Latina SciGirls:

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

Executive summary

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Executive summary

Introduction

With funding from the National Science Foundation (NSF), Twin Cities Public Television (TPT) directed the four-year *Latina SciGirls* project from 2015 – 2018. 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.

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."* [1] 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 project's summative evaluation, the subject of this summary, offers additional insight into this question by examining the *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. As the *Latina SciGirls* outreach programs 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 program elements in engaging Hispanic girls in STEM.[2]

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

[2] 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.

To capture the project's key perspectives on the role of family and STEM professional involvement in engaging Hispanic middle school girls in STEM, 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.[3] This feedback was gathered during partners' second and final year of outreach programming, during which the new Latina SciGirls media resources and activities were released and available for use. In total, the summative evaluation gathered survey feedback from 10 partners, 130 youth, 108 parents/guardians, and 13 STEM professionals.

Executive summary outline

This executive summary is presented in four parts. After considering the *Latina SciGirls* partner outreach programs overall, it more closely looks at the programs' focuses on family involvement and STEM professional involvement, including a few recommendations in each of these areas that may be of interest to TPT and others planning or evaluating similar programs. The executive summary concludes with brief final remarks.

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. The average program length was 22 hours, above the minimum project requirement of 16, although individual programs ranged from four to 40 hours.[4]

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 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.

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[3] 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, the summative report focused on the 10 outreach partner programs that completed all of the basic survey requirements.

[4] 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*; and incorporate the *SciGirls Seven* strategies for engaging girls in STEM. While most partners met the majority of the requirements, only two partners met all eight.

Brief summaries of the perceived program impacts on youth, parents/guardians, and partners, from the partners' perspective, are below:

- *Perceived program impacts on youth:* At least half of the partners in each case 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.

- *Perceived program impacts on parents/guardians:* 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, with other responses being shared less often. 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.

- *Perceived program impacts on partners:* In each case, all but one partner thought their involvement in *Latina SciGirls* 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, 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.

Focus on 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. 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 these 10 Family Fiestas, as well as 116 other family members (e.g., siblings, cousins).

As detailed in the summative report, 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.

Parents/guardians were actively involved at all 10 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. They 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.

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
In each case, only about half of the 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.

Focus on STEM professional involvement

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. 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. 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.

As detailed in the summative report, 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).

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
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, just over half of the STEM professionals used the *Role Model Strategies Guide*, and only a few used 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. Given the feedback on the lack of use of these preparatory resources, 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 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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