEM professionals said they used TPT's *Role Model Strategies Guide* in preparing for their Family Fiestas.

Figure 42. Whether STEM professionals used the *Role Model Strategies Guide* (N=13)



As Figure 43 shows, when these seven STEM professionals were asked to rate the usefulness of the four parts of the guide on a scale from 1.0 (*not at all useful*) to 5.0 (*extremely useful*), they generally found each part *very useful* (median 4.0). Only one chose to elaborate on her ratings, writing, "*Although I have worked with students in the past, having resources and tips and tricks is always helpful, especially for events I haven't participated in in the past.*"

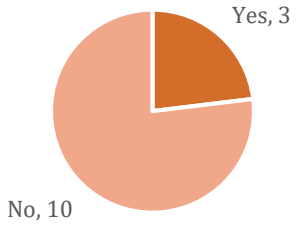
Figure 43. Median STEM professional ratings of the usefulness of parts of the *Role Model Strategies Guide* (n=7)

Among the STEM professionals who had not used the guide, a few said they were not aware of it. When asked if, in retrospect, they would have found this type of resource useful, a couple said yes ("*I would've felt more prepared as it would have served me as advice*" and "*Yes, the guide identifies a few key points to keep in mind when speaking with families*") and one said she wasn't sure, as she already felt able to relate to family members at the event.

Perceived usefulness of the preparatory webinar

Figure 44 shows that most of the STEM professionals did not use TPT's role model training webinar in preparing for their Family Fiestas. The few who did were asked to rate the usefulness of the webinar on a scale from 1.0 (*not at all useful*) to 5.0 *(extremely useful*). Two of these three rated its usefulness, with one rating it a 3.0 (*moderately useful*) and the other rating it a 4.0 (*very useful*) and adding, "*I think the webinar provided valuable information on how to engage kids and their families … [but] I think it would be a good idea to have more previous role models share their experiences.*"

Figure 44. Whether STEM professionals used the training webinar (N=13)

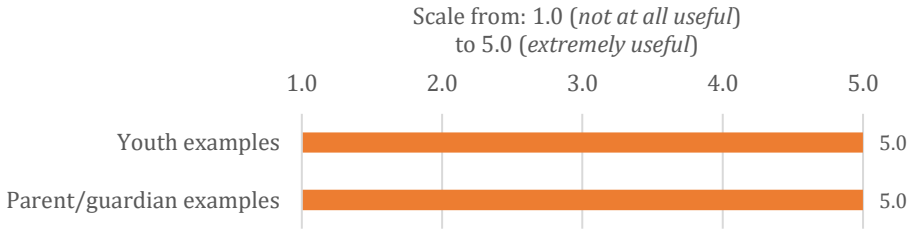


Those who had not used the training webinar were asked why not. Among the eight STEM professionals who shared a response, six said they didn't know about it, two pointed to time constraints, and one said they didn't need it (as in, "*Have already had and taught STEM role model best practices to others*"). They were also asked if, in retrospect, they would have found this type of training useful, to which six said yes (for example, "*Yes, I think it would have helped me connect with and engage the girls better*" and "*If I had received information about it, I would have deemed the training useful as, through this survey, I learned that introducing my personal journey in STEM through my background, barriers I've faced, etc. would have been … beneficial*") and one said she wasn't sure, as she already felt able to relate to family members at the event.

Perceived usefulness of seeing video examples as a preparatory resource

Figure 45 shows how useful the STEM professionals thought they would have found video examples of other STEM professionals interacting with youth and parents/guardians, prior to their participation in the Family Fiesta. Using a scale from 1.0 (*not at all useful*) to 5.0 *(extremely useful*), the 13 STEM professionals indicated they would have found both kinds of video examples *extremely useful* (median 5.0 in each case).

Figure 45. Median ratings of how useful STEM professionals thought they would have found video examples (N=13)



Two STEM professionals elaborated, with one reflecting that it would have helped with understanding expectations and what the event would entail, as in "*Maybe just knowing the expectations of the Family Fiesta before the event would have been helpful. I wasn't sure exactly what to do during the event or what it entailed*," where the other thought it would have been helpful to see examples of participant interactions, as in "*Examples of STEM professionals interacting with youth and parents is extremely useful as I am still learning better strategies for communication with leading programs in engineering.*"

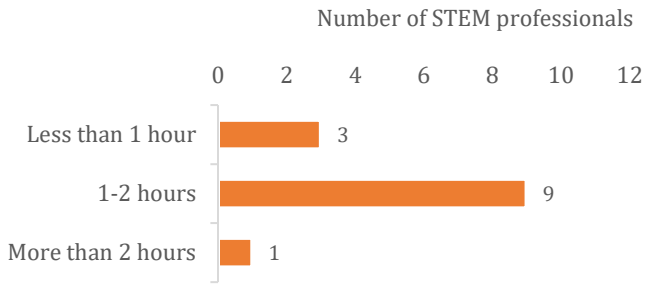
One STEM professional explained that it wasn't necessary in her case as she had extensive tutoring experience, as in "*I have worked as a tutor for many schools, ranging from elementary and all the way up to high school. I have been trained to work with parents and students by the school, the district, and tutoring agencies, I have experience due to my jobs, and that is why I don't think they would have been helpful.*"

2.5c Participating in the Family Fiesta

Time spent with youth at Family Fiestas

Figure 46 shows the amount of time the 13 STEM professionals said they spent with youth at the Family Fiestas, ranging from less than an hour to more than two hours. On average, the STEM professionals spent about an hour and a half with youth.

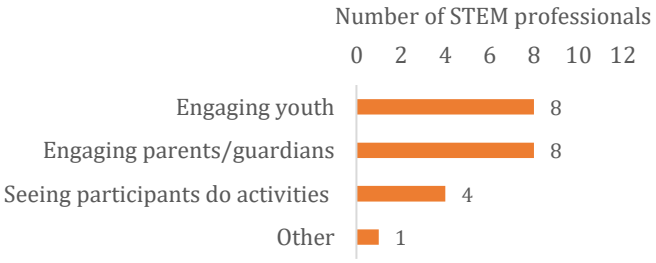
Figure 46. Time STEM professionals spent with youth at Family Fiestas (N=13)



Highlights of interacting with participants

Figure 47 shows what the STEM professionals described as the highlights of interacting with Family Fiesta participants. Among the 12 who shared a response, two-thirds each pointed to the highlights of engaging youth and/or engaging parents/ guardians, while one-third said they enjoyed seeing participants do the activities. Examples of their responses in each area are below.

Figure 47. STEM professionals' Family Fiesta highlights (n=12)



Engaging youth (8)

- *I loved hearing from the students about all of the activities they had done from January – March …*
- *I personally loved seeing light bulbs go off and the girls raising their hands to answer a question. It was so great to see most of them engaged in the science and enjoying it! Love seeing youth getting excited about science and the importance of it.*
- *The highlights … for me, personally, were the moments spent talking in English and Spanish with youth and parents/guardians who are helping promote STEM exposure through the SciGirls program.*
- *The attentiveness of the girls and their parents was amazing … [I saw the students'] eyes widen when I explained different things and they understood it. This propelled the girls to ask more questions (even those I have never thought of). I can see their want to learn when someone gives them chance.*

Engaging parents/guardians (8)

- *I also enjoy talking to parents. They are very appreciative of what the Science Center is doing and it is fabulous to see how interested they are in supporting their kids in STEM.*
- *I loved … seeing the expression of gratitude from the parents for having this opportunity available …*
- *Talking to the parents about how they can contribute to their children's education …*
- *The attentiveness of the girls and their parents was amazing. The parents were very interested in what the girls were learning and excited to see the girls excited.*
- *The families and participants were part of a community that I'm familiar with. It brought me great joy to serve as a role model for them who have similar upbringings as me.*
- *I got so much out of it, but most importantly was the interaction with a couple of parents that were interested in what I'm currently going thru with my son and his college career choices. I spoke about his first stint at attending a 4 year university and soon realizing after the 2nd. Year that it wasn't for him and now he's finishing up his Jr. College basics and going into another 4 yr. university. (Fingers crossed, he'll finish up in a year and half).*

Seeing participants do activities (4)

- *It is very exciting to see how kids get engaged with the activities.*
- *Seeing both parents and youth try out and share the results of their engineering activity. At first, they were reluctant to try it out, or failing. But then, they realized that engineering is an activity that is about persistence and that there is no right answer. That is a valuable lesson for both parents and youth to learn as they explore STEM career options.*
- *… seeing [moms and daughters] work together and interacting with one another, observing how they go about problem solving and answering specific STEM related questions.*

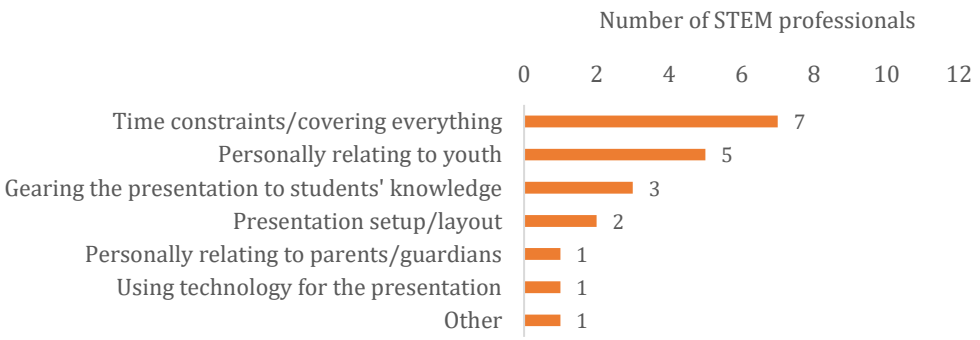
Other (1)

- *That I could share my background, what I am studying and working towards.*

Challenges encountered while participating

Figure 48 shows the challenges the STEM professionals said they faced during their Family Fiestas. Among the 12 who shared a response, more than half pointed to the challenges of time constraints and covering everything, while smaller groups said they had difficulty personally relating to youth, gearing the presentation to students' knowledge, the presentation setup/layout, personally relating to parents/guardians, using technology for the presentation, or cited another challenge, specifically, "*language*."

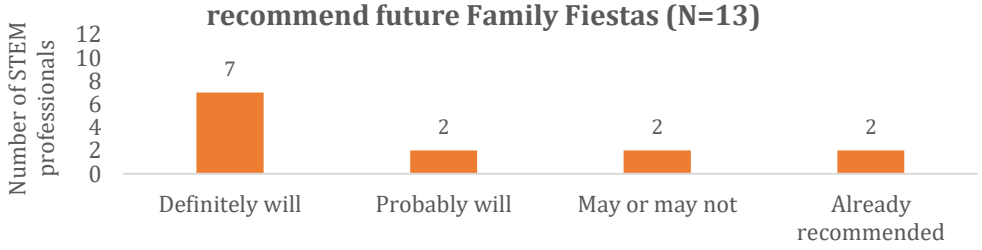
Figure 48. Challenges STEM professionals faced during the Family Fiestas (n=12)



Likelihood of recommending participation to other STEM professionals

Figure 49 shows that more than two-thirds of the STEM professionals thought they would *definitely* or *probably* recommend that other STEM professionals participate in future Family Fiestas. The remaining STEM professionals said they *may or may not* or indicated that they had already recommended the experience.

Figure 49. Likelihood that STEM professionals would recommend future Family Fiestas (N=13)



Advice to future STEM professionals participating in a Family Fiesta

Six of the 13 STEM professionals shared advice they would give to future Family Fiesta STEM professionals, commenting on how to interact with or relate to participants and/or the benefits of being a STEM role model, as in:

- *Have fun and be excited for your work. The girls pick up on it!*
- *Don't hesitate to ask youth and parents questions. This can help foster future discussions.*
- *To know who they are speaking to, who is the targeted audience. I did the presentation because I knew who my audience was and I knew I had a lot to relate with them.*
- *The advice I would give is that being bilingual or trilingual is very helpful in that you relate most with the community you may be serving.*
- *The Family Fiesta give STEM professionals a great opportunity to interact with parents/guardians. I think this is the perfect place to talk to parents face to face and share your own career experiences and get parents excited about STEM so they continue to support their kids.*
- *I would encourage other STEM professionals to participate because it is so important for the girls to see other women in their career fields actually doing the job that they may want to do someday. It not only benefits the girls, but the mentor as well, it reminds us to help and encourage each other to achieve our goals.*

Suggestions for improving events for future Family Fiesta STEM professionals

Five of the 13 STEM professionals shared suggestions for improving Family Fiestas for future STEM professionals, commenting on preparatory information that might be provided, the timing and structure of STEM professionals' participation during the event, and/or ways to involve others in the community, as in:

- *Compared to the Family Fiesta last year, the Family Fiesta organized this year was set up for more people, better management and greater youth participation. I would say that more information prior to the event about role model participation is highly encouraged.*
- *I think it is important that SciGirls partners understand the importance of setting some time aside to give role models an opportunity to give a short talk to kids and parents about their career path. This could be done at the beginning of the program (during a welcome event) or at the Family Fiesta. I think parents know that STEM is important but they do not know much about specific STEM careers. Learning more about STEM careers would be very useful for both, kids and parents.*

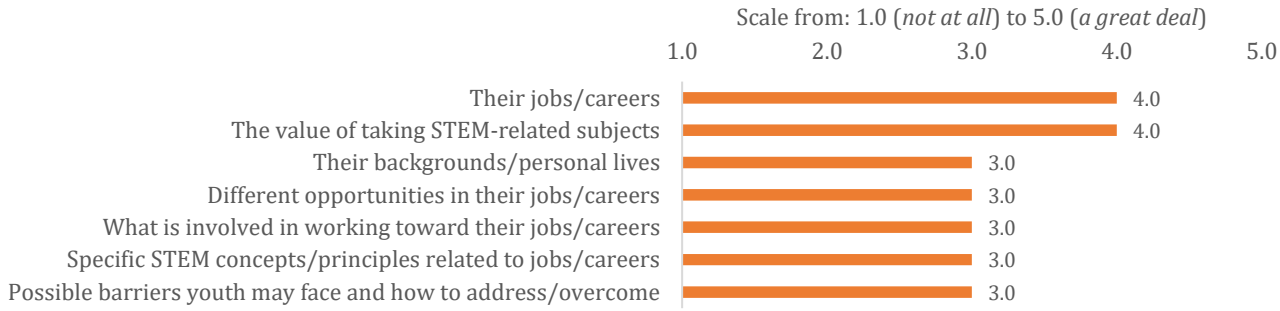
- *Having visitors come a few weeks after the program is established is great. By then, the girls have done many science projects and have more to discuss with the visiting scientists. Sharing what topics have been covered might be helpful for role models to have conversation starters.*
- *I would invite others in the community that haven't participated in the program yet and see what an impact just visiting with the girls and their parents can be to them and to us!*
- *Talking to school Clubs within universities and reaching out to national STEM Chapters, such as Society of Hispanic Engineers (SHPE), Society of Women Engineers (SWE) and many more.*

2.5d Perceived impacts of the Family Fiestas

Extent to which they addressed the project's themes and topics at the Family Fiestas

Figure 50 shows the extent to which the STEM professionals thought they addressed seven different aspects of their STEM jobs/careers during the Family Fiesta. Using a scale from 1.0 (*not at all*) to 5.0 (*a great deal*), the group generally thought they addressed two aspects *quite a bit* (median 4.0 each): their jobs/careers and the value of taking STEM-related subjects. They generally thought they *somewhat* addressed five additional aspects (median 3.0 each): their backgrounds/personal lives, different opportunities in their jobs/careers, what is involved in working toward their jobs/careers, specific STEM concepts or principles related to their jobs/careers, and possible barriers youth may face in pursuing STEM courses or jobs/careers and how to address/overcome them.

Figure 50. Median ratings of the extent to which STEM professionals thought they addressed the projects' themes and topics at the Family Fiestas (N=13)



As illustrated below, five STEM professionals commented on their ratings:

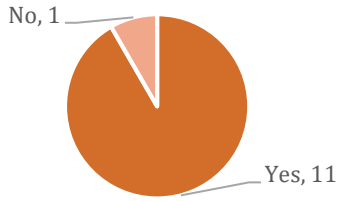
- *During my first meeting with the girls, I explained that I was a college student working towards my Bachelor's degree in Biology specializing in Pre-health and Physiology … I told them I am a mother of two girls, how and why I fell in love with science … [after a field trip], I told the girls how long it has taken me to achieve this dream of being a college graduate. I went on to express to the girls that every dream is attainable no matter how big or daunting it may seem. All you need is the want and tenacity to go for it. I gave them a piece of advice one of my professor gave me "Never say I can't, that is the worst thing to ever say to yourself. You can accomplish anything and everything as long as you put your mind to it."*
- *I had a chance to talk to some parents about the importance of pursuing STEM careers. Many parents were interested in resources that would help them support their children in STEM. We talked about that too and the topic was also discussed at the end of the Family Fiesta event.*
- *Most of what I focused on was the activity that I brought to their attention with regards to engineering concepts. I spent 15 minutes at the beginning talking about who I am, my STEM journey, and the general field of engineering in technical and non-technical roles.*
- *It was a small group and there were four STEM role models. While we were able to provide a general overview and share some advice it wasn't too long a time to really have a long conversation with someone. So we were able to share information but more generalized.*

- *I had attended about 3-4 Saturdays and discussed most of these topics with participants during the 11am – 2pm time frame on those Saturdays. By the time the Fiesta occurred, I had already talked with the girls about all of the themes and topics.*

Whether their own goals for the Family Fiestas were realized

Figure 51 shows that all but one of the 12 STEM professionals who shared a response felt their Family Fiesta goals were realized. As the examples below indicate, their goals tended to involve talking with participants/answering their questions, engaging participants in STEM learning, and/or teaching them about STEM careers.

Figure 51. Whether STEM professionals' Family Fiesta goals were met (n=12)



Yes, goals were met (11)

- *I felt my goals were met because I had parents asking me questions and thanking me regarding my presentation and the topics I covered. For Hispanic parents, college is a tough subject and goal to be met, reason being is because many parents never attended school or never finished high school. That is why I told them in my speech to be supportive in any way possible and after my presentation I had parents asking how else or what more can they do help their children since some of them can't help in their children's homework.*
- *Yes, there was interaction and questions asked throughout the talk.*
- *Yes, I communicated … some of the challenges I have faced in the STEM fields … to a few families …*
- *Yes, I believe that my goals were met. The main goal was to show these girls that they could do a career like me in STEM and to help them learn more about a science topic through a demonstration. They seemed to understand the main idea of the game and beyond.*
- *Beyond my expectations. The girls were very receptive to my ideas and willing to learn new and exciting techniques in biology, physics, and chemistry. I wanted to enlighten the girls that science is not just reading from a textbook or filling out teacher packets handouts. They saw this through learning how to pour TSA plates, collecting of bacteria samples around the school and streak plates with the samples, and being able to extract DNA from their cheek cells. They had hands on understanding of how bacteria and viruses are easily spread …*

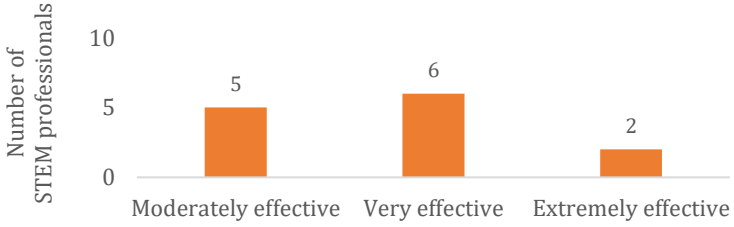
No, goals were not met (1)

- *I helped facilitate one session and also attended the Family Fiesta. I would like to have more time to talk to kids and their parents about my STEM career. I am planning to help out next year, and hopefully I will have an opportunity to spend more time with the kids and talk more about my career path.*

Perceived effectiveness in opening youths' minds to careers in their STEM field

Figure 52 shows that more than half of the STEM professionals thought their presentations had been *very* or *extremely effective* in opening youths' minds to careers in their STEM fields, while the remaining thought they had been *moderately effective* in this respect. Several STEM professionals elaborated on their responses in various ways, as shared on the next page:

Figure 52. How effective STEM professionals thought they were in opening youths' minds to careers in their STEM fields (N=13)



Extremely effective

- *I hope it inspired the girls to reach for whatever dream they have, whether it be in science or not. I understand a few of the girls have already expressed their interest in continuing for a science degree. Most importantly, these young ladies need someone and deserve someone to champion for them and to let them know that they have worth. I have noticed that some within the school do not provide this basic necessity.*

Very effective

- *While it wasn't very detailed, I think sharing all our experiences collectively helped the parents/youth see the additional possibilities. Also, the hands-on activity allowed to envision themselves in those roles and consider it as an option.*
- *Some girls at the beginning didn't have much interest in college careers. Once they did some of the science activities and talked with people who presented at the Latina SciGirls Saturdays, I heard more girls with interest in Science fields and going to college.*
- *Some of the participants expressed that they were not as interested in a career in STEM at the beginning of the Family Fiesta (after I asked for their opinions). After I shower them activities in making e-textile LED accessories using LilyPad, they showed an interest in having a summer program on the activity and more. The girls were exposed to natural science concepts and I came to show them different STEM concepts within coding and engineering.*

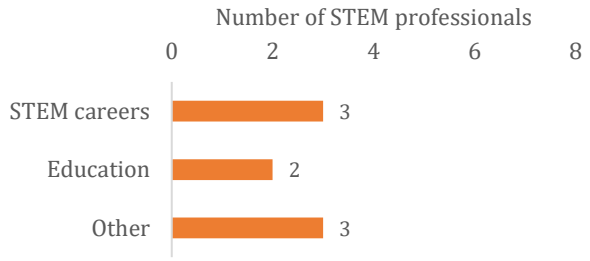
Moderately effective

- *I did not give a formal presentation to kids. I only had a chance to talk to a few of them about my job. I also had an opportunity to talk to parents and discuss my career at the Family Fiesta.*
- *You could tell the youth looked up to me and made their futures more positive and realistic that anyone can dream big and finish their goals.*

Participant questions that stood out during the Family Fiesta

Figure 53 shows that two types of youth questions stood out to the eight STEM professionals who shared a response. These included questions about STEM careers and questions about education, among other topics. Their responses are below:

Figure 53. Youth questions that stood out to STEM professionals (n=8)



STEM careers (3)

- *What do neuroscientists do and where do they work?*
- *How I liked my job and shared stories about things that happen at my job.*
- *Why I chose my career. What made me choose it.*

Education (2)

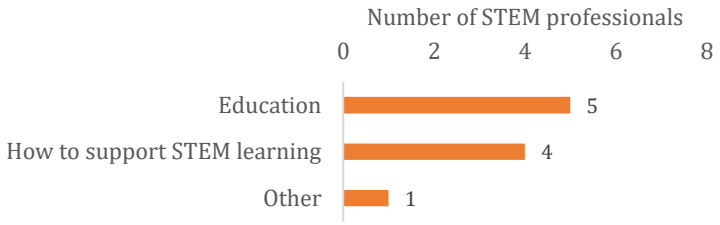
- *If going to school to become an engineer was too hard? Did I miss my family, since I lived on campus?*
- *Was college hard. What if you want to change your mind about your future job.*

Other (3)

- *This isn't quite a question but I did ask the students to tell me what a typical scientist looked like. One raised her hand right away and said Albert Einstein.*
- *Can I keep the LEDs? What do you like about math and science?*
- *One asked about how to train an eel.*

Figure 54 shows that two types of parents/guardian questions stood out to the eight STEM professionals who shared a response. These included questions about education or questions about supporting youths' STEM learning. Their responses are below:

Figure 54. Parent/guardian questions that stood out to STEM professionals (n=8)



Education (5)

- *What did I do in order to go college?*
- *How much math do you have to take in engineering, STEM careers?*
- *How did you afford college?*
- *Parents asked about … the University vs. Jr. College choices.*
- *How did you choose your major? Do you see adults going back to school for engineering? What kind of mentors did you have?*

How to support STEM learning (4)

- *Most parents want more information about other STEM resources and programs to continue to support their kids.*
- *How can they be supportive in their children's education besides monetary funds.*
- *Do I lead more programs in engineering? What other resources can I show my daughter to learn how to code?*
- *Parents asked about field trip opportunities relating to my job/work …*

Other (1)

- *Can you help me with identifying ways and resources to launch a company in video game development?*

Observations of the impact they had on Family Fiesta participants

Figure 55 presents the STEM professionals' observations of their impact on youth at the Family Fiestas. Half of the 12 who shared a response thought they may have impacted youths' career or education goals. Smaller groups thought youth had connected with them, thought youth were engaged in STEM topics, thought youth were interested in the activities, or shared other responses. Examples of their comments in each case are in Table 13 on the next page.

Figure 55. How STEM professionals thought they impacted youth (n=12)

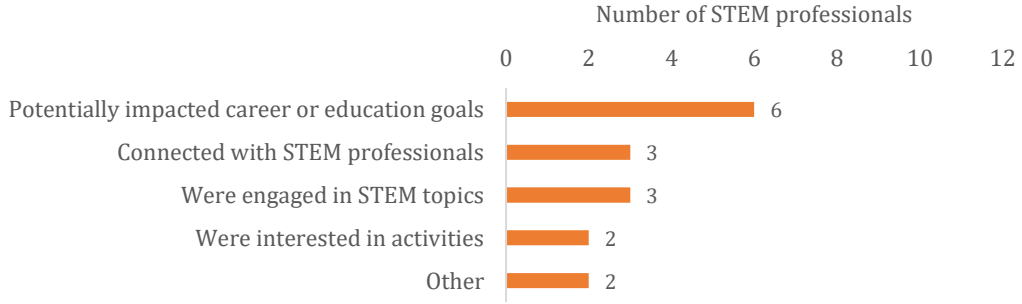


Figure 56, on the next page, meanwhile, presents STEM professionals' observations of their impact on parents/guardians at the Family Fiestas. Of the 10 who shared a response, half thought they impacted parent/guardian interest in STEM careers. Smaller groups of STEM professionals thought the parents/guardians were interested in supporting youths' STEM learning, that they enjoyed and/or appreciated *SciGirls*, and/or that they connected with the STEM professionals. Examples of their comments in each case are also in Table 13.

FIgure 56. How STEM professionals' thought they impacted parents/guardians (n=10)

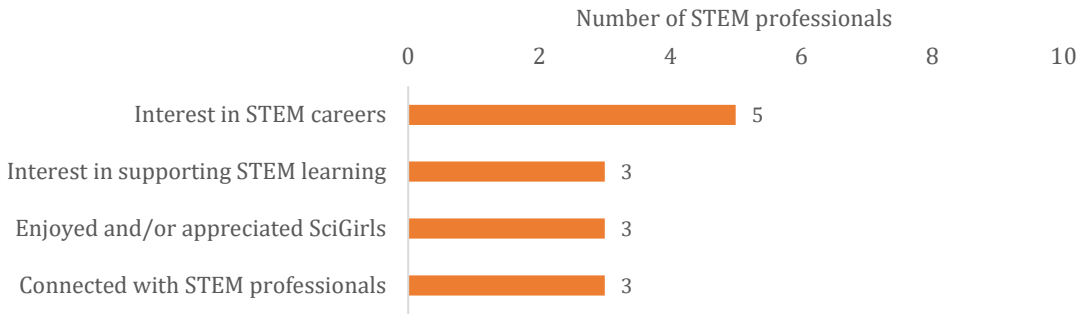


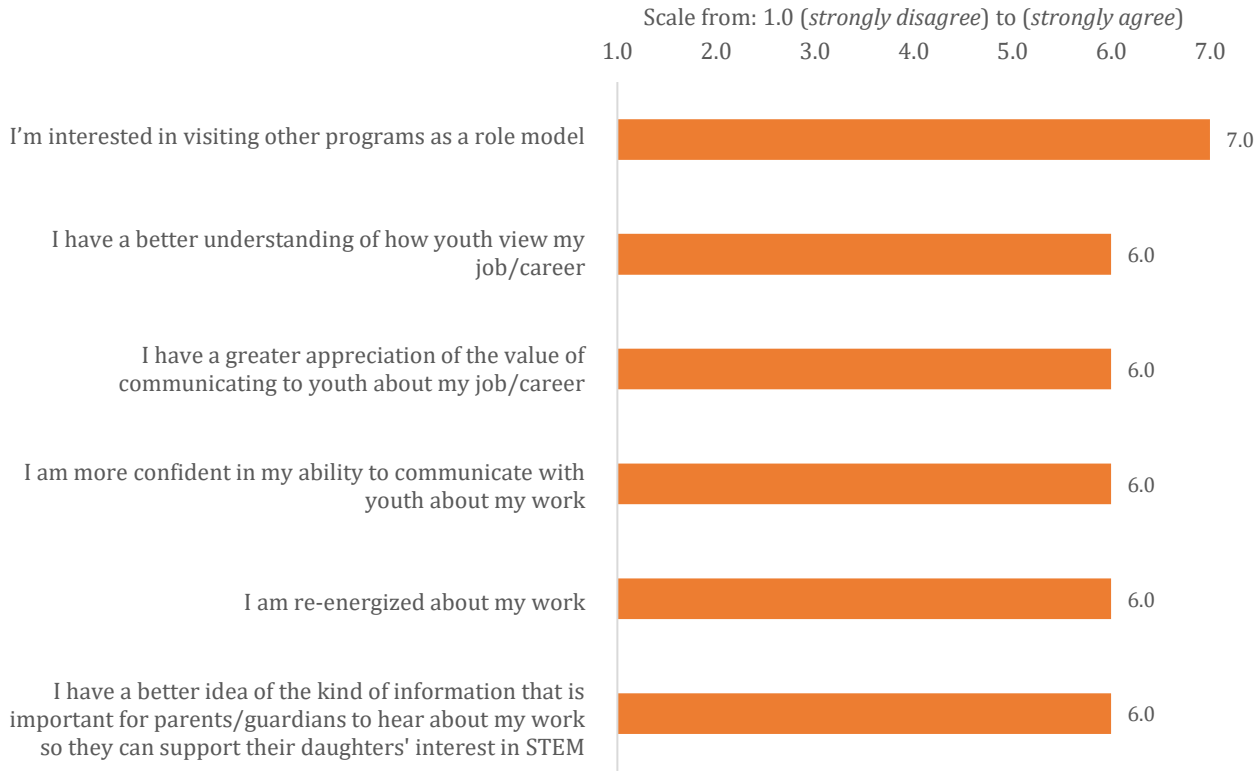
Table 13. STEM professionals' perceived impact on Family Fiesta participants

Perceived impact on youth (n=12)	Perceived impact on parents/guardians (n=10)
Potentially impacted career or education goals (6) • *When talking I felt the children only saw an adult speaking, but during the activities that is when I got to know them personally and I talked to them about school, college, and encouraged them that anything they set their mind to is possible.* • *I saw through their eyes the clicking of the understanding that they can achieve anything they want no matter the obstacles …With this I can see the girls open up about their future possibilities in academics and possible careers. Above all I wanted to convey to these young ladies that they have it with in them to pursue whatever dreams they possess.* • *I think our presence allowed them to think of other careers they may not have been exposed to previously.* ***Connected with STEM professionals (3)*** • *When talking I felt the children only saw an adult speaking, but during the activities that is when I got to know them personally …* • *I think it surprised them that I would show up and ask them questions about what they had done for the week at Zoo camp. They engaged willingly and were not afraid to share their work and ideas.* • *I think it is important for them to see females in STEM that look like them and speak their language that are successful.* ***Were engaged in STEM topics (3)*** • *I found that the girls were really engaged and excited to discuss the particular science topic.* • *I encouraged them to get involved in science and biology and most seemed excited about that.* • *I saw the girls get excited about science …* ***Were interested in activities (2)*** • *It was very clear that all of the kids I talked to, really enjoyed the activities.* • *The activity I showed the girls also clicked with their interest in fashion, design, and engineering.* ***Other (2)*** • *Several kids mentioned that they wished the program would have been longer!* • *I think the students appreciated that we were there until the end of the program. They seemed very grateful.*	***Interest in STEM careers (5)*** • *A moderate impact on the parents by showing them how to talk to their students about options for their career paths and different types of schooling for many careers.* • *I think my presence had a larger impact on the parents compared to the youth at the Family Fiesta. The parents asked more questions and were more curious of how I became an engineer.* • *Allowing them to see the options in engineering/STEM and what it really means. Trying the activity helped see how persistence and creating your own path/solution is an important part of engineering and STEM careers.* ***Interest in supporting STEM learning (3)*** • *… parents kept asking about resources to keep their kids engaged in STEM.* • *I felt like I made a great impact to the children's parents because it's hard for many families to support their children throughout their education and college is a scary topic because many don't have the funds to do it. I felt that I targeted the fear of many parents … because going to college is not about money but also encouragement and much more.* ***Enjoyed and/or appreciated SciGirls (3)*** • *The parents seemed very happy and proud of the kids, and grateful that we were there helping their kids.* • *The parents exhibited an excitement for their kids and their ability to learn and expand their academic possibilities. Knowing someone who is not getting paid and is not doing this for any other reason than to expand their child's knowledge of science I could see meant a lot. I hope with this the parents continue to and even increase their support for these girls to pursue their dreams.* ***Connected with STEM professionals (3)*** • *I think the parents enjoyed meeting the mentors that interacted with their daughters and they found it easier to relate and viewed us and more approachable.* • *The ability for me to communicate in Spanish as well allowed for parents/guardians to understand several STEM concepts that have only been communicated in another language, thus not fully reading their participation.*

How they were impacted by participating in the Family Fiestas

Figure 57 shows that the STEM professionals generally felt the Family Fiestas impacted them in the six specific ways that TPT envisioned. Using a scale from 1.0 (*strongly disagree*) to 7.0 (*strongly agree*), they generally *strongly agreed* (median 7.0) that they were interested in visiting other programs as role models. They also generally *agreed* (median 6.0 each) that they: had a better understanding of how youth viewed their jobs/careers, had a greater appreciation of the value of communicating to youth about their jobs/careers, were more confident in their ability to communicate with youth about their work, were re-energized about their work, and had a better understanding of the kind of information that is important for parents/guardians to hear about their work so they can better support their daughters' interest in STEM.

Figure 57. Median ratings of how STEM professionals felt impacted by Family Fiestas (N=13)



2.6 Youth and parent/guardian Family Fiesta feedback

Survey administration

As noted earlier in this report, partners were required to host a Family Fiesta as part of their *Latina SciGirls* programs. At the end of each site's Fiesta event, partners were also required to administer evaluation surveys to participating youth and parents/guardians, following guidelines previously shared with them by the independent evaluation team. The partners' verbal survey introduction and the written instructions informed participants that completing the survey was voluntary, that there were no right or wrong answers, and that their responses were anonymous and would be used to help improve future events. Both parental consent and youth assent were obtained as part of the survey administration process.

Survey questions

The Family Fiesta survey addressed participants' backgrounds, the overall appeal and learning value of the Family Fiesta, and the perceived impact, as follows:

- **Appeal**: Participants were asked to rate the event for overall appeal; describe what they liked and disliked; rate their interest in the event's guest speaker, hands-on activities, and *SciGirls* videos (if featured); indicate and explain whether they would recommend the event or not; and suggest any areas for improvement.

- **Learning value**. Participants were asked to describe the most interesting things they learned; indicate their agreement or disagreement with a series of statements about the learning value of the STEM professional(s) that participated at the event; and reflect on whether they felt or thought any differently about the jobs/careers presented. The STEM professionals were referred to as "guest speakers" in the youth and parent/guardian Family Fiesta surveys, so as to not introduce the term "STEM" within the surveys. Additionally, the STEM professionals were *not* referred to as "role models" in these surveys, so as not to assume that youth or parents/guardians would think of the in-person speakers as role models.

- **Perceived impact**. Participants were asked to reflect on the event's influence on their awareness, understanding, and interest in the featured jobs/careers and related high school subjects, and to estimate how likely they were to pursue various related activities as a result of participating.

Two different versions of the survey were available for partner use depending on whether their event featured one or two or more STEM professionals. Additionally, the surveys were available in both English and Spanish and in two formats (online and paper), although all of the partners opted to use paper surveys.

Survey response

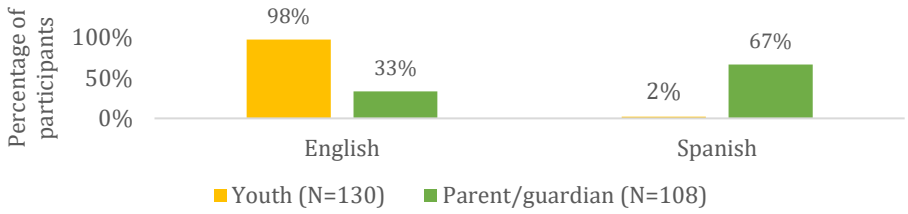
A total of 238 participants (130 youth and 108 parents/guardians) completed a survey. Survey response rates are not known, as partners were not required to track the numbers of youth and parents/guardians who declined to participate. Based on the partners' Family

Fiesta reporting, however, assuming 194 youth and 177 parents/guardians attended the Fiestas, approximately two-thirds of youth (67%) and three-fifths of parents/guardians (61%) completed a survey.

Choice of language for survey completion

Figure 58 shows that nearly all of the youth chose to complete the Family Fiesta survey in English. At the same time, two-thirds of the parents/guardians completed the survey in Spanish, while the rest filled out the survey in English.

Figure 58. Whether participants submitted surveys in English or Spanish

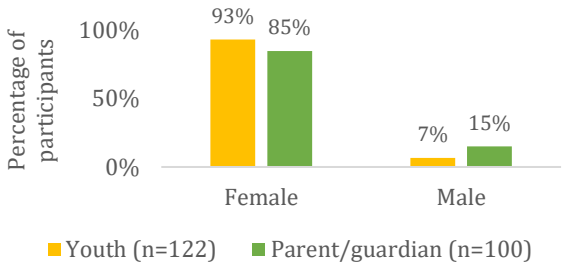


2.6a Participant information

Gender balance

Figure 59 shows that most of the participating youth and parents/guardians were female.

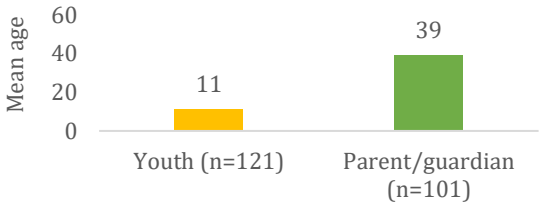
Figure 59. Gender of participants



Age range

Youth ranged in age from seven to 18, while the parent/guardian group ranged in age from 23-57. Figure 60 shows that the mean ages were 11 for the youth and 39 for the parents/guardians.

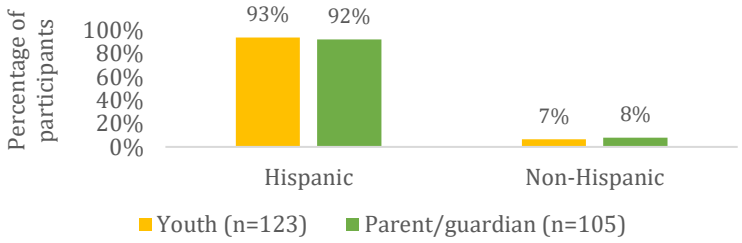
FIgure 60. Mean ages of youth and parents/guardians



Hispanic origin

Figure 61 shows that nearly all of the youth and parents/guardians identified as being of Hispanic origin.

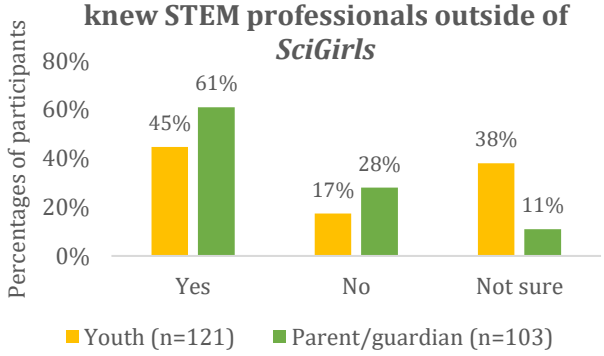
Figure 61. Whether participants were of Hispanic origin



Personal connection to STEM professionals

Figure 62 shows that about half of the youth and three-fifths of the parents/guardians said they knew an adult outside of their *SciGirls* program who had a job or career in STEM. About one-fifth of the youth and more than a quarter of the parents/guardians said they did not know anyone outside of *SciGirls* in a STEM field. Meanwhile, two-fifths of the youth and a tenth of the parents/guardians said they were *not sure*.

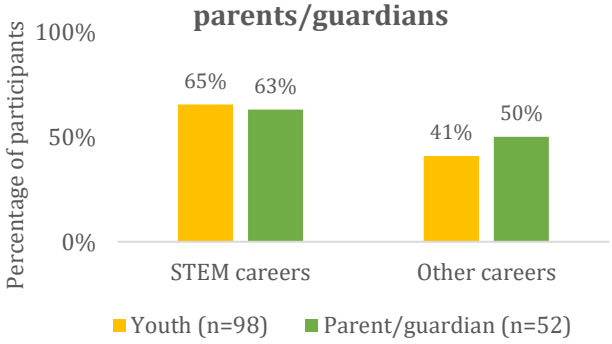
Figure 62. Whether participants knew STEM professionals outside of *SciGirls*



Prior youth interest in STEM careers

Figure 63 shows that two-thirds of the youth who shared a response said they were interested in STEM careers prior to their Family Fiesta, while two-fifths expressed interest in other careers. Two-thirds of the parents/guardians who shared a response thought their youth had been interested in STEM careers prior to the Family Fiesta, while half pointed to other careers. Examples of the STEM careers shared by youth (which were, in large part, echoed by their parents/guardians) are shared below:

Figure 63. Youth interest in STEM careers prior to Family Fiestas, according to youth and parents/guardians



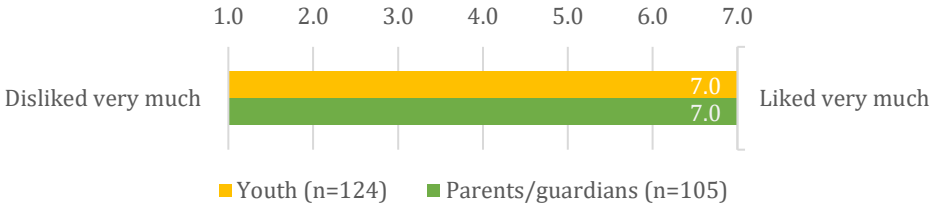
- *Orthodontist*
- *OB/GYM*
- *Doctor*
- *Nurse*
- *Veterinarian*
- *Engineer, mathematician, scientist*
- *NASA (air space engineering)*
- *Architecture, civil engineering, forensics*
- *Biochemist*
- *Biology*
- *Science*
- *STEM in general*

2.6b Overall appeal of participating in the Family Fiestas

Overall appeal of the Family Fiestas

Figure 64 shows that youth and parents/guardians generally found the Family Fiestas very appealing. Using a scale from 1.0 (*disliked very much*) to 7.0 (*liked very much*), both groups generally liked the event *very much* (median 7.0).

Figure 64. Participants' median ratings of overall appeal of the Family Fiestas

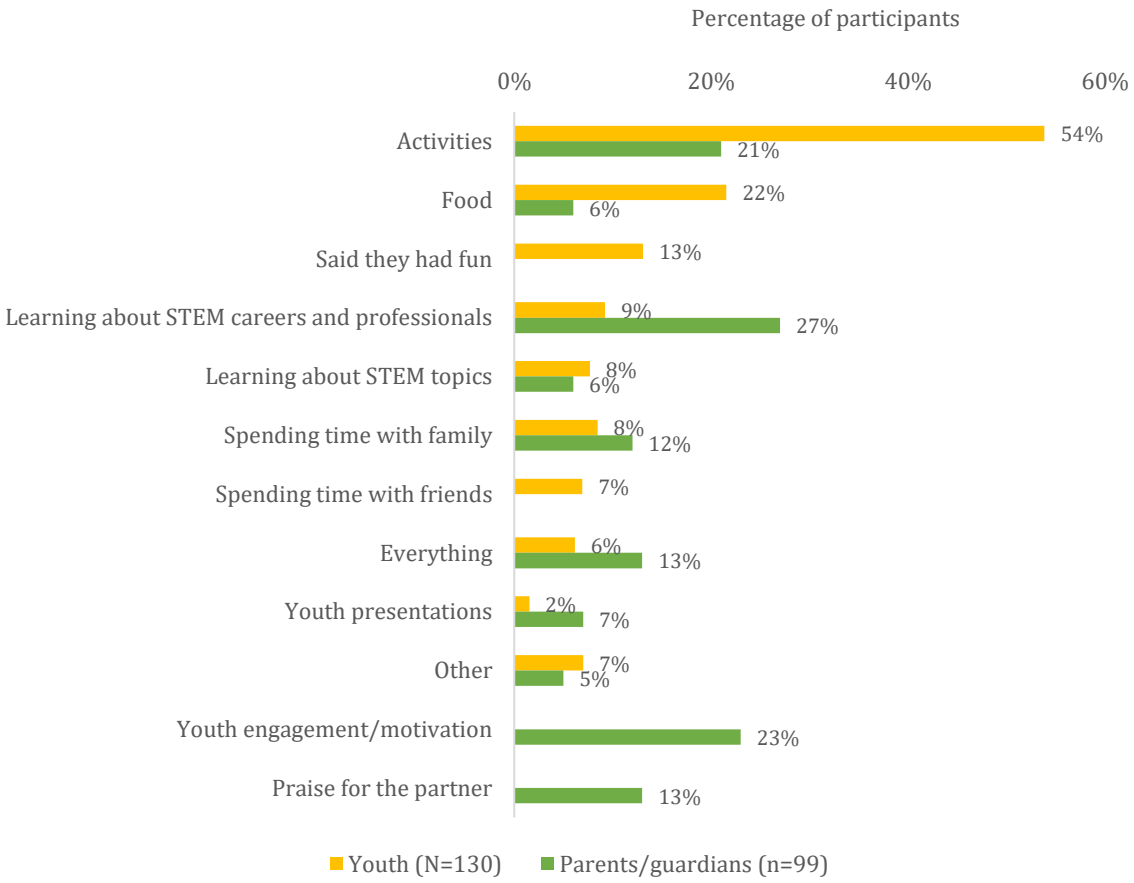


What participants liked most about the Family Fiestas

Figure 65 shows that youth and parents/guardians liked a wide range of aspects of the Family Fiestas. More than half of the youth pointed to the activities while about one-fifth pointed to the food. Smaller groups said they liked: having fun at the event, learning about STEM careers and professionals, learning about STEM topics, spending time with family, spending time with friends, the youth presentations, everything, or shared other responses.

Meanwhile, between around one-fifth and one-quarter of parents/guardians most liked: learning about STEM careers and professionals in-person and via videos, seeing youths' engagement or motivation, and/or an aspect of the activities. Smaller groups shared praise for the partners, liked everything, or said they most liked spending time with family, the youth presentations, the food, learning about STEM topics, or shared other responses.

Figure 65. What participants liked most about the Family Fiestas



Examples of responses from youth and parents/guardians are provided in Table 14 on the following page.

Table 14. What participants liked most about the Family Fiestas

Youth (N=130)	Parents/guardians (n=99)
Activities (54%) • *When we … built the sticks thing. The reason why because I had a great idea.* • *The activity, it was fun.* • *I really liked the slime experiment.* • *I liked learning about clouds. I liked it because I learned where they are placed.* • *I loved building the mechanical thing. It was fun, interesting, and knowledgeable.* ***Food (22%)*** • *The cupcakes tasted good.* • *The food cause it was so good.* • *We got presents and food because we were celebrating.* ***Said they had fun (13%)*** • *Love it because it was fun.* • *When we played because I had fun.* • *The slime because it's fun to make it.* • *Making fun experiments* ***Learning about STEM careers and professionals (9%)*** • *I really liked that we were able to listen to the role models speak about their lives as engineers.* • *The behind the scenes action and people coming to us talking about their jobs.* • *The videos because in real life you (well, I) don't really see/meet successful Latina engineers sharing their story. It was inspiring to see … who I can become.* • *Talking to somebody already in a STEM career.* ***Learning about STEM topics (8%)*** • *We get to know more about science* • *Liked that we got to interact with animals and got to learn about new things.* • *What I liked most about today's was that you get to learn new things and discover more things and it was really fun.* ***Spending time with family (8%)*** • *My mom trying the DNA* • *Having my family coming and learn what I did.* • *The part I like the most is that my mom was here.* ***Spending time with friends (7%)*** • *… most of all my best science Latina girl friends and family!* • *What I like for today is that I get to be with my friends.* • *Finding new friends* ***Everything (6%)*** • *I liked everything because I like everything.* ***Youth presentations (2%)*** • *Being able to present our projects …* ***Other (7%)*** • *The thing I like the most is that it taught me to get out of my comfort zone.* • *The ability to show us that we are smart, strong, and bold.*	***Learning about STEM careers and professionals (27%)*** • *The speakers. Give tons of good info.* • *Information about how other achieve their dreams.* • *Speaker who has been in the engineering and the stories about her experiences until now.* • *It's great to have the people from the actual organizations come out and support.* ***Youth engagement/motivation (23%)*** • ***…*** *how children learn and show interest in the program.* • *It was encouraging for the girls to reach their goals.* • *My child really enjoyed the learning environment that came with camp being located at the zoo.* • *Getting to see … everything she learned.* ***Activities (21%)*** • *I liked all of the games/activities …* • *Hands on learning and STEM activities.* • *I enjoyed learning about the different experiments.* ***Everything (13%)*** • *I liked everything because everything was done very well and very well organized.* ***Praise for the partner (13%)*** • *The very nice attitude of the teacher with the parents.* • *For being very friendly with a lot of atmosphere and having a lot of knowledge.* • *The way they are dedicated to teaching about science, because I think that if they are interested, children learn more about science.* ***Spending time with family (12%)*** • *Because I like to spend time with my daughter and see her having fun.* • *That we had the opportunity to share, all the parents and our children together.* • *To feel as a family and share this important moment.* ***Youth presentations (7%)*** • *The information the kids presented.* • *It was great to see the girls talk about their experiences.* • *How the students demonstrated the projects they had done.* ***Food (6%)*** • *The delicious food.* ***Learning about STEM topics (6%)*** • *Learning more about STEM because it could definitely help my child with her future.* • *I liked all of the games/activities because they were fun and you learn something important about each game.* • *The explanations they give us about the things that we do.* ***Other (5%)*** • *The video* • *… the time the kids have for homework time.*

What participants disliked about the Family Fiestas

Figure 66 shows that the majority of youth and parents/guardians who shared a response indicated that there was nothing they disliked about their Family Fiestas. Although no one area for improvement stood out to the majority of participants, relatively small groups of youth pointed to an aspect of the event logistics or space, the activities, presenting at the event, completing the evaluation or research survey, the partner staff or STEM professionals, said they didn't know, or shared other responses. Meanwhile, a fifth of the parents/guardians also pointed to an aspect of the event logistics or space and less than a tenth each commented on the activities or shared other responses. In each case, examples of responses from youth and parents/guardians are provided in Table 15 on the next page.

Figure 66. What participants disliked about the Family Fiestas

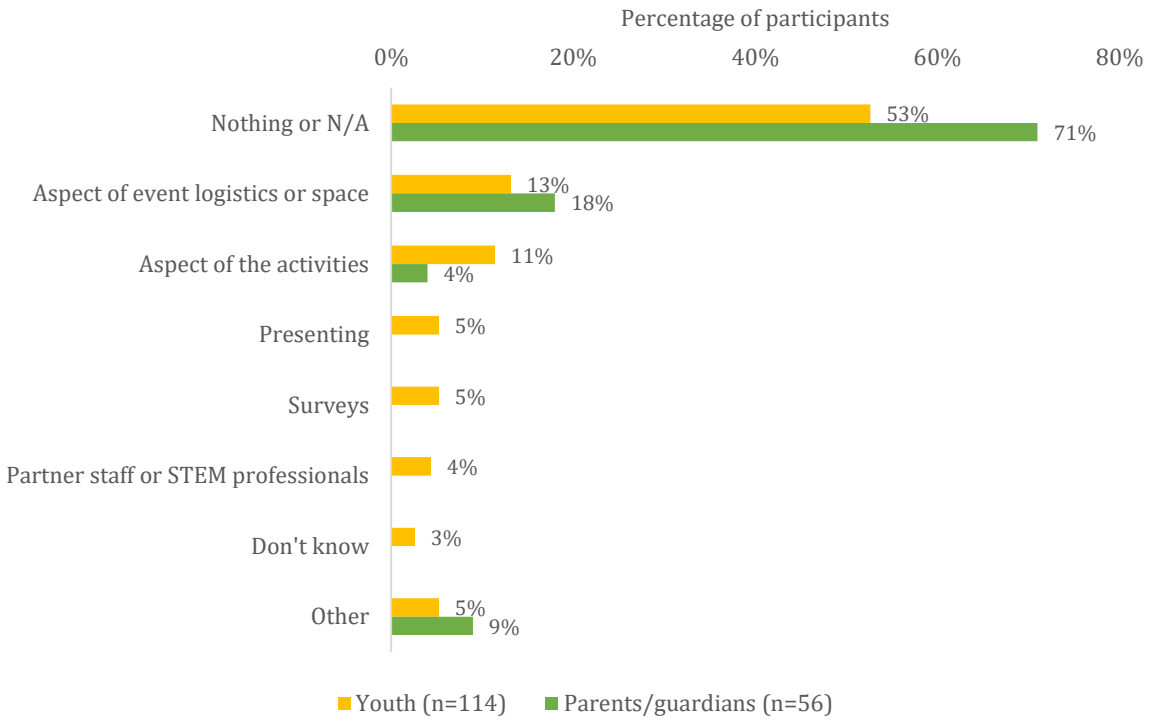


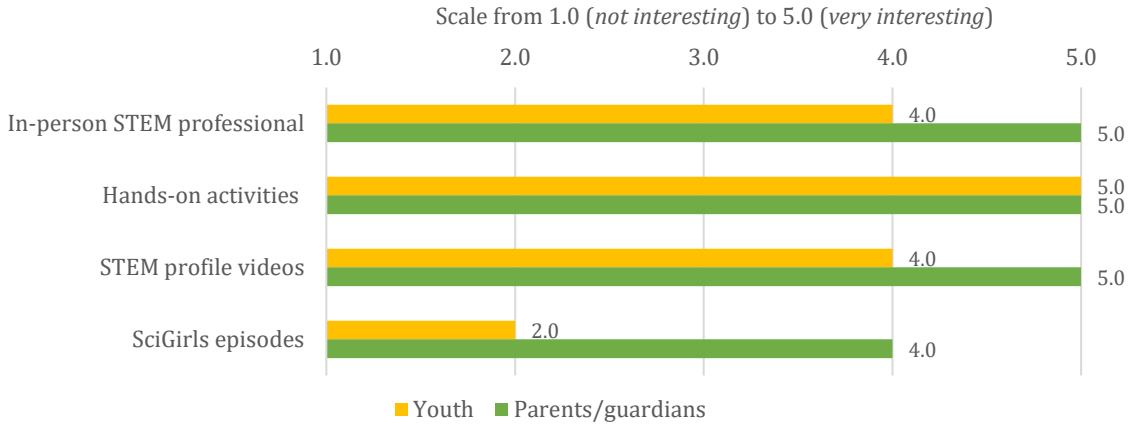
Table 15. What participants disliked about the Family Fiestas

Youth (n=114)	Parents/guardians (n=56)
Nothing or N/A (53%) • *Everything was great!* • *I liked all of it.* • *Nothing because everything was awesome.* • *N/A* ***Aspect of event logistics or space (13%)*** • *I don't like sitting at this table!* • *The computer lab.* • *What I did not like is the space. It was too tight.* • *Setting up!* • *The wait* • *The long line for getting food.* • *The food. The salsa tastes bad.* • *We did not visit the playground …* • *There weren't lots of people.* ***Aspect of the activities (11%)*** • *I didn't like it toward the end of the day when we ran out of activities to do.* • *The ball thing with magnets because everyone wanted to do it so I avoided it.* • *I didn't like that there wasn't much communication during the activity.* • *Doing salt water.* • *Getting my clothes a mess.* ***Presenting (5%)*** • *Presenting because felt awkward.* • *Presenting. I'm not good at pubic speaking.* • *Presenting my trifold because I was not prepared.* ***Surveys (5%)*** • *Doing this survey because there is too much paperwork.* • *I don't like having to do this survey because they said it was only one page.* ***Partner staff or STEM professionals (4%)*** • *I felt like the lady with the red shirt (sorry not good with names) … was a tad bit boring. But still nice lady.* • *The long talks. Boring.* • *How you guys get mad really fast.* • *The interns.* ***Don't know (3%)*** • *I don't know.* ***Other (5%)*** • *My mom had to work, so she couldn't come to the fiesta.* • *The science videos. They weren't very interesting.* • *The people talking in Spanish. I couldn't understand.* • *I did not like it because it was a little boring.*	***Nothing or N/A (71%)*** • *Everything was great.* • *I really can't complain about anything, the staff seemed really nice and helpful throughout the whole process.* • *There was nothing that I did not like, I think everything was fantastic!* • *I like it all* • *Nothing* • *N/A* ***Aspect of event logistics or space (18%)*** • *The time. It wasn't enough time.* • *Very little time.* • *Long presentation at introduction.* • *Few seats available with people standing.* • *There was no translation for many parents.* • *The room was cold.* • *It was monster hot in there!* • *The heat… but there is nothing we can do about it.* ***Aspect of the activities (4%)*** • *All the activities that there are for the girls.* • *Make the spaghetti tower.* ***Other (9%)*** • *The only thing I disliked was driving here from Woodway every day, but I'd do it again!* • *The very long videos.* • *Sometimes the kids get bored and the rec leaders sometimes don't know how to address the kids.* • *I would like to continue more choreography to the little boy.*

Interest in the featured STEM professionals, hands-on activities, and SciGirls videos

Figure 67 shows that youth and parents/guardians were generally interested in the in-person STEM professionals, hands-on activities, and *SciGirls* videos at the Family Fiestas.[25] Using a scale from 1.0 (*not interesting*) to 5.0 (*extremely interesting*), both groups agreed that the hands-on activities were *extremely interesting* (median 5.0). While the parents/guardians also generally found the in-person STEM professionals and *SciGirls* STEM profile videos *extremely interesting*, youth generally thought these elements were *very interesting* (median 4.0). Additionally, parents/guardians who saw *SciGirls* episodes or clips from episodes at their Family Fiesta generally found them *very interesting*. Youth generally found them *a little interesting* (median 2.0), perhaps because they may have previously viewed the episodes or clips in their *Latina SciGirls* programs.

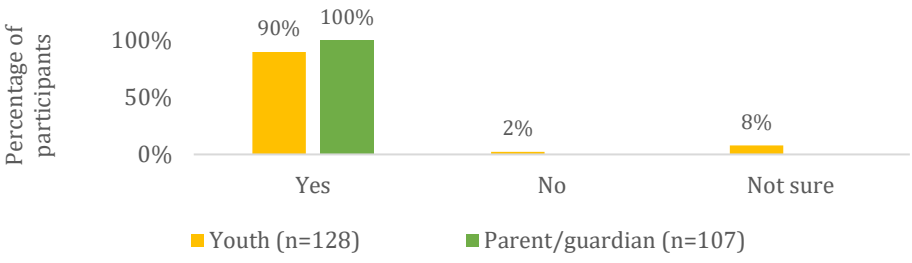
Figure 67. Median ratings of participant interest in Family Fiesta elements



Whether participants felt they would recommend the Family Fiesta to friends

Figure 68 shows that almost all of the youth and parents/guardians thought they would recommend the Family Fiesta to friends. Small groups of youth said they would not recommend the Family Fiesta or were *not sure*.

Figure 68. Whether participants thought they would recommend the Family Fiesta



[25] As noted earlier in this report, all 10 Family Fiestas featured in-person STEM professionals and (*SciGirls* or non-*SciGirls*) hands-on activities, while two Fiestas each showed either STEM profile videos or *SciGirls* episodes/clips from episodes. Though not detailed in Figure 67, 122 youth and 103 parents/guardians rated their interest in the STEM professionals and 124 youth and 103 parents/guardians rated their interest in the hands-on activities. Additionally, 28 youth and 23 parents/guardians rated their interest in the STEM profile videos, while 14 youth and another 14 parents/guardians rated their interest in the *SciGirls* episodes/clips from episodes.

Among those who said *yes*, some youth described the Fiesta as being "*fun*," "*awesome*," or "*cool*," while others said they liked learning about STEM or STEM careers and/or said they enjoyed working with others during the event. Meanwhile, parents/guardians who said *yes* tended to appreciate the focus on youth learning, shared general praise for the program, thought it had a positive impact on youth, and/or liked the focus on STEM careers. Examples of their responses are in Table 16.

Table 16. Whether participants thought they would recommend the Family Fiesta

Youth (n=128)	Parents/guardians (n=107)
Yes (90%) • *Because it is very fun and awesome.* • *I would because I had a great time and I enjoyed it.* • *Because they can have fun just like I have fun here.* • *I would recommend it because it is fun and it's right after school.* • *I would recommend it because it is a fun mother-daughter experience learning about STEM careers.* • *It is fun to see what one can create and seeing something you didn't think you could create is a fun experience.* • *It allows for hands-on experience and to talk and ask questions about the program/engineering.* • *Because they can do engineering.* • *Because it teaches us about engineering, math, and more.* • *I would recommend it because it shows you a lot of things.* • *Because it's a great opportunity to make friends and learn. because they are honestly the best part of science Latina girls (to make new friends).* • *Because you get to learn new things and having fun with friends in the camp.* • *The staff is friendly, loving, and knowledgeable.* • *Because you can do your homework.* • *It was a great way to showcase the program.* ***No (2%)*** • *It's boring.* • *Because you only play sports.* ***Not sure (8%)*** • *If only I had Latina friends.* • *My friends might think it's dumb.* • *It's okay, but at the same time it's boring.* • *It's half fun and half not fun.* • *I don't know if they like science.* • *Because maybe they will not be there.*	***Yes (100%)*** • *The girls get a lot of good info. And fun hands-on stuff.* • *The experience and knowledge.* • *Because the kids learned a lot* • *Because children learn a lot and it's very interesting the more you learn the more you want to know.* • *Highly useful and interesting way to teach science.* • *The science connection.* • *It's a great way to extend your child's learning vs being at home bored or worse, on the streets.* • *Very informative and motivational.* • *I think it's important for girls today to learn they could do anything they put their mind to.* • *Kids learn a lot of things needed for the future.* • *Why not? Anything that will engage women/girls into the scientific world and open doors for them is great.* • *Because it opens a world of possibilities to children.* • *It helps prepare the entire family for the possibility of college.* • *Puts value on higher learning.* • *Camp provided a safe fun and exciting learning environment that I as a parent felt comfortable leaving my child at.* • *Because they take good care of them and also teach them good activities.* • *I would recommend the program because the staff is very good and they teach the children to be activities.* • *Absolutely! Wonderful way to promote and engage girls in STEM fields.* • *I recommend it because it is very good and interesting.* • *I think it is a great program.* • *I have recommended it!* • *It exposes girls to idea outside of their cultural norm.* • *Because it is nice to learn and experience different things with my daughter.*

Participant suggestions for future Family Fiestas

Figure 69 shows that the majority of youth and parents/guardians who shared a response said they did not have suggestions for future Family Fiestas. Among youth, about a tenth each or less suggested doing different or more activities, commented on an aspect of the event structure or planning, said they weren't sure, or shared other responses. A fifth of the parents/ guardians also commented on an aspect of the event structure or planning, while smaller groups suggested continuing the programs, shared ideas about involving families, said they didn't know, or provided other feedback. Examples of their responses are in Table 17.

Figure 69. Participants' suggestions for future Family Fiestas

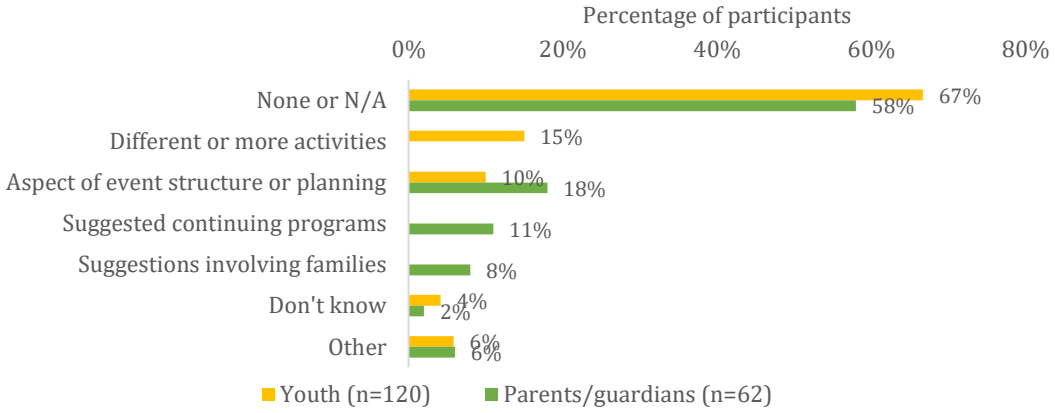


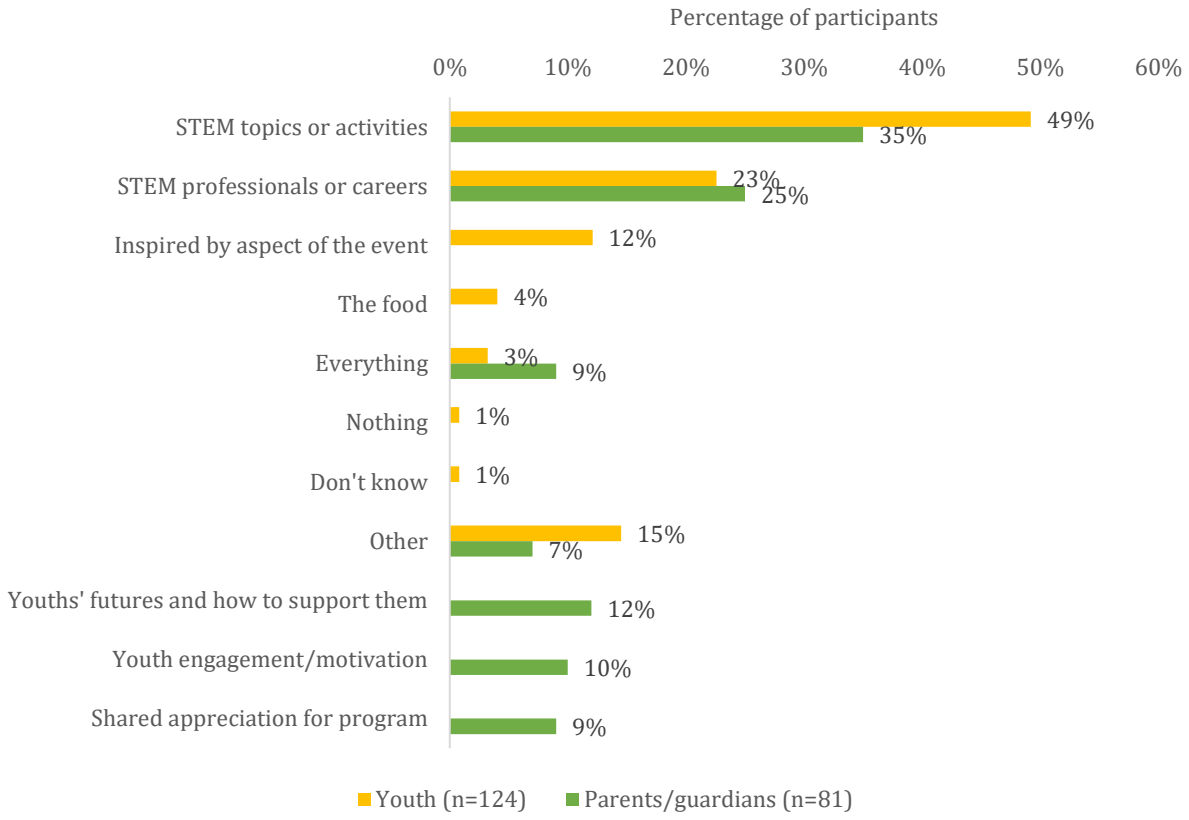
Table 17. Participants' suggestions for future Family Fiestas

Youth (n=120)	Parents/guardians (n=62)
None or N/A (67%) • *No I do not. I felt like this was a good Family Fiesta.* • *Everything was great!* ***Different or more activities (15%)*** • *Maybe to be able to make slime.* • *Maybe fish and the bracelet.* • *Build exhibits every day.* • *Maybe have more than one hands-on activity.* • *More experiments* ***Aspect of event structure or planning (10%)*** • *Being more organized.* • *An area of the room where everyone could see/hear the speaker.* • *To have more people talk.* • *Maybe give more info or help during the activity.* • *Make us move around and get up.* • *Have it at a different time.* • *Turn on the AC.* ***Don't know (4%)*** • *I don't know* ***Other (6%)*** • *Probably to play more interesting videos.* • *Make it a little (more) fun!!*	***None or N/A (58%)*** • *No, it was great.* ***Aspect of event structure or planning (18%)*** • *Time management.* • *Organization, time.* • *Do it on Saturday, please.* • *Invite more people* • *Some of the volunteers could have explained more about individual projects.* • *I would have liked to hear from the scientist Marie I believe who interact more with my daughters and conducted the interviews.* • *Bring in guests from all backgrounds and with motivational messages for the kids.* ***Suggested continuing programs (11%)*** • *Follow up with future events, so my daughter can have access to all of them.* • *Please keep doing what you do!* • *Have more programs similar to this that help to have more interest in science.* ***Suggestions involving families (8%)*** • *Probably some way of getting families to interact with one another.* • *Try to mix the families up a bit in order to create a sense of community.* • *Maybe have parents on middle part of cafeteria to have more room on bottom part to move around.* ***Don't know (2%)*** • *Not sure.* ***Other (6%)*** • *I would like them to speak in Spanish when they say what they are going to be.*

2.6c Learning value and impact of participating in the Family Fiesta

Most interesting things participants thought they learned at the Family Fiestas
As shown in Figure 70, the largest groups of youth and parents/guardians thought the most interesting things they learned at the Family Fiestas had to do with STEM topics or activities and/or STEM professionals or careers.

Figure 70. Most interesting things participants thought they learned at the Family Fiestas



Smaller groups of youth also said they were inspired by an aspect of the event, talked about the food, said they found "*everything*" most interesting, said they found "*nothing*" most interesting, were unsure, or shared other responses. Smaller groups of parents/guardians, meanwhile, commented on youths' futures and how to support them, youth engagement or motivation, said "*everything*" was most interesting, shared an appreciation for the program, or gave another type of response. Examples of youth and parent/guardian comments in each case are in Table 18 on the following page.

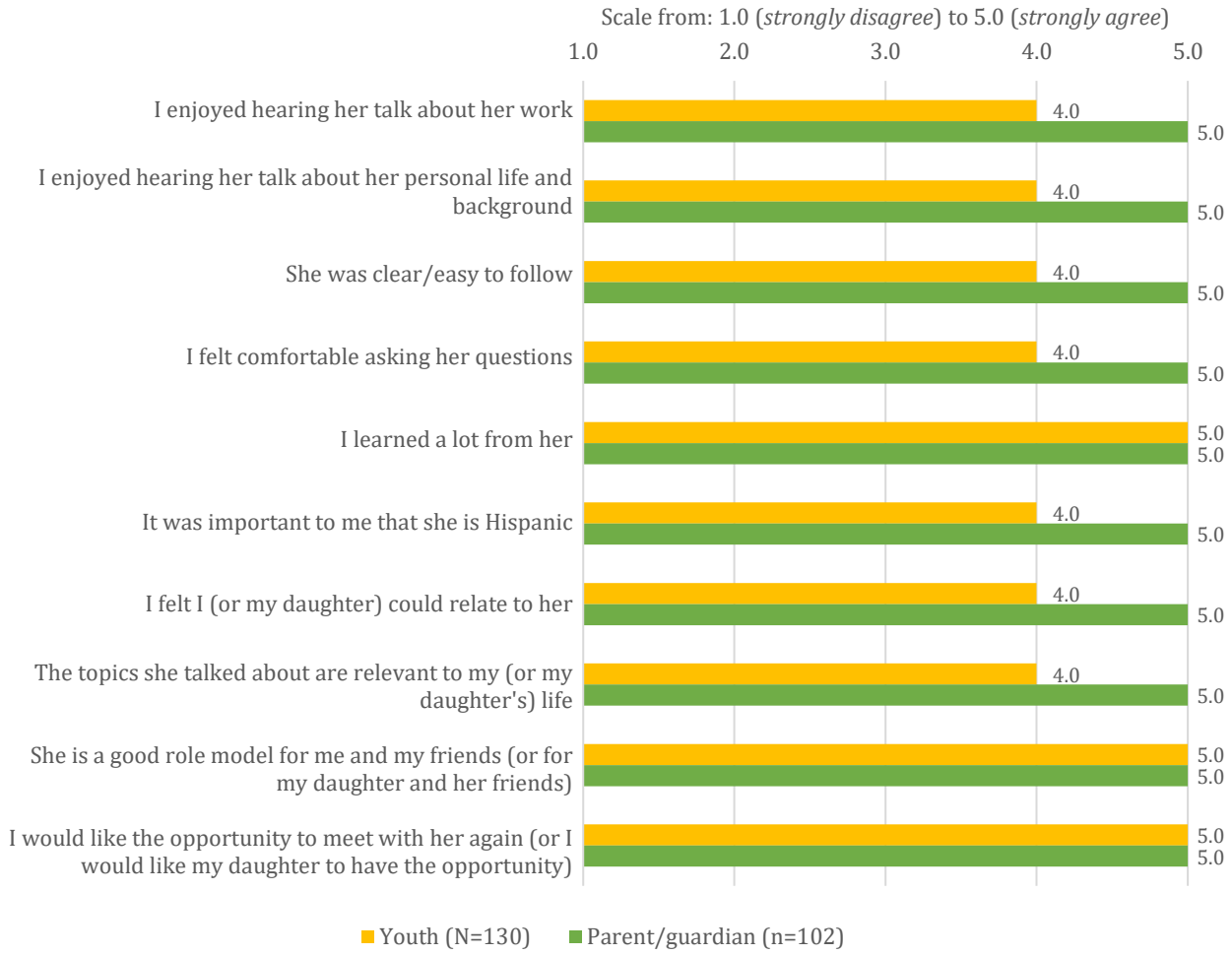
Table 18. Most interesting things participants thought they learned

Youth (n=124)	Parents/guardians (n=81)
STEM topics or activities (49%) • *About the DNA stuff and everything else.* • *Learning about names of clouds.* • *How animals interact, communicate and the reasons why they do this.* • *The oil and water mixture.* • *The parachute and piñata.* • *The most interesting thing I learned was when we made the food chain.* • *All the activities.* ***STEM professionals or careers (23%)*** • *The people talking about their life.* • *The guest speakers' background info.* • *The most interesting thing was when Karen talked about her childhood and how she was struggling.* • *I learned the different types and job cost.* • *How a woman worked repairing things in the army.* • *That you have to be very patient with engineering.* • *Engineering is not about math is about creativity.* ***Inspired by aspect of the event (12%)*** • *That there are many Hispanic women engineers out there.* • *I liked how the speech Brianne gave about her life and how she never gave up.* • *One of our speakers lived near the beach, no matter where you are from we can still go into a STEM career.* • *That I could get to be a scientist.* • *The most interesting thing I learned was I can be anything and I just have to try.* • *Girls can do anything.* • *I learned that through patience, practice, and perseverance, I can do anything!* • *I liked how they told our parents to motivate kids to follow their dreams.* ***The food (4%)*** • *The food* • *Eating the food* ***Everything (3%)*** • *Everything was interesting.* ***Nothing (1%)*** • *N/A* ***Don't know (1%)*** • *I don't know* ***Other (15%)*** • *To share.* • *I learned how to communicate with others.* • *What a great team we made.* • *Your parents coming.* • *That they care of us.* • *That they said we are really special to them.* • *What PBS Kids is.* • *Family fiestas are fun!*	***STEM topics or activities (35%)*** • *All the sites where you can learn from STEM.* • *I loved learning about coding.* • *The bacteria growing around the school was interesting. The ingredients for lava lamps.* • *To share and learn a bit of science.* • *I really enjoyed looking at all crafts and exhibit models.* • *The examples that they brought to explain us very interesting.* • *The girls' SciGirls projects.* • *The activities that they have in the program.* ***STEM professionals or careers (25%)*** • *That more women are interested and involved in STEM.* • *How the mechanical engineer career took the guest speaker to so many places.* • *To hear older people explain how science studies shaped careers paths.* • *Hearing background of other female speakers and about program in general.* • *All the different fields that STEM is involved in.* • *International opportunities available and variety of opportunities.* • *That if my daughter is interested in science she could get to work at NASA or other science places.* ***Youths' futures and how to support them (12%)*** • *To push my daughter and pursue what she wants no matter the obstacle.* • *It is good to plan a future at a young age or to have a sense of who you want to be in life.* • *That every child has an interest in science and we must give the opportunity.* • *There is no limit to what you learn.* ***Youth engagement/motivation (10%)*** • *The confidence that it gives.* • *The attention or interest that they put into the classes.* • *… that my daughter felt super incredible.* ***Everything (9%)*** • *Everything was very interesting.* • *Everything was so interesting.* ***Shared appreciation for program (9%)*** • *To know who my children relate to.* • *How much support the program has. It's great!* • *I enjoyed being invited … It's good to reach out to parents.* • *The food / and the program was very nice.* ***Other (7%)*** • *That everyone can continue to learn more.* • *The effort.*

Participants' impressions of the in-person STEM professionals at the Family Fiestas
Figure 71 shows that youth and parents/guardians both had positive impressions of the in-person STEM professionals at the Family Fiestas. Using a scale from 1.0 (*strongly disagree*) to 5.0 (*strongly agree*), with 3.0 being *not sure*, both groups *strongly agreed* (median 5.0 each) that they had learned a lot from the STEM professionals, that the STEM professionals were good role models for the youth and their friends, and that youth would like the opportunity to meet with them again (or that parents/guardians would like for their youth to do so).

Additionally, youth tended to *agree* (median 4.0) and parents/guardians *strongly agreed* (median 5.0) with each of the following statements about the STEM professionals: I enjoyed hearing her talk about her work; I enjoyed hearing her talk about her personal life and background; she was clear/easy to follow; I felt comfortable asking her questions; it was important to me that she is Hispanic; I felt I (or my daughter) could relate to her; and the topics she talked about are relevant to my (or my daughter's) life.

Figure 71. Median participant ratings of their impressions of the in-person STEM professionals

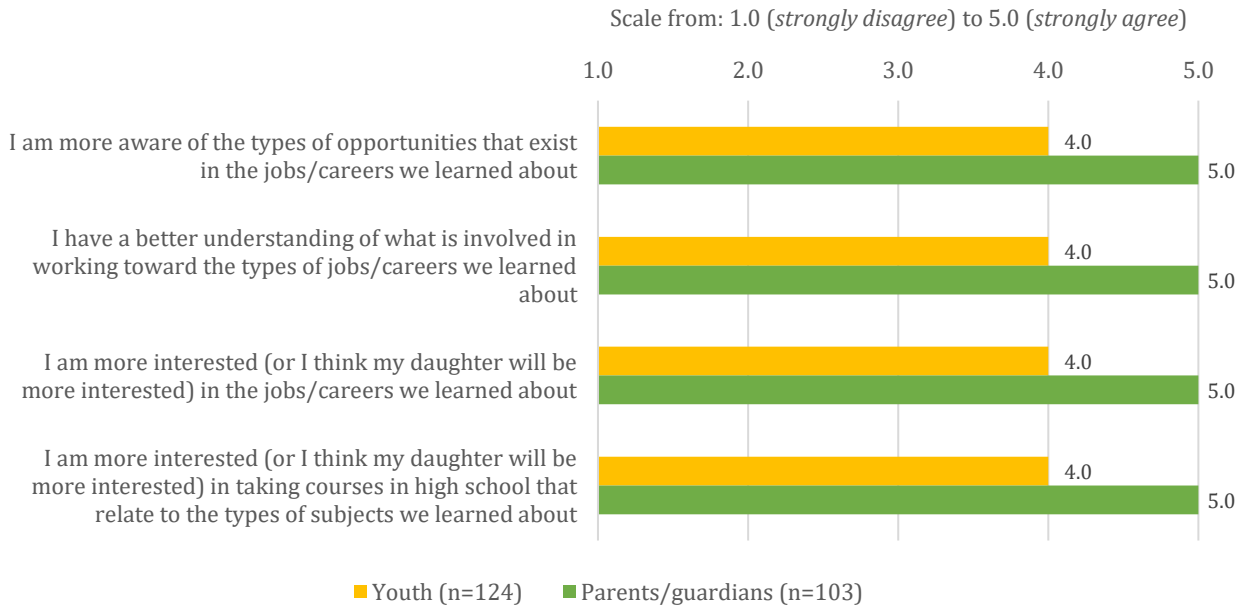


Participants' perceptions of the impact of the Family Fiestas on them

Figure 72 shows that youth and parents/guardians both generally agreed that the Family Fiestas impacted their understanding of and interest in STEM careers. Using a scale from 1.0 (*strongly disagree*) to 5.0 (*strongly agree*), with 3.0 being *not sure*, youth generally *agreed* (median 4.0 each) that they were more aware of the types of opportunities in the jobs/careers they learned about at the Fiestas, had a better understanding of what is involved in working toward these jobs/careers, were more interested in these jobs/careers, and were more interested in taking courses in high school related to the types of subjects they learned about.

Meanwhile, parents/guardians *strongly agreed* (median 5.0 each) that they were more aware of the types of opportunities in the jobs/careers they learned about at the Fiestas and that they had a better understanding of what is involved in working toward these jobs/careers. They also *strongly agreed* that their daughters would be more interested in these jobs/careers and that their daughters would be more interested in taking courses in high school related to subjects addressed at the Family Fiesta.

Figure 72. Median ratings of perceived impacts of the Family Fiestas on participants



Whether participants thought the Family Fiestas caused them to think/feel differently about STEM careers

Figure 73 on the following page shows that two-thirds of youth and parents/guardians thought the Family Fiestas had affected how they thought or felt about the job/careers they learned about at the event. About a tenth of youth and a quarter of parents/guardians said the Fiestas had not caused them to think or feel differently in this respect, and remaining youth and parents/guardians were *not sure*.

Among those who said *yes*, some youth said they were inspired, that the Fiesta had affected their interest in STEM, or that it had changed their opinion of STEM and STEM professionals, while others commented on things they did or learned during the Fiesta. Meanwhile, parents/guardians who said *yes* tended to reflect on what they had learned about STEM or STEM professionals and/or commented on youths' futures and how they could support them. Participants who said *no* gave various reasons, including that they were not interested, had other careers in mind, or were already familiar with STEM careers. Examples of their responses in each case are shared in Table 19.

Figure 73. Whether participants thought the Family Fiestas caused to think/feel differently about STEM careers

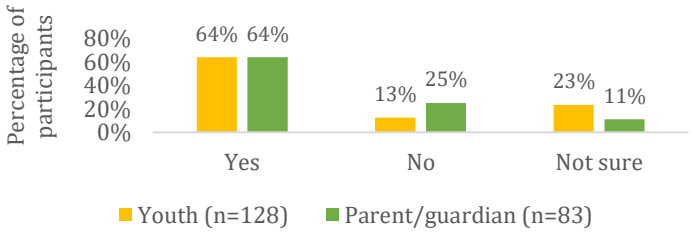


Table 19. Whether participants thought the Family Fiestas caused them to think or feel differently about STEM careers

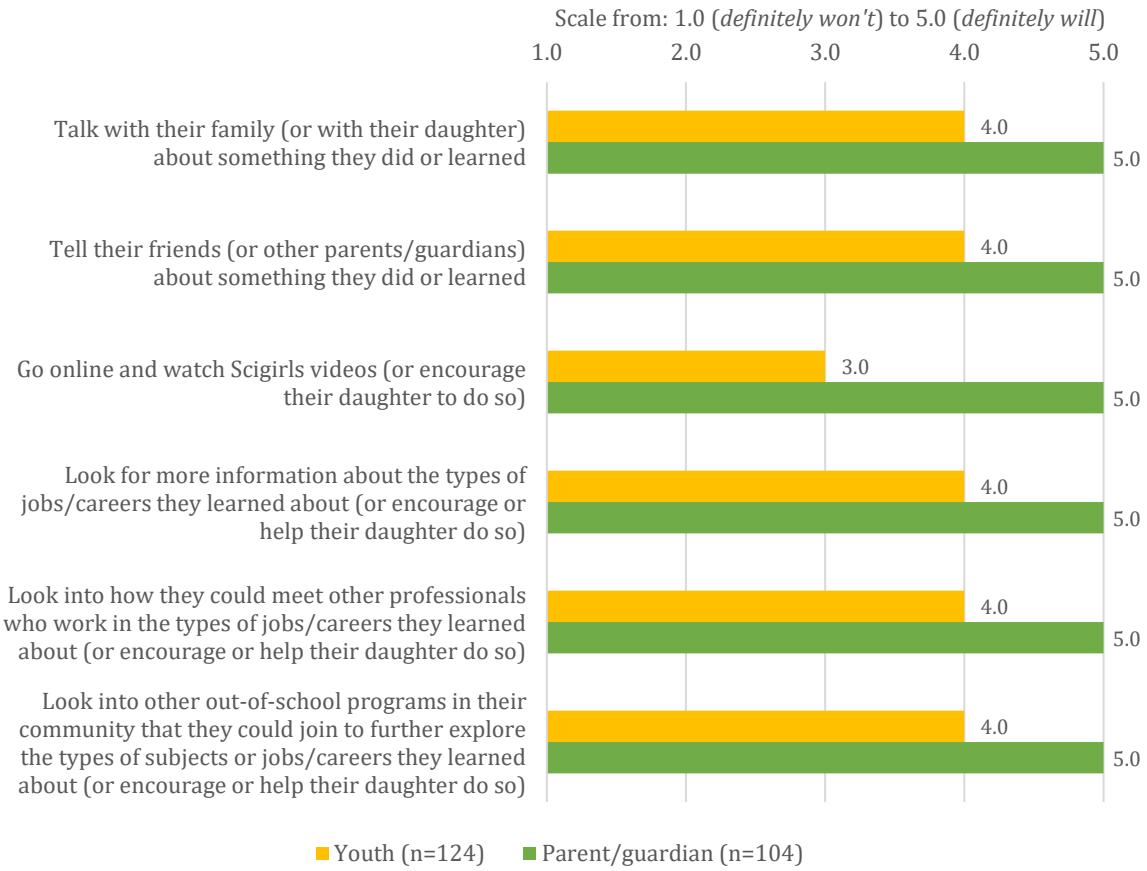
Youth (n=128)	Parents/guardians (n=83)
Yes (64%) • *It made we want to do a career.* • *It made me really like science more.* • *I am undecided and may consider this kind of career.* • *Now that I have more insight on how much fun it can be to do engineering it's kinda pushing me to acknowledge that engineering is something totally fun that I would love to do.* • *So I can have lots of choices.* • *You don't have to be really smart at math and science.* • *I learned a lot of the opportunities you can get in STEM and also know that I am interested in marine biology.* • *I feel they helped me make me learn more towards a STEM career, with my families support I can accomplish my dreams.* • *It teaches kids to do more STEM and learn more.* • *It helps me know more about chemistry.* • *I think it would be fun to learn more about volcanoes.* • *It talked about most careers and which classes are taken.* • *Yes it did, it opened me to more options in the engineering field.* ***No (13%)*** • *I already know what I want to be.* • *I already knew I wanted to be in a STEM career.* • *Not interested.* • *We didn't really learn about jobs/careers today.* • *I'm not old enough.* • *I feel like this made me a little bit less interested.* ***Not sure (23%)*** • *I don't know* • *Because I enjoyed today's program but I don't know if I would do it as a job.* • *Because I didn't understand it really well.* • *I don't know in general what will help me in my future career. I'm no genius when it comes to science.*	***Yes (64%)*** • *Yes, because it puts me on notice of the importance of family and moral support to motivate them to follow their dreams.* • *Because it helps me realize that there are many things I teach my daughter.* • *I am perhaps affected by the fact that I thought that to be in any of these programs you had to be super intelligent.* • *It is extremely important for girls to participate and join the STEM workforce. With you* • *It has educated me about the different possibilities and made me curious to look into the ones that I still don't know about.* • *I think it's a great program for Hispanic community to learn about the different career paths and professions that go with science, math and engineering.* • *Learned about Aerospace and biomedical engineering in more detail.* • *It was great to see someone so excited about engineering and how even though some subjects were difficult she persisted.* • *Interesting to hear how she got into her field* • *That science can be applied in many different career paths.* • *I learned about how important it is to choose a career you love.* ***No (25%)*** • *I've already been exposed to different world views however it does help my daughter see how others see the world and her allows her mind to expand.* • *I already have a positive view of these jobs/careers* • *My whole life STEM is applied in our daily lives being Latino and of Mexican heritage.* • *Because everything is very clear to me.* ***Not sure (11%)*** • *I do not get it.* • *There were no jobs discussed.*

Participants' likelihood of pursuing STEM-related activities after the Family Fiestas

Figure 74 shows that youth and parents/guardians both generally thought they were likely to pursue STEM-related activities after their Family Fiestas, although parents/guardians indicated a higher likelihood of doing each of the six activities listed than did youth participants. Using a scale from 1.0 (*definitely won't*) to 5.0 (*definitely will*), with 3.0 being *may or may not*, youth generally thought they would *probably* (median 4.0 each) talk with their family about something they did or learned at the Fiesta, tell their friends about something they did or learned, look for more information about STEM jobs/careers, look into how they could meet other STEM professionals, or look into other out-of-school STEM programs in their communities. They tended to think they *may or may not* (median 3.0) go online to watch *SciGirls* videos.

Meanwhile, parents/guardians generally thought they would *definitely* (median 5.0 each) talk with their daughters and with other parents/guardians about what they did or learned at the Fiesta. They also thought they would *definitely* encourage or help their daughters watch *SciGirls* videos online, look for more information about STEM jobs/careers, look into how they could meet other STEM professionals, or look into other out-of-school STEM programs in their communities.

Figure 74. Median ratings of participant likilhood of pursuing STEM-related activities after the Family Fiestas



2.7 Three illustrations of Family Fiestas

Between March and May 2018, members of the evaluation team observed three Family Fiestas in Texas, California, and New Jersey. Although the evaluation team had hoped to visit a fourth Family Fiesta in July 2018, the partner withdrew when they experienced unanticipated planning challenges.

Site visit goals

The evaluation team's goals for the site visits were to observe and document: 1) how the Family Fiestas unfolded as a measure of implementation fidelity; 2) the extent to which partner educators administered the youth and parent/guardian evaluation surveys described in Part 2.6 in accordance with the guidelines provided; and 3) how the partners involved families and STEM professionals in their events and the extent to which participants appeared engaged in these activities.

Recruiting criteria

Site visit locations were selected based on a combination of factors, briefly outlined below:

- The partner could provide a firm date for the Family Fiesta early in Year 2 to avoid the need to reschedule given the time and expense involved in travel to the sites.

- The Family Fiesta was not held at the program kick-off or program end when the project's research surveys need to be administered. (The evaluation team's experience in Year 1 showed it was generally too confusing and burdensome for partners and participants to have to deal with both research and evaluation surveys during the same event.)

- The Family Fiesta planned was of sufficient length and complexity that it met the threshold TPT envisioned for the events in terms of the required program elements. As noted in TPT's Program Expectations document, the Family Fiestas were meant to be "*STEM celebration opportunities to engage families and girls in hands-on activities, media viewing and role modeling by Latina STEM professionals.*"

- The Family Fiesta prioritized use of the new media resources (episodes, videos, activities) and use of in-person STEM professionals.

- The expected attendance (girls and family members) was higher relative to other sites (to help with survey numbers and to help with the potential issue of the evaluation team's presence affecting the experience of participants, though the evaluators' role was to be unobtrusive).

- Other criteria: Regional diversity and other factors such as Year 1 responsiveness to TPT and the evaluation team were also factored in.

Observation rubric
At least one member of the evaluation team observed each of the three Family Fiestas. Appendix 3 includes the rubric that the observers used to record and take notes on the event with respect to implementation of the required program elements, survey implementation, and participant engagement. The findings presented below relate specifically to the focus on family involvement and STEM professional involvement.

Overview of Family Fiestas
As shown in Table 20, all three Family Fiestas were evening events, lasting between one and a half to two hours. All three events were primarily focused on the STEM topic area of engineering. All were conducted in both English and Spanish, all used one or more *SciGirls* activities, and all included a meal. Images from the Family Fiestas are in the collages on pages 78 and 79.

Table 20. Overview of *Latina SciGirls* Family Fiestas (site visits)

	Event length (hours)	Time of day	STEM topic area	Conducted in Spanish and English	Used *SciGirls* activities	Included meal
Partner 1	2	Evening	Engineering	Yes	Yes (1)	Yes
Partner 2	1.5	Evening	Engineering (and biology)	Yes	Yes (1)	Yes
Partner 3	2	Evening	Engineering	Yes	Yes (4)	Yes

Fidelity of survey implementation
The program leader at each of the three events administered surveys at the end of the Fiestas. In one case the leader read the survey instructions provided by the evaluation team, and in another the instructions were paraphrased. At the third event, the program leader distributed surveys without instructions, though this leader did repeat twice through the event that there would be surveys to complete at the end of the Fiestas. At all three events, both youth and parents/guardians appeared to be focused on answering the questions, although background distractions such as loud music playing were noted at one event, and at another event family members or friends occasionally interrupted with questions or comments about something other than the survey.

2.7a The focus on family involvement

Level and type of attendance
As shown in Table 21 on the following page, combining the youth, parents/guardians, and other family members, the level of attendance ranged from a low of 44 to a high of 80 participants, although all three events had about the same ratio of youth to parent/guardian participants.

Table 21. Overview of participant attendance at *Latina SciGirls* Family Fiestas (site visits)				
	Total number of participants	**Number of youth**	**Number of parents/ guardians**	**Number of other family members**
Partner 1	80	30	30	20
Partner 2	44	18	20	6
Partner 3	63	19	18	26

How parents/guardians were involved

As shown in Table 22, parents/guardians were involved in almost all of the ways TPT envisioned. At all three events, parents/guardians: watched the STEM professionals' presentations, asked the STEM professionals questions, participated in and/or watched the hands-on activities, watched some type of *SciGirls* video (episode, STEM profile video, or other video), and shared in a meal. At two of the three events, parents/guardians also participated in a group discussion. Parents/guardians at one event were involved in planning the event as the partner asked for assistance in locating authentic food for the Fiesta meal. Images of family involvement at the Fiestas are shared in the collage on page 79.

Table 22. Overview of how parents/guardians participated in *Latina SciGirls* Family Fiestas (site visits)								
	Played role in planning event	**Watched the STEM professionals presentations**	**Asked the STEM professionals questions**	**Participated in hands-on activities**	**Watched hands-on activities**	**Watched *SciGirls* videos**	**Participated in group discussion**	**Shared in meal**
Partner 1	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Partner 2	Yes	Yes	Yes	No	Yes	Yes	No	Yes
Partner 3	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes

When partners were asked to reflect on whether they felt parents/guardians were as actively involved in the Family Fiesta as they envisioned, all three partners confirmed they found this to be the case. All three partners noted the activities as a key type of involvement, two partners noted the food, and one pointed to the opportunity to ask the questions of the STEM professionals, as follows:

- *Yes, they had a meal and participated with our speaker asking questions and our hand- on activity. Also, they were delighted to hear from the girls' perspective.*
- *Overall, parents/guardians were very involved in the event. All our parents were having a blast at each station and participated in every activity with their child. Everyone in attendance had a great experience and were very grateful to be part of our event.*
- *Yes, they enjoyed the food, the activities and the dancing*.

2.7b The focus on STEM professional involvement

Overview of STEM professional involvement

As show in Table 23, all three partner sites had more than one in-person STEM professional participate at their Family Fiesta. Additionally, one partner site showed a *SciGirls* episode, one showed three STEM profile videos, and one didn't show either type of *SciGirls* media but did show two other videos featuring STEM professionals.

Table 23. Overview of STEM professional involvement at *Latina SciGirls* Family Fiestas (site visits)

	Used in-person STEM professionals	Used *SciGirls* episodes	Used *SciGirls* profile videos	Used other videos with STEM professionals
Partner 1	Yes (3)	Yes	No	No
Partner 2	Yes (2)	No	No	Yes (2)
Partner 3	Yes (2)	No	Yes (3)	No

The following section summarizes the evaluators' observations of how STEM professionals were incorporated during the three Family Fiestas.

Use of in-person STEM professionals

All three partner sites had more than one in-person STEM professional participate in their Family Fiesta. Images of the STEM professionals at the Fiestas are shared in a collage on page 79. Two events hosted two STEM professionals and one hosted three, as briefly outlined below:

- ***Partner 1***: This Family Fiesta featured three STEM professionals, including two engineering students from a local university as well as a professional engineer. Combined, their presentations lasted approximately forty minutes. All three speakers used PowerPoint presentations and followed a roughly similar outline, as they were given general talking points to consider by the *Latina SciGirls* partners. Accordingly, all three talked about their journey to college, how they became interested in STEM, their experience studying STEM in college, and the various challenges and barriers they faced in pursuing a STEM education and job/career, as well as motivating and facilitating factors. In the case of the students, both also talked about what they hoped to do after college, while the practicing engineer talked about both what she does at her job and her life outside of work.

  Based on the evaluators' observations, the youth and family participants appeared engaged throughout all three presentations. Although the participants did not initially ask the students questions, once one of the *Latina SciGirls* partners asked the students a question, both youth and parents/guardians followed-up with their own questions. The professional engineer took a different approach and instead asked questions of the participants throughout her presentation, which in turn prompted questions from youth and parent/guardians, both while she presented and after she finished.

- ***Partner 2***: This Family Fiesta featured two STEM professionals, including a STEM professional from a local conservation organization who did not present but instead mingled with participants and conversed with the girls during dinner, and an engineering student who did present. Unlike the students at the Partner 1 Family Fiesta, the student in this case did not describe her journey to college or how she got interested in STEM. Instead, after briefly introducing herself for about five minutes, she played a five-minute video of another STEM professional on Flipgrid who works as a coder. She then had the girls join her in the center of the room so that she could show them some e-textiles and teach them about binary. Although the youth did not ask questions of her in this context, they seemed particularly engaged in her part of the presentation, though brief, and to a lesser extent the Flipgrid video. Parents/guardians meanwhile, seemed particularly interested in learning more about how their daughters could use Flipgrid to connect with STEM professionals.

- ***Partner 3***: This Family Fiesta featured two STEM professionals, including an engineer who mingled with participants but did not present and one engineer who did both. The engineer who did not present was involved in facilitating activities with youth, while the engineer who presented did so for about 12 minutes, in this case, describing her journey to college, how she got interested in STEM, her experience studying STEM in college, including the challenges and barriers she faced in pursuing a STEM education and job/career, as well as motivating and facilitating factors. Both youth and parents/ guardians appeared engaged in her presentation and several asked questions of her once she completed her presentation.

Use of SciGirls episodes

One of three partner sites, Partner 1, showed a *SciGirls* episode during the Family Fiesta. The partner had the episode already running as youth and families entered the Fiesta room and were directed to a buffet table and then dining tables for eating dinner. The episode played on a large screen as they ate and conversed with fellow participants and family members.

No technical difficulties were observed as the partner displayed the episode. Although the volume was low and competing with background conversation, it was possible to hear the episode from all of the tables where families sat.

While none of the youth or STEM professional were observed commenting or asking questions about the episode, at least some participants, particularly parents/guardians or other family members, were observed watching sequences from the episode, off and on, as they engaged in eating and/or talking.

Use of STEM profile videos

One partner site, Partner 3, showed three STEM professional profile videos, looping them on a television screen so they could be viewed throughout the meal period.

No technical difficulties were observed showing the videos. Although the television screen was of standard size, it was possible to see the screen from all of the tables in the room. As

with the Partner 1 site, although the volume was low and competing with background conversation, it was possible to hear the videos from all of the tables where families sat.

In addition, one partner site, Partner 2, showed participants a five-minute STEM video on Flipgrid, in this case as a focused part of the in-person STEM professionals' presentation. The video was not a *SciGirls* STEM profile video but it did show a *SciGirls* staff member demonstrating coding activities to youth. The STEM professional introduced the video as an example of a Flipgrid video, after which she played a brief response video from two anonymous girls (~10 seconds) in which they thanked the STEM professional for being a role model to them. Subsequently this same group then watched another Flipgrid video of a *SciGirls* staff member explaining how to make light up paper or bookmarks. As with the other two partner sites, no technical difficulties were observed showing either of these videos. As these videos were shown as a featured part of the presentation, the audio was set higher to ensure participants could hear. Participants generally appeared engaged while watching the videos, although appreciably less focused as the first video played on.

Examples of Family Fiesta set-up

Examples of Family Fiesta activities and project sharing

Examples of Family Fiesta family involvement

Examples of Family Fiesta STEM professional involvement

Discussion

The summative evaluation of the *Latina SciGirls* outreach program focused on the role of family and STEM professional involvement in engaging Hispanic middle school girls in STEM. To capture the project's key perspectives on these two program elements, the evaluation prioritized gathering overall implementation data and feedback from 10 *Latina SciGirls* outreach partners through reporting forms and reflection surveys, as well as feedback from youth, parents/guardians, and STEM professionals who participated in Family Fiesta events through paper and/or online surveys. In total, the summative evaluation gathered survey feedback from 10 partners, 130 youth, 108 parents/guardians, and 13 STEM professionals.

This Discussion section reflects on the findings that emerged in multiple places to summarize relevant themes and issues that may help inform future girl-focused STEM engagement projects, particularly those tailored to Hispanic middle school girls and their families. After considering the *Latina SciGirls* partner outreach programs overall, the discussion more closely looks at the programs' family involvement and STEM professional involvement focuses, and then closes with conclusions and a few recommendations that may be of interest to TPT and others planning or evaluating similar programs.

Overview of *Latina SciGirls* programs

The 10 *Latina SciGirls* programs took place in seven different U.S. states, with one state (Texas) being the site of four programs. Most of the programs were held in a school or community center setting, most took place afterschool, and most served youth from urban communities, although a few programs drew youth from suburban and/or rural communities. The average program length was 22 hours, above the minimum project requirement of 16, although individual programs ranged from a low of four hours to a high of 40.

In total, 196 youth participated in the 10 *Latina SciGirls* programs, averaging 20 youth per program. More than nine-tenths of these youth were girls, nine-tenths identified as Hispanic or Latino, and two-thirds were in middle school (grades six through eight). Most partners indicated that their youth predominantly came from low-to-moderately-low socioeconomic backgrounds and that most had low knowledge about STEM fields prior to participating in their program. Only one partner reported that most or all of their youth had low English proficiency. While none of the youth programs were conducted fully or mostly in Spanish, most programs included some Spanish.

Most of the partners reported that their programs primarily served youth who were new to *Latina SciGirls* programming and most said they addressed all six of the desired *Latina SciGirls* strategies relevant to youth, including: addressing youths' STEM identity; addressing youths' knowledge of STEM fields; using the term STEM with youth; showing youth relevant STEM media; exposing youth to Hispanic STEM role models; and incorporating the *SciGirls Seven* strategies for engaging girls in STEM. With respect to the *SciGirls Seven*, all of the partners further reported that their programs had youth collaborate in groups and engage in hands-on, open-ended projects and investigations. Most of the partners reported that their programs

had youth: approach projects in their own ways; receive specific positive feedback; use critical thinking; express their individual viewpoints within a group setting; develop relationships with role models or mentors; discuss STEM careers; work on a project designed to be personally relevant and meaningful; and communicate findings through a variety of techniques. Just over half of the partners, meanwhile, said their youth participants had an opportunity to use solid evidence to support their claims when communicating findings.

When asked to reflect on the impact of their programs on their youth participants, at least half of the partners observed that their programs positively influenced youths' awareness of STEM as a career path, their interest in or awareness of STEM, and/or their confidence around STEM. A couple of partners observed that their programs increased youths' motivation around STEM. When asked which aspects of their programs they thought had the greatest impact on the youth, half of the partners pointed to the STEM professionals, while smaller groups pointed to the hands-on activities, the program model in general (i.e., regular meetings of a free and available STEM program for girls), field trips, and the Family Fiesta. While this evaluation conducted direct evaluations with youth only at the Family Fiesta, the project's research study focused on Hispanic girls' experiences with the *Latina SciGirls* programs more broadly, and, in particular, if and how the experience of participating in *Latina SciGirls* impacted their STEM-related identity development (McLain et al., 2019).

In general, the partners felt that their involvement in *Latina SciGirls* also impacted their own knowledge of and/or skills in all of the ways TPT envisioned. In each case, all but one partner thought their involvement helped improve their knowledge/skills around how to engage Hispanic families in learning about STEM fields and how to integrate Hispanic female STEM professionals. All of the partners thought their involvement helped improve their knowledge/skills around addressing barriers to STEM engagement. Some of these partners described what they had learned from the STEM professionals about barriers (as in, "*I learned a bit from the STEM role models about the issues they have faced in their careers*"), while others commented on what they had learned about specific barriers faced by Hispanic girls, most often relating to issues of fear, trust, access, and family support.

Latina SciGirls focus on family involvement

Overall program

The evaluation found that all of the *Latina SciGirls* programs involved parents/guardians and siblings, while just under half involved grandparents and cousins, and a couple included aunts/uncles. Most partners reported that most or all of the parents/guardians who participated in *Latina SciGirls* had low knowledge about STEM fields. Only a couple of partners reported that most or all of their parents/guardians had low English proficiency.

TPT provided partners with the *Engaging Latino Families Guide* to assist with their family-related program planning, although fewer than half of the partners said they used the guide. While a few of these partners commented on its usefulness (as in, "*It was helpful in regards to language used in describing the program to parents*"), among the six partners who did *not* use

the guide, two pointed to time constraints, one said she was unaware of the resource, and another explained that her organization's program hadn't focused on engaging families.

No minimum hour requirement was set for parent/guardian programming, although, as with the youth programming described on page 80, the duration ranged considerably by program (from one and a half to nine hours), averaging four hours per program. Most of the partners reported that their programs incorporated all three of the desired *Latina SciGirls* strategies relevant to families, including: using the term STEM with parents/guardians; offering opportunities for family participation; and addressing parent/guardian knowledge of STEM fields.

As described further below, all 10 partners implemented a Family Fiesta, and four partners also hosted a welcome event for families. Those who implemented a welcome event were generally pleased that they had, noting, for example, that while the event was optional, it gave them a chance to provide information about their program, increase family members' familiarity and comfort, and/or encourage parental involvement. Of the six partners who did *not* host a welcome event, two thought it would have been a good idea, as it would have allowed parents/guardians to learn more about their program, while three felt it wouldn't have been necessary, citing family members' limited availability or parental involvement in other aspects of the *Latina SciGirls* programs.

When asked to reflect on the impact of their *Latina SciGirls* programs on their parent/guardian participants, half of the partners observed that their programs positively influenced parent/guardian awareness of STEM as a possible career path for their daughters and half observed that parents/guardians expressed positive feeling about youths' excitement about STEM. A couple partners pointed to positive influences relating to parent/guardians' pride, and one partner said it changed parent/guardians' interest in or awareness of STEM. When asked which aspects of their programs they thought had the greatest impact on the parents/guardians, just under half pointed to the Family Fiesta, while a couple in each case commented on family members seeing or learning about youths' potential and/or seeing youths' enthusiasm or excitement, among other responses.

Family Fiestas

Partners were required to implement a Family Fiesta as the keystone family involvement element of their *Latina SciGirls* programs. All 10 partners held a Family Fiesta that included parents/guardians, and all but one hosted other family members at their event. In total, 177 parents/guardians attended Family Fiestas, as well as 116 other family members (e.g., siblings, cousins).

TPT provided partners and STEM professionals with materials to assist with their Family Fiesta planning, although these resources were not used by the majority of either group. Specifically:

- *Partners' use of the Family Fiesta Guide:* The six partners who used the *Family Fiesta Guide* generally indicated it was *very useful* to their planning, and one elaborated that it was "*a good checklist*" even though it didn't contain any new information for their organization.

Among the four partners who did not use the guide, two cited time constraints, two said they weren't aware of the resource, and one said their organization "*didn't need it*."

- *STEM professionals' use of the Role Model Strategies Guide:* Just over half of the 13 STEM professionals who participated in the Family Fiesta evaluation used the *Role Model Strategies Guide*. This group of seven STEM professionals generally found each of the four parts of the guide *very useful*. Only one chose to elaborate, writing, "*Although I have worked with students in the past, having resources and tips and tricks is always helpful, especially for events I haven't participated in in the past."* Among the six STEM professionals who did not use the guide, four said they were not aware of it, two of whom elaborated that they would have found it helpful (as in "*I would've felt more prepared as it would have served me as advice*" and "*Yes, the guide identifies a few key points to keep in mind when speaking with families*"). One said she wasn't sure if it would have been helpful, as she already felt able to relate to family members at the event.

- *STEM professionals' use of the role model training webinar*: Three of the 13 STEM professionals who participated in the Family Fiesta evaluation made use of the preparatory role model training webinar, two of whom went on to rate its usefulness, with one finding it *moderately useful* and the other finding it *very useful* and adding, "*I think the webinar provided valuable information on how to engage kids and their families … [but] I think it would be a good idea to have more previous role models share their experiences.*" Those who had not used the training webinar were asked why not. Among this group of 10, eight shared a response: six said they didn't know about it, two pointed to time constraints, and one said they didn't need it (as in, "*Have already had and taught STEM role model best practices to others*"). When also asked if, in retrospect, they would have found this type of training useful, six STEM professionals said yes (for example, "*Yes, I think it would have helped me connect with and engage the girls better*") and one said she wasn't sure, as she felt she was able to relate to family members at her event.

- *STEM professionals' interest in video examples:* Although video examples of STEM professionals interacting with youth and parents/guardians weren't provided as a preparatory resource, when asked if they would have found such a resource useful, the STEM professionals indicated that both types of videos would have been *extremely useful* prior to participating in the Fiestas. One STEM professional reflected that such videos would have helped with understanding expectations and what the event would entail, as in "*Maybe just knowing the expectations of the Family Fiesta before the event would have been helpful. I wasn't sure exactly what to do during the event or what it entailed*." Another thought it would have been helpful to see examples of participant interaction, as in "*Examples of STEM professionals interacting with youth and parents is extremely useful as I am still learning better strategies for communication with leading programs in engineering.*"

In terms of how partners implemented the Family Fiestas, overall, there did not appear to be a predominant model, beyond the fact that each event featured at least one STEM professional, each included a meal, and most used at least one *SciGirls* activity. At the same time, parents/guardians were actively involved at all of the Family Fiestas. At each event they shared in a meal, at all but one they participated in activities, and in most instances they

watched the activities and/or watched the STEM professional's presentation/talk. Parents/guardians were somewhat less involved in two Family Fiesta activities. They asked questions of the STEM professionals at less than half of the events, and at a few events they watched *SciGirls* videos. Given that the partners had a fair amount of flexibility in how they incorporated families into their Fiestas, it is not surprising that the events included parents/guardians in different ways.

The evaluation found that, from multiple perspectives, the Family Fiestas were perceived to be successful in increasing girls' engagement with STEM. For example:

- *Partner observations:* Half of the 10 partners thought their Family Fiestas impacted youths' pride in sharing their *Latina SciGirls* experience and achievements. Smaller groups thought the events changed youths' interest in or awareness of STEM careers, thought the event impacted youths' STEM learning, or said their youth felt connected to or supported by their families, among other responses. When asked which aspects of their Family Fiestas they thought had the greatest impact on youth, half of the partners pointed to the STEM professionals, while smaller groups pointed to the opportunity to share what they had learned and/or the activities, among other responses.

- *STEM professional observations:* In terms of what the STEM professionals observed of their interactions with youth, eight thought their Family Fiesta presentations had been *very* or *extremely effective* in opening youths' minds to careers in their STEM fields, while five thought they had been *moderately effective* in this respect.

- *Youth feedback:* The 130 youth who participated in the Family Fiesta evaluation generally *agreed* that they were more aware of the types of opportunities in the jobs/careers they learned about at the event, had a better understanding of what is involved in working toward these jobs/careers, were more interested in these jobs/careers, and were more interested in taking courses in high school related to the types of subjects they learned about. Additionally, about two-thirds of youth thought the Family Fiesta affected how they thought or felt about the job/careers they learned about at the event. Within this group, some youth said they were inspired, that the Fiesta had affected their interest in STEM, and/or that it had changed their opinion of STEM and STEM professionals, while others commented on things they did or learned during the Fiesta.

Similarly, the evaluation found that, from multiple perspectives, the Family Fiestas were perceived to be successful in involving parents/guardians and in impacting their STEM interest and awareness, specifically in relation to their daughters' engagement with STEM. For example:

- *Partner observations:* When asked if parents/guardians had been as actively involved in the Fiestas as they had envisioned, all but two partners felt they were (for example, "*They were completely integrated and involved in the whole event … it was what I'd envisioned...and then some!*"). Those who felt the parents/guardians weren't as involved as they had envisioned either explained that they were hoping for a greater turnout ("*I was expecting more parents to come to the event*") or had hoped for greater engagement ("*They*

participated in the activities, but weren't as engaged as I would've liked. I believe this was due to the heat").

When asked to described the impacts they thought the Family Fiesta had on their participating parents/guardians, just under half of the partners in each case said they: observed an impact on parent/guardians' pride, thought the event encouraged positive feelings about youths' involvement in *Latina SciGirls*, and/or thought the Fiesta made them more open-minded about youths' capabilities, among other responses. When asked which aspects of their Family Fiestas they thought had the greatest impact on parents/guardians, most pointed to the activities (as in, "*It showed them that science is fun and interesting*"). A few in each case pointed to the STEM professionals and/or seeing youth share what they had learned, among other responses.

- *STEM professional observations:* When asked to reflect on their interactions with parents/guardians, half of the STEM professionals who participated in the Family Fiesta evaluation thought the parents/guardians showed an interest in STEM careers, while a few thought the parents/guardians were interested in supporting youths' STEM learning.

- *Parent feedback:* The 108 parents/guardians who participated in the Family Fiesta evaluation *strongly agreed* that they were more aware of the types of opportunities in the jobs/careers they learned about at the event and that they had a better understanding of what is involved in working toward these jobs/careers. They also *strongly agreed* that their daughters would be more interested in these jobs/careers and that their daughters would be more interested in taking courses in high school related to subjects addressed at the Family Fiesta. Additionally, about two-thirds of the parents/guardians thought the Family Fiesta affected how they thought or felt about the job/careers they learned about at the event. Most often these parents/guardians tended to reflect on what they had learned about STEM or STEM professionals and/or commented on youths' futures and how they could support them.

Latina SciGirls focus on STEM professional involvement

The *Latina SciGirls* program's STEM professional focus encompassed multiple forms, including an in-person/live presence, *SciGirls* episodes portraying STEM professionals guiding girls in a STEM project, and *SciGirls* STEM profile videos spotlighting one STEM "role model," her job/career, and her personal background.

In-person STEM professionals

Overall program

A total of 44 STEM professionals participated in the 10 *Latina SciGirls* programs considered in the evaluation. About half of these professionals identified as Hispanic or Latino and about half were bilingual in Spanish and English. Looking across the programs, there was a considerable range in the number of STEM professionals incorporated in each program, from one to 14. While three programs did not meet the minimum requirement of involving at least

three STEM professionals, all programs incorporated at least one STEM professional in-person visit.

There was also considerable variation in the extent to which and how the in-person STEM professionals were incorporated into the *Latina SciGirls* programs. With respect to *extent*, the partners estimated that their visiting STEM professionals were directly involved with their youth from two to 23 hours, averaging eight hours per program. With respect to *how* they were involved, in most cases the STEM professionals presented and/or talked to participants about their lives or careers. In a few programs, they led Q&As, facilitated activities, were involved in a field trip, and/or were involved in other ways.

In general, the partners reflected that the STEM professionals were *extremely valuable* to their programs. Some elaborated about the potential for girls to see themselves in STEM roles (for example, "*The girls really react differently when someone else comes in and does something with them. We are old hat and the fact that these women are smart, approachable and confident is invaluable to making the girls see themselves in these roles. I feel like this is really the strongest part of the program. I cannot stress that enough*"). Others commented on the importance of providing opportunities for girls to interact with role models who were Hispanic and had diverse backgrounds and perspectives (as in, "*I am white, so it was great for the girls to talk with someone who is Latina … As for the STEM professionals, overall they were extremely valuable in providing different perspectives culturally and professionally*").

Family Fiesta

Eighteen (18) STEM professionals were involved in the 10 Family Fiestas considered in the evaluation. The number of STEM professionals at each event ranged from one to four, averaging two per Fiesta. All of these STEM professionals visited in-person, as opposed to video chat or another mode of communication, although they were incorporated into the Fiestas in somewhat different ways. At most of the Fiestas, they presented information about: their jobs/career; their backgrounds/personal lives; and what is involved in working toward their jobs/careers. Among the two partners whose STEM professionals didn't present about their job/career, one explained, "*We decided to focus on the participants' achievements. [Our STEM professional] had already talked to the families about her career and opportunities in prior sessions*," while the other said, "*Not formally, she talked to parents about her work when she did the DNA project with them …*" Additionally, at some Fiestas the STEM professionals talked about opportunities in their jobs/careers, answered (or offered to answer) questions, held a group discussion with youth, held a group discussion with parents/guardians, talked about barriers they had faced in their jobs/careers, and/or talked about overcoming those barriers.

Parents/guardians generally found the in-person STEM professionals *extremely interesting*, while youth generally found them *very interesting*. Both groups also *strongly agreed* that they had learned a lot from the STEM professionals, that the STEM professionals were good role models for the youth and their friends, and that youth would like the opportunity to meet with them again (or that parents/guardians would like for their youth to do so). Additionally, youth tended to *agree* and parents/guardians *strongly agreed* with each of the following statements about the STEM professionals: I enjoyed hearing her talk about her work; I enjoyed hearing her talk about her personal life and background; she was clear/easy to follow; I felt

comfortable asking her questions; it was important to me that she is Hispanic; I felt I (or my daughter) could relate to her; and the topics she talked about are relevant to my (or my daughter's) life.

Partners also frequently praised the role that STEM professionals played during the Fiestas and thought their presence engaged girls in STEM. As one partner reflected, "*The students and families were very engaged and open-minded during our role model's speech. What stood out the most that she had talked about was how when she was a child and going to school she did not like math or imagined being an engineer. She told the girls that just because they did not think about it at a young age does not mean it is not a possible future for them. They just need to work hard and never give up. She was very inspiring.*"

Finally, the STEM professionals who participated in the evaluation generally felt the Family Fiestas impacted them in the six ways that TPT envisioned. Specifically**,** these women tended to *strongly agree* that, after participating in a Family Fiesta, they were interested in visiting other programs as role models. They also generally *agreed* that they: had a better understanding of how youth viewed their jobs/careers, had a greater appreciation of the value of communicating to youth about their jobs/careers, were more confident in their ability to communicate with youth about their work, were re-energized about their work, and had a better understanding of the kind of information that is important for parents/guardians to hear about their work so they can better support their daughters' interest in STEM.

SciGirls episodes featuring STEM professionals

Overall program

Most of the partners used *SciGirls* episodes in their programs, though the number shown per program varied considerably (from two to 11) averaging five per program. Overall, the partners found the *SciGirls* episodes *very valuable* to their programs. Those who further reflected on their ratings tended to focus on youths' positive response to the episodes, including their ability to connect with the girls in the episodes who were bilingual (as in, "*The girls really enjoyed the videos and loved that a lot of the girls switched back and forth between English and Spanish in the Season 4 episodes. Many of the girls are bilingual, so that hit home with them*"). Among the three partners who did not use the episodes, one said they had instead focused on activities (as in, "*We wanted to focus on the activities at hand since our sessions were only an hour and a half long. Girls were given cards with the weblink to SciGirls*"). Another said they hadn't had time, and the third declined to elaborate.

Family Fiesta

Only two partners showed *SciGirls* episodes during their Family Fiestas. One showed clips from two Season 4 (*Latina SciGirls*) episodes in Spanish and one said they showed "*mini clips on the website over different activities*," without elaborating on which specific episode clips were shown. Among the eight partners who did not incorporate episodes or episode clips in any way, most said they had used their limited time at the Family Fiesta for other activities, including a slideshow and the hands-on activities, while a couple felt that the videos would not appeal and/or that their participants would prefer the hands-on activities, as in: "*There is no way that [family members] would have come to watch videos. Parents are like kids, they don't*

want a lot of talk or video, they want hands on. They really like doing the projects … if we made them watch videos and listen to talk we might not see them back." One partner pointed to technological barriers and another said they had instead shown parents/guardians how to access the *SciGirls* website.

While the partners expressed some hesitations about including the episodes in the Family Fiesta setting, parents/guardians who saw *SciGirls* episodes or clips from episodes at their Family Fiesta generally found them *very interesting*. Youth generally found them *a little interesting*, perhaps because they may have previously viewed the episodes or clips in their *Latina SciGirls* programs.

SciGirls profile videos featuring STEM professionals

Overall program

Overall, the *SciGirls* STEM profile videos were used less often than the episodes, in fewer than half of the programs. The number of videos shown per program ranged from two to eight, averaging four per partner. All but one of the videos was from Season 4 (*Latina SciGirls*). In reflecting on the relative value of the videos, the partners generally found them to be *moderately-to-very-valuable* to their programs. One partner praised the profile videos for portraying diverse STEM careers and felt the videos could inspire girls to consider these careers ("*I loved showing the mentor videos because my students were able to learn more about different careers in STEM for Latinas and be inspired that they could do the same thing in the future*"). Meanwhile, two partners said they preferred to incorporate in-person STEM professionals (as in, "*We can bring the role models themselves into the events...and can be sure they match the demographics of our participants*"), and one reiterated that her youth had preferred activities to videos.

Family Fiesta

Only two Fiestas incorporated profile videos – two videos in one case, three in the other – and all of the videos shown were from Season 4 (*Latina SciGirls*) and were in Spanish. Among the eight partners who did not incorporate the STEM profile videos, four cited time constraints and one each said they: lacked the technology, thought the episode clips they showed had highlighted STEM careers, didn't need to because their Fiesta was attended by an in-person STEM professional, or felt their participants wouldn't have enjoyed watching videos.

While the partners expressed some hesitations about including the profile videos in the Family Fiesta setting, parents/guardians who saw one or more of these videos at their Family Fiesta generally found them *extremely interesting*, while youth generally found them *very interesting*.

Conclusions and recommendations

Looking across the findings, this final section offers a few concluding comments about the *Latina SciGirls* project's focus on family and STEM professional involvement, as well as recommendations that may be of interest to TPT and others planning or evaluating similar programs designed to engage Hispanic middle school girls in STEM.

Family involvement

Families were primarily involved in partners' *Latina SciGirls* programs though a one-time event, the Family Fiesta, although nearly half of the programs also coordinated a welcome event for families. Focusing on the Family Fiestas, for which there is evaluation data from multiple perspectives (including partners, STEM professionals, and youth and parents/guardians alike), this centerpiece event was an implementation requirement that partners could realistically meet, and the Fiestas were successful in engaging girls (and their parents/guardians) to learn about STEM. After participating in a Family Fiesta, youth and parents/guardians both expressed a greater awareness of and interest in STEM and STEM careers. When asked to describe the most interesting things they had learned at their event, both youth and parents/guardians most often focused on something learned about STEM topics (or STEM activities) and/or STEM professionals/careers.

The evaluation findings relating to family involvement point to some possible areas for future program and evaluation consideration, particularly in the three areas briefly discussed below: expanding opportunities for family involvement, identifying family challenges to participation, and facilitating use of family engagement preparatory resources.

Expanding opportunities for family involvement

As the Family Fiesta was the primary mechanism for involving parents/guardians in the partner programs, and the evaluation showed this was a realistic and successful program component from the point of view of all involved, it is worth considering how outreach partners in future programs might build from this success to further encourage family involvement. For example:

- One idea implemented by some of the *Latina SciGirls* partners was a welcome event. Although not required, the four partners who coordinated one such event generally thought it helped them provide information about their programs, increase family members' familiarity and comfort, and/or encourage parental involvement.

- Beyond involving parents/guardians in these two on-site events (Family Fiestas and welcome events), future projects might also consider other ways of fostering their participation at multiple points throughout the program, for example by encouraging them to volunteer during one or more program sessions to help lead an activity, helping them connect with other parents/guardians to build a STEM-supporting community (as observed in one of the case studies presented in the *Latina SciGirls* research report, where parents formed a WhatsApp group (McLain et al., 2019)), or

through the distribution of at-home resources families can use alongside their youths' program activities. Based in part on the project team's experience with *Latina SciGirls,* TPT incorporated this third approach into the design of its *CEREBROedu* partner outreach program, which launched in 2019.

Identifying family challenges to participation

Programmatic recommendations relating to further family involvement should also be balanced by the kinds of challenges a few partners encountered with convening and involving parents/guardians at their family-focused activities and events, even though parents/ guardians expressed considerable interest in and enthusiasm for being involved. As one partner reflected: "*The fact that parents took time off of work when they live paycheck to paycheck speaks volumes about how they feel about their daughter's involvement. I had a lot of parents tell me how excited their daughters were when they related what they did in the program."*

Relating specifically to the Family Fiesta, the one event for which evaluation data from parents/guardians was collected, it is notable that only 15% of the parents/guardians who attended and completed the evaluation survey were male. Although information about the gender distribution of the parents/guardians in attendance at the Family Fiestas wasn't available, the possibility of this imbalance is worth considering. Outreach partners in future programs may appreciate and benefit from additional guidance on how to encourage and facilitate participation among parents/guardians in general, but also fathers specifically. As a recent whitepaper from Microsoft concluded, fathers can play a key role in encouraging girls' interest in STEM:

> *More than half of middle school and high school girls say they're often encouraged by their moms and teachers. Less than half, however, say their fathers offer encouragement … Encouragement from dads has a consistently positive influence on a girl's interest and likelihood to study STEM in the future. Because many girls still think of STEM as skewing male, it helps to have men in their lives saying, 'This is open to you, too*' (Kesar, 2018, p. 12).

Considering that a recent review of research on father's involvement in their children's education indicated that "*there is no theoretical framework up to date explaining the gendered nature of parental educational involvement*" (Kim, 2018, p. 280), future research might explore how and why the impact of fathers' involvement differs from mothers' in STEM engagement projects like *Latina SciGirls*. Additionally, to further assist with identifying opportunities for family (and father-focused) involvement, future evaluation efforts might look more closely at potential challenges to participation – ranging from those encountered in daily life such as transportation, childcare, work, and guardianship or custody coordination, to the factors identified in the *Latina SciGirls* NSF proposal and subsequent project work relating to Hispanic parents/guardians' STEM-related exposure, knowledge, attitudes, and beliefs; access to family-based programs and educational resources; English language proficiency; and perceptions of parental involvement at the middle school level, factoring in relevant culture, gender, and other perspectives (Burston & Collier-Stewart, 2018; Koch et al., 2019; Davis & Maximillian, 2017; Hernandez et al., 2016; Wassell et al., 2017; Simpkins et al., 2018; Zarate, 2007). A fuller understanding of these factors as they relate to family involvement in the

partner programs could provide a more complete picture of how the programs and Family Fiestas fit into and affect participants' lives and also point to possible solutions to the identified barriers, as well facilitating factors and opportunities.

Facilitating use of family engagement preparatory resources
Potentially smaller-than-anticipated groups of partners used the family-focused planning resources developed and provided by TPT, specifically the *Engaging Latino Families Guide* and the *Family Fiesta Guide*. Given this feedback, future projects may want to find ways to increase awareness and utilization of similar resources, for example by making them readily available in a single online location, sharing them multiple times over the course of a project, and/or making the review of these kinds of resources mandatory for partners. This final suggestion could be accomplished by presenting the material in an online webinar that would track participation, as is currently being done with the training materials developed for TPT's *CEREBROedu* program.

Additionally, although many *SciGirls* projects include a partner training evaluation component, the *Latina SciGirls* program did not due to budget limitations and the project's focus on front-end and formative evaluations of *Latina SciGirls* media and summative evaluation of partners' outreach programs. It is possible that an evaluation of the *Latina SciGirls* webinar training – which occurred as a two-hour webinar in Year 1 of the program and a one-hour webinar in Year 2 – might have provided the project team with insights about the partners' use (or lack of use) of resources before, during, and after the training, their sense of preparedness to conduct their programs, and any desired areas of follow-up.

STEM professional involvement

In-person STEM professionals were involved in *Latina SciGirls* programs and Fiestas in a variety of ways. In most programs, they talked to participants about their lives or careers, and in a few programs they led Q&As, facilitated activities, and/or were involved in a field trip. At the Family Fiestas, they most often talked about their backgrounds/personal lives, working towards their jobs/careers, opportunities in their jobs/careers, and/or they answered (or offered to answer) participants' questions.

Despite the reported variations in program implementation, with respect to the prioritized Family Fiesta event, the evaluation found that the partners, STEM professionals, and youth and parents/guardians found the inclusion of STEM professionals appealing and thought their presence engaged girls in STEM. These findings add to results from studies of other informal STEM programs that have successfully utilized in-person STEM professionals in an effort to increase girls' STEM engagement (Kesar, 2018; Shin et al., 2016; Weber, 2011; Young et. al, 2017; O'Brien et al., 2016, Hughes et al., 2013).

Including in-person STEM professionals in the partner programs and Family Fiestas was an implementation requirement that partners could realistically meet, although some had more success in this area than others, as detailed earlier in this Discussion. As with the family-focused planning materials, potentially smaller-than-anticipated groups of STEM professionals used the planning resources developed and provided by TPT, specifically the

Role Model Strategies Guide and the training webinar for STEM professionals. Many who did not use the resources said they were not aware of but would have found the materials useful.

While all 10 of the *Latina SciGirls* programs incorporated at least one in-person STEM professional in their programs and most incorporated at least three, the *SciGirls* media featuring STEM professionals were used by comparatively fewer partners. In total, seven programs incorporated *SciGirls* episodes and four incorporated STEM profile videos. Although none of the evaluation participants indicated that they felt the videos could be improved in some way, a couple of partners noted that their girls preferred doing the hands-on activities to watching the videos and one educator explained that she prioritized activities over videos in her program planning because of the limited length of her sessions.

The evaluation findings relating to STEM professional involvement also point to some possible areas for future program and evaluation consideration, particularly in the four areas briefly discussed below: facilitating use of in-person STEM professional preparatory resources, facilitating use of media-based STEM professionals, prioritizing inclusion of Hispanic STEM professionals, and incorporating cultural responsiveness considerations in connecting STEM professionals with youth and family audiences.

Facilitating use of in-person STEM professional preparatory resources

Given the feedback on the lack of use of the *Role Model Strategies Guide* and the training webinar for STEM professionals, future projects may want to find ways to increase STEM professionals' awareness of, access to, and utilization of similar resources. Additionally, it may be worth providing participating STEM professionals with other types of resources. For example, although video examples of STEM professionals interacting with youth and parents/guardians weren't provided as a preparatory resource for *Latina SciGirls*, more than half of the STEM professionals who participated in the evaluation indicated that they would have found such videos *extremely useful* prior to participating in the Fiestas (as in, "*Examples of STEM professionals interacting with youth and parents is extremely useful as I am still learning better strategies for communication with leading programs in engineering*").

Although the *Role Model Strategies Guide* and the training webinar also provided information about how to interact with family event participants, video examples may help future STEM professionals' comfort level and sense of preparation prior to participating in family events coordinated by similar programs. Reflecting on the background of the 13 STEM professionals who completed the *Latina SciGirls* evaluation, this kind of visual demonstration might have been especially valuable to many in the group, as just over half said they hadn't been involved with a youth-focused STEM program in the three years prior to *Latina SciGirls*, and nearly half said they were students or had a year or less of career experience.

Following from the above, as another way of increasing STEM professionals' comfort and sense of preparation, future projects might also prioritize providing *partners* with additional information about how to not only incorporate STEM professionals into their programs, but also how to clearly convey program goals and expectations to these participants. Some STEM professionals experienced challenges at the Family Fiesta, such as time management, personally relating to youth and/or parents/guardians, gearing the presentation to participants' knowledge, coordinating the presentation setup/layout, and/or using technology

for the presentation. Factoring these challenges into future partner trainings and resources may help the Fiestas run more smoothly and enhance the experience of not only the STEM professionals and partner educators, but also the participating girls and their family members.

Facilitating use of media-based STEM professionals

Relative to the in-person STEM professionals, the *SciGirls* episodes and profile videos featuring STEM professionals were used by comparatively fewer partners. While the *Latina SciGirls* evaluation was neither designed to delve deeper into these disparities nor to explore differential impacts of the in-person and mediated STEM professionals, the findings suggest the need for future studies in this area. As an example, a recent study of use of the *SciGirls Strategies* with high school girls in classroom settings (McLain et al., 2018) found that in-person female STEM role models were more effective than video-based role models in developing participants' STEM-related identities, although the authors qualified that "*it is necessary to unpack the monolithic concept of 'role model' to differentiate role, social, and personal influencers who exhibit traits and behaviors that inform these different levels of identity"* (McLain et al., 2018, p. 4).

In the case of *Latina SciGirls*, it is important to note that the partners' reasons for not using the videos did not focus on any particular aspects of the videos themselves. These findings suggest that, at least in the context of *Latina SciGirls,* there might have been some lost opportunities that could have been offset by offering partners more targeted training and guidelines about the multitude of ways they could use the media-based STEM professionals with youth in their programs and youth and families in the context of the Family Fiesta. After observing the use of videos in three case study locations, the *Latina SciGirls* research report similarly suggested that future projects "*be strategic in the use of videos*" by contextualizing the videos in terms of relevant program elements, using or creating companion tools, using the videos to support visits from in-person STEM professionals, and paying attention to the viewing experience (McLain et al., 2019, p. 67). Additional partner support in this area seems warranted given: TPT's investment in the *SciGirls* episodes and profile videos; the relative ease, flexibility, and cost-effectiveness of incorporating these media; and the fact that both resources were generally well-received by the educators who used them and the youth and parent/guardian participants who saw them.

Beyond *Latina SciGirls*, a few other evaluations have looked at the use of *SciGirls* media featuring STEM professionals, at least two of which focused specifically on the experience of Hispanic girls and their families (Flagg, 2015; Knight Williams Inc., 2016; Knight Williams Inc., 2017). These and other studies on the use of media-based portrayals of STEM professionals among middle school girls indicate their potential for increasing girls' engagement with STEM (Wyss et al., 2012; Chen & Cowie, 2014; Steinke et al., 2007; Steinke et al., 2009; Ware & Stein, 2013; Townsend, 1996). While the *Latina SciGirls* summative evaluation explored the use of media-based STEM professional involvement in the partner outreach programs in a limited way, the findings are encouraging. Future evaluations of the partner programs might explore additional opportunities for incorporating *SciGirls* media within the typical afterschool, summer camp, and weekend program settings.

With respect to parent/guardian exposure to *SciGirls* media, the Family Fiesta was the primary context for coordinating parent/guardian viewing of the episodes and profile videos.

It is uncertain whether parents/guardians had much if any exposure to these media, as only two partners used the *SciGirls* episodes and two used the profile videos. At the same time, although the evaluation did not provide direct evidence for it, evaluator observations of two of the three Family Fiestas (detailed under 2.7) noted the potential for added value of the *SciGirl*s videos simply by playing them in the background at events while participants shared in a meal, hands-on activities, and conversation. At least some parent/guardians and other family members were observed watching sequences from both the episodes and profile videos, off and on as they engaged in other activities. Again, given the reasons above, TPT might look more closely at leveraging opportunities for even incidental learning that the videos may afford as participants multi-task or take breaks from engaging in other *SciGirls* activities during the family-focused events.

It may also be worth thinking about other possible viewing contexts for the *SciGirls* media, including media created by TPT and/or by youth in *SciGirls* programs. For example, to help encourage viewing within families outside the Fiesta setting, future projects might draw on strategies used by other informal science education projects similarly designed for underserved youth. One such strategy was used in the iQUEST summer camp, where Hispanic students shared media and reflections from their camp day with family members in the evenings through an online portal (Hayden et al., 2011). Similarly, after receiving technical and video storytelling instructions, girls in a recent *SciGirls* program created and shared autobiographical videos describing both their STEM experiences and their in- and out-of-school lives (Karl et al., 2017). Finally, in the case of TPT's *CEREBROedu* program, family viewing is being encouraged through the distribution of a bilingual *CEREBROedu Family Guide* containing links to online videos, discussion questions, and at-home activities. Given the challenges of convening parents/guardians, as noted in the previous section, this kind of home-based viewing option may be another relatively untapped, or at least not yet evaluated, way to increase the reach and impact of *SciGirls* media featuring STEM professionals.

Prioritizing inclusion of Hispanic STEM professionals

Although the evaluation found that partners incorporated in-person STEM professionals more than media-based STEM professionals, less than half of the 44 in-person STEM professionals included in the partner programs were Hispanic. This underrepresentation of Hispanic STEM professionals is concerning given that Hispanic STEM professional involvement, in both mediated and in-person forms, was foundational to the *Latina SciGirls* project. The project's research report shared a similar observation about the importance of incorporating Hispanic STEM professionals, under Conclusions, noting *"…the underrepresentation of Hispanic STEM role models was a central theme behind the intention of this project, from the production of the SciGirls episodes and role model video to the training, resources, and requirements of the Latina SciGirls programs. As we have seen, to properly address this barrier for Latinas in particular, programs need to engage Latina role models in STEM*" (McLain et al., 2019, p. 65). Although the project team likely assumed that partners would prioritize the inclusion of Hispanic in-person STEM professionals, this was not made explicit in the program requirements. A lack of partner communication may partially explain the underrepresentation, yet other reasons would likely be uncovered by following up with those partner educators who directly recruited their programs' in-person STEM professionals, should the project team have the opportunity to take on this task. By factoring in these partners' recruiting insights and drawing on the related *Latina SciGirls* research and evaluation findings, TPT would likely be in a better position to

offer future partners more targeted recruiting guidance and rationale for the value and importance of including Hispanic STEM professionals in their partner programs.

Incorporating cultural responsiveness considerations in connecting STEM professionals with youth and family audiences.
At various places in their evaluation surveys, a few partners and STEM professionals commented on the importance of providing opportunities for girls to interact with STEM professionals who they see as relatable, and with whom they feel they have things in common, including cultural background. As one partner noted, *"… it was great for the girls to talk with someone who is Latina,*" and as one STEM professional explained, "*I think it is important for them to see females in STEM that look like them and speak their language [who] are successful*." In general, youth *agreed* and parents/guardians *strongly agreed* that it was important to them that the in-person STEM professionals at their Family Fiestas were Hispanic. As two of the youth explained, "*…in real life you (well, I) don't really see/meet successful Latina engineers sharing their story. It was inspiring to see … who I can become"* and "*[It was interesting to learn] that there are many Hispanic women engineers out there*."

The *Latina SciGirls* emphasis on creating culturally responsive learning environments for middle school girls was recently incorporated into the updated SciGirls Strategies for engaging girls in STEM (released June 2019), including Strategy #6: *Provide opportunities for girls to interact with and learn from diverse STEM role models*. As noted in the *SciGirls Strategies* guide, the updated strategy was based on research showing that the opportunity for girls to meet diverse female role models from a range of STEM careers can help them "*see potential futures and develop resilient STEM identities*" (Billington et al., 2019; Jethwani et al., 2017; O'Brien et al., 2016; Levine et al., 2015; Hughes et al., 2013; Cheryan et al., 2015).

As Strategy #6 is incorporated into new *SciGirls* outreach programs, TPT will likely want to guide partners on how to utilize this updated strategy in their programs. For example, as noted in the *Latina SciGirls* research study, although the impacts of in-person STEM professionals (described as role models) were "*highly variable and complex across the programs in the study … side-by-side engagement between participants and role models on program activities [showed] the most powerful impacts in terms of STEM-related identity … [and] role model personal story sharing (in-person) was also revealed to have strong positive impacts for the girls in the study*" (McLain et al., 2019, p. 61). To this last point, the research study indicated that the sharing of personal stories "*helps dispel notions that STEM careers are incompatible with being a Latina or that choosing a STEM profession presents an either/or option against other important social identities"* (McLain et al., 2019, p. 66).

Looking ahead, given TPT's ongoing efforts to produce *SciGirls* media and integrate in-person STEM professionals into partner programs, and the increased emphasis on cultural responsiveness in the updated *SciGirls Strategies*, a natural next step for future evaluations of *SciGirls* outreach programs would be to incorporate a culturally responsive learning framework to look more closely at whether and how exposure to diverse (in-person and media-based) STEM professionals influence youth and parent/guardian engagement in STEM, their perceptions of STEM careers and professionals, and the factors that may affect observed impacts.

Final remarks

In closing, to address TPT's goal of testing *"the Latina SciGirls model by applying specific strategies that address STEM engagement barriers among Hispanic girls and families,"* the project's research study investigated whether the *Latina SciGirls* outreach programs promoted the development of positive STEM-related identities among the Hispanic girls who participated (McLain et al., 2019). Working with many of the same partner programs, the summative evaluation offers some additional insight into this question by examining the *Latina SciGirls* focus on two of the STEM engagement barriers identified in the proposal, specifically, limited exposure to STEM professionals and low parental engagement in daughters' STEM education. As *Latina SciGirls* addressed these two barriers by prioritizing the involvement of both families and STEM professionals within the partner programs, the summative evaluation focused on examining, from multiple perspectives, the role of these elements in engaging Hispanic girls in STEM.

The evaluation findings indicate that incorporating family and STEM professional involvement within the partner programs was a realistic partner expectation and that both program elements were well received by the partners, STEM professionals, youth, and parents/guardians involved. Moreover, the centerpiece Family Fiesta event was shown to engage girls and their parents/guardians in STEM.

At the same time, given that six of the original 16 partners that were to be considered in the evaluation didn't complete the required evaluation surveys, and the fact that only two of the remaining 10 partners met all of the program requirements, the findings also suggest that partner educators may need more guidance to help ensure that the full range of program expectations are delivered as planned. Although TPT anticipated that partners would appreciate a certain amount of adaptability around the *Latina SciGirls* requirements in order to fit their needs and make their programs authentic and workable for families, future project teams will likely want to work closely with individual partners to ensure that each organization implements all of the family and STEM professional involvement requirements. Greater attention to implementation fidelity would likely not only benefit program participants, but also increase the capacity for evaluation and research efforts to capture the intended outcomes.

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Appendix 1: Partners' use and perceived value of *SciGirls* activities and websites

Use and value of SciGirls episodes

Table 24 shows that all of the partners used *SciGirls* activities in their *Latina SciGirls* programs. Though they shared a range in terms of the number of activities used (from one to nine), on average they used six activities each. The most-used activities were Finding Your Balance and Home Sweet Home (both from Season 4), which were used by four programs each. Using a scale from 1.0 (*not at all valuable*) to 5.0 (*extremely valuable*), the partners generally found the activities *very-to-extremely valuable* (median 4.5) to their programs.

Table 24. Partners' use of the *SciGirls* activities and web resources in their *Latina SciGirls* programs (N=10)

	Used *SciGirls* activities (from any season)	Used Season 4 (*Latina SciGirls*) activities	Used any *SciGirls* activities in Spanish	Used *SciGirls* CONNECT website	Used *SciGirls* PBS Kids website	Used *SciGirls* PBS Parents website
Partner 1	Yes (9)	Yes (1)	No	Yes	No	No
Partner 2	Yes (9)	Yes (1)	No	No	Yes	No
Partner 3	Yes (7)	Yes (7)	No	Yes	Yes	Yes
Partner 4	Yes (1)	Yes (1)	No	No	Yes	No
Partner 5	Yes (4)	Yes (1)	No	Yes	No	No
Partner 6	Yes (5)	Yes (4)	Yes	Yes	No	No
Partner 7	Yes (6)	Yes (1)	No	Yes	No	No
Partner 8	Yes (8)	Yes (3)	No	Yes	No	Yes
Partner 9	Yes (1)	No	Yes	No	Yes	No
Partner 10	Yes (6)	No	No	Yes	No	Yes

Eight of the partners indicated that they had used new Season 4 activities in their programs. Though these partners shared a range in terms of the number of Season 4 activities used (from one to seven), on average they used two each. Finally, only two partners indicated that they had used *SciGirls* activities in Spanish. One used Parachute Parade from Season 1 and the other used Cloud Clues from Season 3.

Use and value of SciGirls CONNECT website

Table 24 shows that the majority of partners (7) used the *SciGirls* CONNECT website to develop their programs. Using a scale from 1.0 (*not at all valuable*) to 5.0 (*extremely valuable*), these partners generally found the site *extremely valuable* (median 5.0) in this respect.

Use and value of SciGirls PBS Kids website

Table 24 shows that fewer than half of the partners (4) used the *SciGirls* PBS Kids website in their programs. Using a scale from 1.0 (*not at all valuable*) to 5.0 (*extremely valuable*), these partners generally found the site *very valuable* (median 4.0).

Use of SciGirls PBS Parents website

Table 24 shows that three partners used the *SciGirls* PBS Parents website to develop their programs. They were not asked to rate the value of this website.

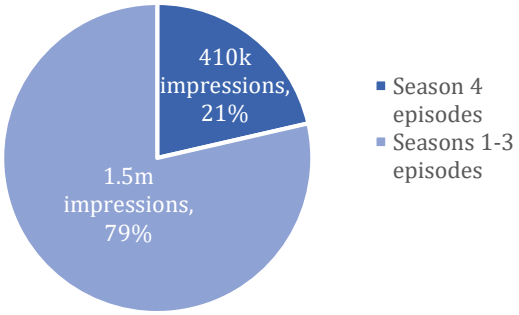
Appendix 2: The reach and breadth of the *Latina SciGirls* broadcast program and online components

PBS Network Dissemination
(Reporting period: September 1, 2017 to July 29, 2018)

Summary: Viewer impressions for all episodes since the launch of *SciGirls* in 2010 total 46,228,448. All episodes for the PBS Network Dissemination reporting period (11 months) total 3,939,000; all episodes from the launch of Season 4 on February 1, 2018 through the end of the reporting period (6 months) total 1,929,000. For Season 4 episodes the total is 413,000 viewer impressions. Season 4 aired on 141 channels in 30 states with a 56% penetration into the top 25 markets and 52% of all U.S. households.

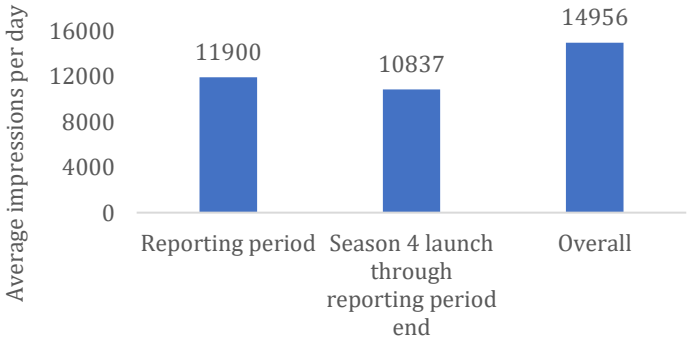
As shown in Figure 75, *SciGirls* episodes from all seasons generated approximately 1.9 million impressions between the Season 4 launch and the end of the reporting period. Of these, *SciGirls* Season 4 episodes generated approximately 410,000 impressions accounting for 21% of total impressions.[26]

Figure 75. Total impressions by season, from Season 4 launch through reporting period end (Total impressions: 1.9m)



As shown in Figure 76, during the 11-month reporting period, *SciGirls* episodes generated approximately 12 thousand impressions per day, on average. In the six months between the Season 4 launch and the reporting period end, *SciGirls* episodes generated approximately 11 thousand impressions per day, on average. Average impressions per day for these periods are lower than the overall average since the series launch in 2010 (approximately 15 thousand impressions per day).

Figure 76. Comparison of reporting period and overall average impressions per day of *SciGirls* episodes



Since the launch of Season 4, Hispanic households were a higher percentage of the Season 4 viewing audience (16%) than the all-episodes viewing audience (13%).

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[26] Future examinations of PBS Network Dissemination might compare total impressions, of all seasons, in the six months prior to and after the launch of Season 4.

Web and Interactive Dissemination
(Reporting period: September 1, 2017 to August 1, 2018)

Summary: During the reporting period (11 months), *SciGirls* episodes from all seasons were viewed approximately 8.6 million times from PBS Kids streaming services. Approximately 3.5 million of these views were Season 4 episodes. Overall, approximately 650,000 users visited the *SciGirls* PBS Kids website in approximately 870,000 sessions, created a total of approximately 3.4 million page views. The Games page was the most popular on the site, and Aquabot was the most popular game.

PBS Kids web streaming services

As shown in Figure 77, during the 11-month Web and Interactive Dissemination reporting period, *SciGirls* episodes from all seasons received 8.6 million unique views from PBS Kids streaming services.[27] *SciGirls* Season 4 episodes received 3.5 million unique views during the reporting period, accounting for 41% of total unique views.[28]

Figure 77. PBS Kids streaming views of *SciGirls* episodes during the reporting period, by season (Total unique views: 8.6m)

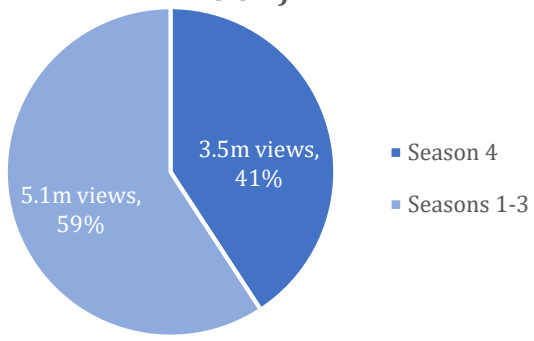
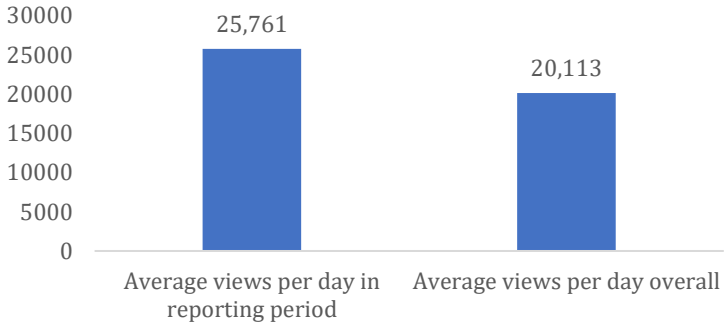


Figure 78 shows that, during the reporting period, *SciGirls* episodes received approximately 26 thousand unique views per day. This is higher than the overall average number of views per day since the Season 1 launch in 2010, approximately 20 thousand unique views per day.

Figure 78. Comparison of average views per day during the reporting period to average views per day overall for *SciGirls* episodes on PBS Kids web streaming services



PBS Kids website page views

During the reporting period, approximately 650,000 users visited the *SciGirls* PBS Kids website in approximately 870,000 sessions, amounting to approximately 1.3 sessions per user on average. These sessions created a total of approximately 3.4 million page views, indicating that users visited approximately 4.0 pages per session on average.

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[27] Web Players, OTT, and the PBS Kids Video App

[28] Future examinations of PBS Kids episode viewings might compare total views, of all seasons, in the six months prior to and after the launch of Season 4.

As shown in Figure 79, the Games page was by far the most popular page on the site, with approximately 900,000 views during the reporting period. The Profile and Video pages received comparable numbers of views – approximately 190,000 views and 170,000 views, respectively. As shown in Figure 80, Aquabot was the most popular game, with approximately 340,000 page views.

Figure 79. *SciGirls* views by page on the PBS Kids website during the reporting period

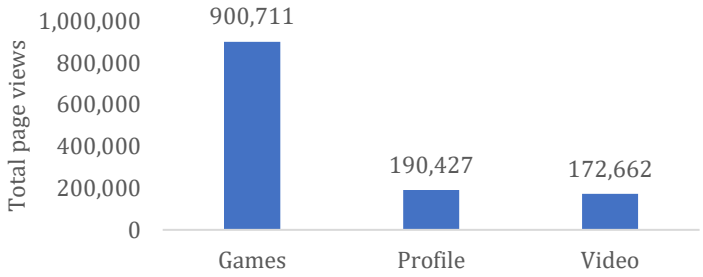
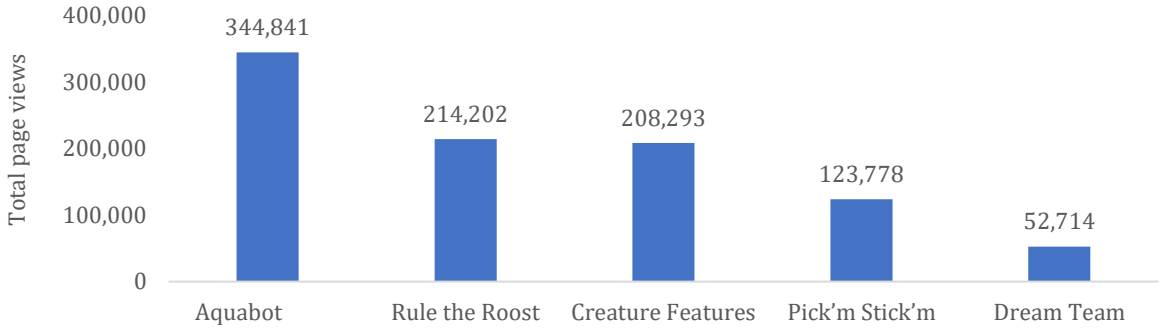


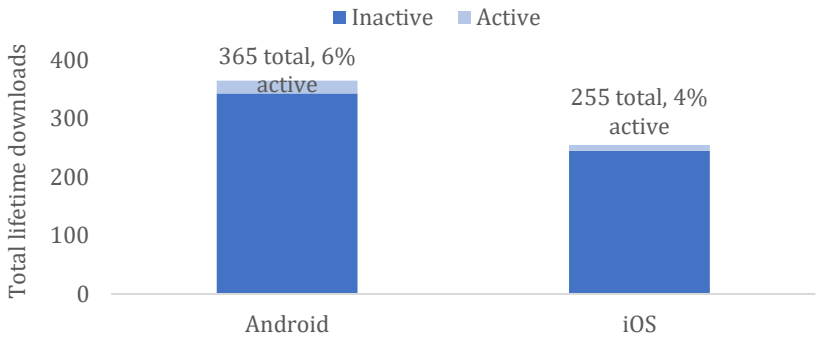
Figure 80. *SciGirls* page views by game during the reporting period



SciGirls' Busy as a Bee App

Figure 81 shows lifetime downloads of the Busy as a Bee *SciGirls* app on Android and iOS platforms. The app was more popular on Android with a total of 365 lifetime downloads compared to 255 lifetime downloads on iOS. The numbers of active users were comparable across mobile platforms, with 6% of Android users and 4% of iOS users remaining active.

Figure 81. Lifetime Busy as a Bee app downloads by mobile OS (Total downloads: 620)



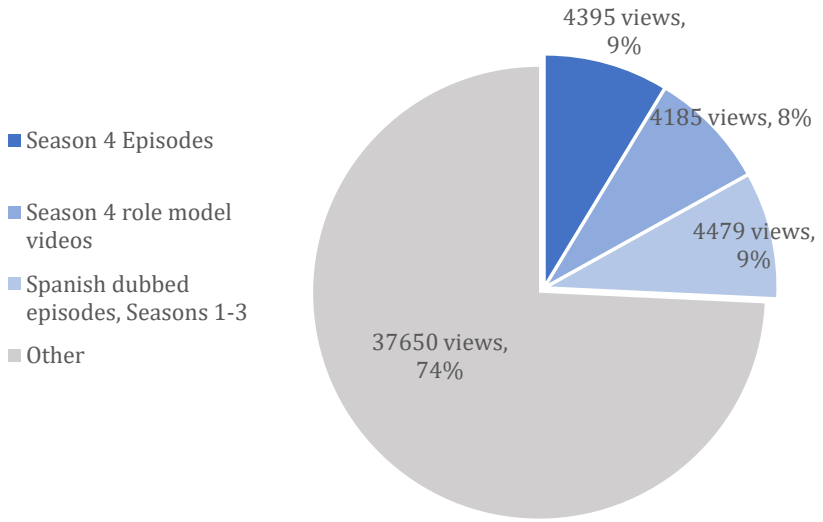
TPT.org SciGirls Page

The *SciGirls* page on the TPT website received 754 video views from 699 unique viewers during the reporting period, and 488 views of the Season 4 episodes and role model videos (from 448 unique viewers).

YouTube

As shown in Figure 82, Season 4 episodes, Season 4 role model videos, and Spanish-dubbed Season 1-3 videos each made up slightly less than 10% of the total YouTube views of *SciGirls* videos during the reporting period.

Figure 82. YouTube views of *SciGirls* videos during the reporting period (Total views: 50,709)



Appendix 3: *Latina SciGirls*
Family Fiesta observation form

SESSION LEAD IN		
OBSERVATION QUESTION	**ANSWER**	**EXAMPLES/ ADDITIONAL COMMENTS**
Notes on how youth, parents/guardians, STEM professionals are arranged in the room.		
What comments, if any, do youth make prior to the session to indicate their expectations/ interests about the upcoming session?		
What types of interactions are there, if any, between the youth and families and STEM professionals prior to the session?		
EPISODES VIEWED		
Time video segment begins:		
OBSERVATION QUESTION	**ANSWER**	**EXAMPLES/ ADDITIONAL COMMENTS**
Are any technical difficulties encountered showing the video?	YES NO	
Is the Fiesta environment generally quiet during viewing?	YES NO	
How engaged are youth?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	
Do youth make comments or ask questions?	YES NO	
Does the STEM professional comment on the video?	YES NO	
Any significant modifications/additions to the episode presentation?	YES NO	
Other comments?		
Time video segment ends:		

ROLE MODEL VIDEOS VIEWED		
Time video segment begins:		
OBSERVATION QUESTION	**ANSWER**	**EXAMPLES/ ADDITIONAL COMMENTS**
Are any technical difficulties encountered showing the video?	YES NO	
Is the Fiesta environment generally quiet during viewing?	YES NO	
How engaged are youth?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	
Do youth make comments or ask questions?	YES NO	
Does the STEM professional comment on the video?	YES NO	
Any significant modifications/additions to the episode presentation?	YES NO	
Other comments?		
Time video segment ends:		

STEM PROFESSIONAL PRESENTATION		
Time presentation begins:		
OBSERVATION QUESTION	**ANSWER**	**EXAMPLES/ ADDITIONAL COMMENTS**
Does the STEM professional describe his/her job and what it's like to work in STEM?	YES NO	
Does the STEM professional tell a story about how he/she got interested in STEM or their career or describe something that made a difference in his/her life?	YES NO	

Is the classroom environment generally quiet during the presentation?	YES NO	
How engaged are youth?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	
How engaged are parents/guardians?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	
Do youth make comments or ask questions?	YES NO	
Other comments?		
Time presentation ends:		
HANDS-ON ACTIVITY		
Time activity begins:		
OBSERVATION QUESTION	**ANSWER**	**EXAMPLES/ ADDITIONAL COMMENTS**
Is the STEM professional involved in this part of the session?	YES NO	
Are parents/guardians involved in this part of session?	YES NO	
What activities are used and how?		
How engaged are youth during this session?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	

How engaged are parents/guardians during this session?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	
How engaged are STEM professionals during this session?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	
Do youth indicate confusion?	YES NO	
What questions do youth ask during the discussion?		
Time activity ends:		

OTHER ACTIVITES		
Time activity begins:		
OBSERVATION QUESTION	**ANSWER**	**EXAMPLES/ ADDITIONAL COMMENTS**
Is the STEM professional involved in this part of the session?	YES NO	
Are parents/guardians involved in this part of session?	YES NO	
What activities are used and how?		
How engaged are youth during this session?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	
How engaged are parents/guardians during this session?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	
How engaged are STEM professionals during this session?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	

Do youth indicate confusion?	YES NO	
What questions do youth ask during the discussion?		
Time activity ends:		

SURVEY IMPLEMENTATION		
Time activity begins:		
OBSERVATION QUESTION	**ANSWER**	**EXAMPLES/ ADDITIONAL COMMENTS**
When does presenter do the surveys?	End of program? As station rotation during program?	If during program, what activities are survey respondents not able to rate as a result?
Does presenter go over survey instructions as outlined in packet?	YES NO	
What deviations are made?	YES NO	
How engaged are youth during this session?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	
How engaged are parents/guardians during this session?	1 2 3 4 5 1 (NOT AT ALL) TO 5 (EXTREMELY)	
Do youth indicate confusion?	YES NO	
Do parents/guardians indicate confusion?	YES NO	
What questions do youth ask about the session?		
Time activity ends:		

Which aspects of the event, if any were conducted in Spanish?

What else happened that wasn't captured above?

OVERALL PROGRAM INFORMATION							
SITE NAME	PARTNER CONTACT NAME	STEM PROFESSIONAL NAME(S)	OBSERVER NAME	DATE OF VISIT	NUMBER OF YOUTH (GIRLS/BOYS)	NUMBER OF PARENTS/ GUARDIANS	NUMBER OF LEADERS/ AIDES IN THE CLASSROOM

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