



Children Investigating Science with Parents and Afterschool (CHISPA)

Summative Evaluation Report

December 2018

Acknowledgments



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Credits

All photos: The CHISPA Project

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Executive Summary

Children Investigating Science with Parents and Afterschool (CHISPA) was a 2014–18 collaboration between the Phillip and Patricia Frost Museum of Science (Frost Science), UnidosUS (formerly National Council of La Raza), and the ASPIRA Association. This project, funded by the National Science Foundation (NSF), sought to address the disparity in science achievement among Latino and non-Latino children through local-level partnerships between science museums in metropolitan areas with growing Latino populations and UnidosUS and ASPIRA affiliate organizations serving the same communities.

This initiative had four strategic objectives: a) Increase student and family engagement with STEM; b) Build organizational capacity of partner museums and Hispanic-serving community-based organizations (CBOs); c) Strengthen linkages between science museums and Hispanic-serving CBOs; d) Contribute to the informal science education field.

Garibay Group conducted formative evaluation in Years 1–3, which informed project decisions and improvements. Using a mixed-methods approach (Caracelli and Greene, 2003), Garibay Group conducted summative evaluation in Year 4 to assess project outcomes.

Increase student and family engagement with STEM

There was strong evidence that CHISPA successfully engaged participating youth and families in STEM. The program’s multi-faceted approach across its three components—APEX Science, Padres Comprometidos con CHISPA, and Family Science Day—afforded varied opportunities for STEM engagement, provided families with ways to learn STEM together, and empowered parents to support and advocate for their children’s education.

Youth who participated in APEX Science enjoyed the lessons and were highly engaged in the hands-on activities. Enjoyment ratings were high, with 84% of youth surveyed providing 4 or 5 enjoyment ratings (1=low and 5=high). Observations of APEX Science lessons also documented evidence of strong STEM engagement. There was also clear evidence of learning; the vast majority of youth surveyed (91%) described specific STEM activities, topics, ideas, and concepts clearly related to APEX science content.

Parents participating in Padres Comprometidos con CHISPA were highly positive about their experiences with the program; 91% of respondents reporting being “very satisfied.” The strongest impacts for parents were increased learning about the structure and function of the U.S. school system and gaining strategies for supporting their children in learning. (These takeaways are critical in supporting not only STEM learning, but also their children’s broader education.) There was also evidence that the program increased parents’ awareness of the importance of having their children engage in science outside of school and their critical roles, as parents, in supporting science learning—including the importance of relating to children’s interest in science and encouraging STEM learning at home. Moreover, affiliate staff observation of parents’ behaviors indicated that parents had begun to transfer what they learned.

Family Science Day events drew families that had not previously visited, with more than half (54%) reporting it as their first visit to that museum. Family Science Day provided opportunities for families to engage in and learn about science. The large majority (82%) of participants rated the educational value of their visit as “4” on a 1–4 scale (1=“not educational”, 4=“very educational”). These events also increased

awareness of what participating museums could offer their families. A large majority (92%) of participants “agreed strongly” that they would feel comfortable bringing their families back to the museum.

Build organizational capacity of partner museums and Hispanic-serving community-based organizations

APEX Science filled a major need for K-5 science curriculum in afterschool programs. More than half (53%) of affiliates reported offering no science activities or lessons prior to participating in CHISPA. Even among affiliates offering some science, APEX Science was likely the only professionally-developed science curriculum. Many affiliate staff had no prior experience offering STEM activities to youth. There also did not appear to be any parent engagement program that included a science-specific focus.

Affiliate Staff

The evaluation found that affiliate staff gained skills, experience, and confidence in delivering STEM programming to youth and in leading parent activities. The project supported affiliate staff in feeling more equipped to offer STEM programming. Data showed statistically significant differences in participants’ pre- and post-confidence levels in delivering STEM programming to youth and adults. The large majority of staff leading APEX sessions reported comfort in implementing the curriculum; observation data supported this and confirmed that lessons could be led successfully by facilitators with varying skills and experience. This appeared to be critical to CHISPA’s success. Involvement in CHISPA also helped affiliate staff learn to incorporate STEM into other activities and provided experience in lesson planning. Some staff also noted other positive aspects such as awareness of the importance of STEM and increased enjoyment of science.

The overall data suggest that programs with more consistent attendance and participation were better positioned to implement APEX Science; staff could engage the same youth in a full sequence of lessons and could better plan those lessons with knowledge of how many (and which) students would participate. Evaluation also identified the need for more robust training, which seemed to reflect affiliate staff’s limited backgrounds in science, pedagogy, and/or informal learning. Though the original CHISPA train-the-trainer model assumed that affiliate staff training could focus general principles of ISE instruction and extend that to other topics/lessons, we found little to no evidence of knowledge transfer. Many staff members were challenged in their ability to modify or adapt the lessons to meet the various needs of the youth they served. Turnover also affected APEX Science training, and as a result introductory training became an on-going need rather than solely a yearly requirement.

Concerning Padres Comprometidos con CHISPA, affiliate staff reported gaining awareness of the importance of involving parents and gaining strategies to do so. The majority of staff reported comfort in leading PC con CHISPA sessions. However, affiliates struggled to recruit and retain parents, with a third of participating affiliates not meeting the requirement to implement one cycle of PC con CHISPA in Year 4. Data suggest that difficulties may relate to the fact that these affiliates serve a fairly stable population of students and parents (i.e., same families participating from year to year), leading to a reduced pool from which to recruit. Additionally, many afterschool programs lacked structures to engage parents in multi-session activities; some lacked sufficient staff to implement the parent component. Finally, there was evidence that affiliate staff learned about the resources that their partner museum can offer families, with nearly half (44%) reporting learning “a great deal” about the resources available at the museum (rating “5” on a 1–5 scale) and another 30% providing “4” ratings.

Museum Staff

CHISPA's primary impacts on museum staff were: a) increased confidence in engaging Latino families and b) deepening staff experience with and learning about partnering with community-based organizations. More than three-quarters of respondents (76%) reported the program's influence as a "4" or "5" on a 1–5 scale (1="no influence" and 5="significant influence"). Museum staff also gained confidence implementing family events, convening stakeholders, and training community partners. They valued the partnership and networking, professional development, and engagement with communities.

Although the APEX Science training (led by museum staff) was not intended primarily to build museum staff capacity, it did so. About half of the museum staff leading trainings had no previous experience in delivering professional development. The considerable variation in staff experience, however, meant some sites had a longer learning curve. Some museums struggled to identify museum staff that had the experience to deliver training. There were also indications that museum staff, overall, needed more robust training, content, and supports to foster their learning. Museum staff learning depended on each museum team's ability (and time) to reflect on their own practices and experiences with partners.

Nonetheless, having reached the end of CHISPA, museum staff reported gaining important learning. Respondents collectively noted the importance of talking with community partners to understand their needs, tailoring the training to partner needs, maintaining ongoing communication and setting expectations, and establishing yearly training. They shared that communicating with affiliate partners was critical to understanding affiliate needs, aligning expectations between partners, and delivering training that would position affiliates for success. Implementing Family Science Day also provided opportunities to build capacity in engaging Latino families through events and offerings. More than two-thirds of museum staff (69%) indicated their learning from these events a "4" (19%) or "5" (50%) on a 1–5 scale.

Strengthen linkages between science museums and Hispanic-serving CBOs

The primary activity that supported national-level links was the annual CHISPA National Professional Development Institute, which provided training and coordination across all program sites. Participants found the Institute helpful in building relationships and obtaining the information necessary to implement the program. This seemed especially true for affiliate attendees, who usually had less involvement with CHISPA than did museum attendees. When asked to name aspects of the CHISPA Institute that were most useful in helping them implement the program, more than half the responses (53%) mentioned relationship-building (including meeting with and learning from other affiliates and museum partners) and receiving feedback. Affiliate and museum team members reported finding Steering Committee meetings useful in building relationships with their partners. There was a need, however, for greater clarity to ensure that members adequately understood the purposes and aims of the Steering Committees.

Museum and affiliate staff reported positive experiences with the overall partnership, including value of partner contributions, quality of communication, satisfaction with the partnership, and likelihood of future partnership. Affiliate staff, however, reported more positive perceptions of partnerships than did museum staff; this pattern was consistent across all dimensions. As might be expected given the range of contexts and aspects that can influence partnerships, evaluation documented that the strength of collaborations varied. Using communication strength as a proxy for robustness of the partnership, data indicated that more than half (56%) of pairs (museum and affiliate) agreed that communication was strong; about a third (31%) disagreed

about the strength of communication, suggesting quite varied perceptions between partnerships. Among the major challenges in relationship-building was staff turnover at affiliates and museums.

Finally, while national leadership provided important guidance and support, the evaluation found that the project could have benefitted from more coordinated and aligned infrastructure at the national level. Capacity of national partners also varied. Certain aspects of the project also seemed under-resourced given the number of affiliates and families served.

Contribute to the informal science education field

CHISPA's whole-family approach was valuable because it simultaneously fostered engagement among youth while equipping parents to support their children in exploring STEM. This approach, however, requires considerable coordination to ensure that the same families are engaged across program components and that the content for each component is aligned.

The evaluation illuminated the importance of program context. Considerable variation existed among CHISPA program sites in the populations they served, their communities, their organizational structures, and their program logistics. Curricula and training must allow for adaptation to local context as well as customization to local needs. Turnover, fundamental in the CBO and museum context, must be addressed by ensuring redundancy in staffing, systems to track personnel changes, and on-boarding processes that include practical training and information about overall program framing and background.

Additionally, the evaluation illuminated the complexities of multi-city, multi-site, multi-organization initiatives and project-scaling. This complexity requires substantial planning to ensure that resources, processes, and communication channels are in place before project activities begin and that information-sharing is clear and consistent. The degree of contextual variation documented suggests that successful "scaling up" of a project such as CHISPA is more likely to be accomplished through adaptation rather than replication, since adjusting the program to local context is a key to success.

The evaluation highlighted the interest in (and need for) collaboration between museums and CBOs. It also revealed underlying assumptions that museums either already had sufficient capacity to conduct the project or that engaging in project activities would provide it. This was not the case. While museums have expertise in STEM content and informal learning, their abilities to provide professional development and their levels of community expertise vary widely. CBOs, meanwhile, have deep community expertise and relationships with families. Therefore, capacity-building for museums in developing these skills should be a component of projects such as CHISPA.

As CHISPA demonstrates, national organizations such as UnidosUS and ASPIRA can play critical roles in broadening STEM participation. Although there may be an assumption that local affiliates function as "branch offices" of the national group (with standardization across local sites, strong lines of communication and "command," and consistent policies and practices), this evaluation showed this is not the case. There is great variability among affiliates in terms of structures and operations as this allows affiliates to leverage local assets and be responsive to their specific contexts. There can be gaps, however, in communication and in knowing what is happening on the ground across local sites. To succeed, projects must be structured to align with and leverage the affiliate model.

Overview



Overview

Children Investigating Science with Parents and Afterschool (CHISPA) was a four-year National Science Foundation (NSF)-funded collaboration between the Phillip and Patricia Frost Museum of Science (Frost Science), UnidosUS (formerly National Council of La Raza), and the ASPIRA Association. The initiative sought to address the disparity in science achievement between Latino and non-Latino children through local-level partnerships between science museums located in metropolitan areas with growing Latino populations and UnidosUS and ASPIRA affiliate organizations serving the same communities through afterschool programs.

CHISPA was directed by national program leaders from Frost Science, UnidosUS, and ASPIRA. Garibay Group served as the external evaluator for CHISPA throughout its four years of implementation. In Years 1 through 3, the Garibay evaluation team worked closely with the leadership team to provide real-time feedback as part of a formative evaluation process. Interim evaluation briefs were provided to the leadership team as needed. In Year 4, Garibay Group conducted a summative evaluation, and the findings are presented in the current report.

CHISPA Objectives

The project aimed to accomplish four primary objectives:

- Increase student and family engagement with STEM.
- Build organizational capacity of partner museums and Hispanic-serving community-based organizations (CBOs).
- Strengthen linkages between science museums and Hispanic-serving CBOs.
- Contribute to the informal science education field.

Project Structure

Since CHISPA sought to nurture partnership and collaboration between the affiliates and science museums, each museum was tasked with forming a local CHISPA Steering Committee to coordinate the project and related activities. The steering committee included representatives from all of the affiliate partners for the designated community as well as museum staff. Finally, the national leadership team convened a CHISPA National Professional Development Institute each year to provide training on the CHISPA curriculum and coordination across all program sites.

CHISPA consisted of three main components for families: a) a series of hands-on science lessons for youth (APEX Science); b) a workshop series for parents (Padres Comprometidos con CHISPA); and c) a visit by families to a science museum (Family Science Day).

APEX Science

UnidosUS and ASPIRA affiliates delivered science lessons using the Afterschool Program Exploring Science (APEX Science) curriculum that had been developed by Frost Science with prior NSF funding. APEX Science features 32 inquiry-based science lessons for children in kindergarten through fifth grade that address age-appropriate science concepts, including life science, nature of science, energy, processes that shape the Earth, nature of matter, environmental science, forces of motion, and Earth/space science. The APEX curriculum was originally developed in English and, as part of CHISPA, it was translated into Spanish. Each participating affiliate received the complete curriculum in both languages, which included an activity leader guide, background information, laminated student activity cards, and data collection sheets for students to complete. Affiliates also received APEX Science kits that

included all the supplies necessary to implement the lessons (e.g. thermometers, microscopes, magnifying glasses.)

Padres Comprometidos con CHISPA

UnidosUS and ASPIRA affiliates also delivered parent education sessions, using the Padres Comprometidos con CHISPA curriculum that was developed by UnidosUS. The curriculum was based on Padres Comprometidos (in English: *Committed Parents*), a parent engagement program that aims to foster strong connections between schools and parents. *Padres Comprometidos con CHISPA* (in English: *Committed Parents, with CHISPA*; abbreviated as PC con CHISPA in this report) included additional CHISPA-specific content.

The nine-session PC con CHISPA curriculum was designed to help parents learn more about the importance of science for their child's future, use home foundations and family support to ensure students meet and exceed required science standards, and understand what school and community resources are available to help. The aim of the parent sessions was to support parents and increase their capacity to be active partners in their children's education, making connections with their children around science and increasing their appreciation of afterschool programs and their local science museums as an academic support network. UnidosUS developed the PC con CHISPA curriculum in both English and Spanish specifically for the CHISPA project. Affiliates received the complete curriculum in both languages. Training was provided by UnidosUS staff through two models: A "road show" that brought UnidosUS staff to each affiliate and a national gathering of affiliates. Once trained, each affiliate selected the months/weeks of the year in which to implement PC con CHISPA.

Family Science Day

The third component was CHISPA Family Science Day, a family event organized and hosted by each museum once per year. CHISPA families visited the museum as a group to engage in informal science learning as a family. The event was planned by the museum in collaboration with the museum's affiliate partner(s). Affiliate staff members accompanied CHISPA families during Family Science Day; each museum/affiliate pair provided free transportation, museum admission, and refreshments.

Program Participation

Table 1 details the number of museums, affiliates, and families by year who participated in CHISPA.

Table 1. CHISPA Participation by Year

Organization (Sites)*						
Year	Museums		UnidosUS Affiliates		ASPIRA Affiliates	
	Participated (Institutions)	Attended National Institute	Participated (Institutions)	Attended National Institute	Participated (Institutions)	Attended National Institute
1	11	11	19	N/A	6	N/A
2	11	11	16	16	6	5
3	11	11	13	14	6	6
4	11	11	20	15	7	1
5	10	N/A	16	N/A	5	N/A
Families*						
Year	APEX Science Participants		PC con CHISPA Participants		Family Science Day Attendees	
1	Planning Year					
2	1,000		200		2,156	
3	1,070		300		2,536	
4	2,150		525		1,963	
5	1,504		256		950	

* Although data for summative evaluation focused on years 1-4, we include year 5 data (no-cost extension) in order to show total participation for the duration of the project.

Evaluation Methods

The summative evaluation sought to determine the extent to which CHISPA accomplished its stated objectives. Data were collected from all sites participating in Year 4—27 affiliate sites and all museum partners. (See Appendix A for a more detailed description of each site.) The study was grounded in culturally responsive approach (Frierson, Hood, Hughes, 2010), whereby the evaluator considers the culture and context of participants and of the program as critical dimensions that inform every aspect of the project and the evaluation.

The evaluation used a mixed-methods design that combined quantitative and qualitative data (Greene & Caracelli, 2003). The data set included six unique surveys, interviews, focus groups, and moderated discussions; observations of program activities across a range of sites; and reviews of program documents. Collecting key information about the same constructs in different ways allowed us to seek convergence or corroboration of information to confirm and explain the outcomes in greater depth (Greene, Caracelli, and Graham, 1989). Table 2 outlines the data collection methods used to assess outcomes for objectives 1, 2, and 4. For Objective 3, evaluators identified critical insights based on evaluation results and developed lessons learned for the field.

Table 2. Alignment of Data Collection Method with Program Objectives

Data collection method	Objective			
	1a. Affiliate capacity building	1b. Museum capacity building	2. Linkages between museums and affiliates	4. Youth and family engagement
<i>Surveys</i>				
Affiliate staff survey	•		•	•
Museum staff survey		•	•	•
Family Science Day parent survey				•
PC con CHISPA parent survey				•
APEX Science survey				•
CHISPA Institute survey	•	•	•	
<i>Interviews, focus groups, and discussions</i>				
Affiliate staff interviews	•	•	•	•
Museum staff interviews	•	•	•	•
Parent focus groups or interviews				•
Discussions with national program leaders	•	•	•	
<i>Observations</i>				
Steering Committee observations			•	
APEX Science observations	•			•
PC con CHISPA observations	•			•
Annual National Institute			•	
<i>Document review</i>				
Review of program records				•
Review of PC con CHISPA final report	•			•

To maximize the readability of this report, detailed information about methods is provided in the appendices. A detailed description of data collection methods and sampling is included in Appendix B and information about respondents is presented in Appendix C.

Data Analysis

Quantitative survey data were analyzed using basic descriptive statistics and summarized in tables and bar charts. We present most survey responses in percentages (some totals do not add to 100% due to rounding) and the number of actual responses (n) is provided.

Qualitative data from open-ended survey items, interviews, observations, and focus groups were recorded in the original language (English or Spanish) in which data were collected, allowing evaluators to capture nuances not always directly translatable from one language to another. Data were then analyzed using inductive coding (Strauss and Corbin, 1990; Patton, 2015), enabling researchers to

identify emergent patterns and themes in the data without the limitations imposed by predetermined categories. As patterns and themes were identified, researchers teased out the strength of these patterns and themes (Miles, Huberman, & Saldaña, 2014). Researchers analyzed focal site data holistically, seeking to identify and examine patterns across the data set for each site and then across the three sites.

Quotations are reported in the original language in which data were collected, with English translations provided for Spanish quotations. Grammar and spelling are not corrected in quotations in order to preserve the respondent's voice; however, grammar and spelling are corrected in translations to ensure clarity.

Limitations

As in any study, this evaluation had certain limitations. One limitation arose from the size and scope of the CHISPA project, since resources were not sufficient for the evaluation team to speak with staff or directly observe activities in each of the 37 organizations that participated in Year 4. Another limitation arose from staff turnover at the participating sites and the record keeping associated with that turnover. Staff turnover made it difficult for the evaluation team to obtain up-to-date lists of program staff and accurate contact information. Program sites had varying levels of capacity for carrying out evaluation tasks, particularly in their ability to administer surveys to participating youth and parents and to respond to requests for evaluators to observe program activities. To mitigate these limitations, the evaluation team adopted the wide range of methods described above and employed four different sampling strategies. (For a full description of these strategies, see Appendix B.)

Youth and Family Engagement



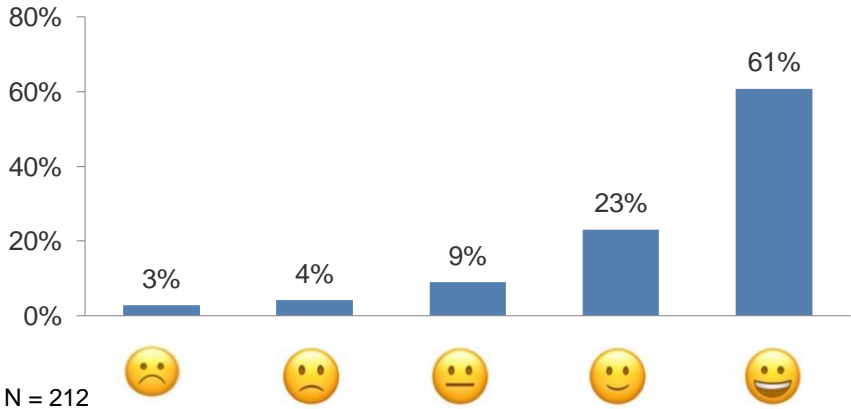
Youth and Family Engagement

There was strong evidence that CHISPA successfully engaged participating youth and families in STEM. The program’s multi-faceted approach across its three components—APEX Science, Padres Comprometidos con CHISPA, and Family Science Day—afforded varied opportunities for STEM engagement, provided families with ways to learn STEM together, and empowered parents to support and advocate for their children’s education.

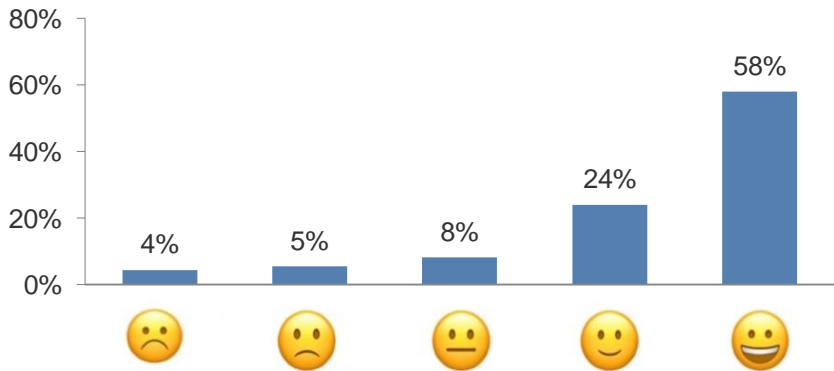
APEX Science

Youth who participated in APEX Science enjoyed the lessons and were highly engaged in the hands-on activities. They looked forward to APEX Science and expressed enthusiasm during their lessons. More than half of youth surveyed rated their enjoyment of APEX Science at the top of the five-point “smiley face” rating scale (61%) and rated their interest in science during APEX Science sessions at the top end of the same scale (58%) (see Figures 1 and 2).

**Figure 1. APEX Science Survey:
Level of Enjoyment of APEX Science**



**Figure 2. APEX Science Survey:
Level of Science Interest during APEX Science**



N = 183

There was clear evidence of science learning. When asked to complete the sentence, “The most interesting thing I’ve learned in CHISPA is _____”, the vast majority of respondents (91%) filled in words or phrases that conveyed specific STEM activities, topics, or concepts clearly related to APEX Science content (see Table 3). Some responses also mentioned activities or experiments in general (7%); mentioned activities not included in the APEX Science curriculum (7%); or provided other comments (4%), such as explaining that they had learned new things, had fun, or found “everything” about CHISPA to be interesting.

Table 3. APEX Science Survey: Categories of Responses to: “The most interesting thing I’ve learned in CHISPA is...” by Percentage

(Responses could fall into more than one category.)

Response Category	% of Responses (N=217)
Specific activities or concepts related to APEX Science	91%
Activities or experiments in general	7%
Other activities	7%
Other comments	4%

We further categorized responses that reflected specific concepts or activities related to APEX Science according to the APEX Science unit described by respondents. Nearly a third of respondents (29%) described a concept or activity related to the *Let’s Rock* unit in which youth examined rocks and minerals to demonstrate and recognize geological identification. Many respondents specifically mentioned making toothpaste as part of this unit. About a fifth of responses (22%) described concepts or activities related to *Design and Construct It!*, a unit that used the processes for scientific habits of mind to create original inventions using recyclable materials. Common responses mentioned building skyscrapers and/or constructing with marshmallows, testing structures for stability during an earthquake, and designing boats.

To obtain a more direct measure of youth engagement, evaluators observed APEX Science lessons and rated the frequency of youth behaviors which corresponded with three dimensions of engagement: physical, intellectual, and social (on a 1–5 scale, 1=“did not occur” and 5=“occurred frequently”). Within the dimension of physical engagement, hands-on participation was observed frequently, and youth often directed their attention to the discussions and activities taking place (see Table 4). Considering the intellectual dimension, youth frequently displayed enthusiasm during the lessons. They often shared their ideas and understandings, conducted activities independently of the instructor, and asked questions related to the lesson. In contrast, youth rarely expressed connections between the lesson and their lives or experiences or voiced reflections on what they did or learned. Within the social dimension, youth frequently discussed the lessons with their peers and often worked collaboratively in pairs or teams.

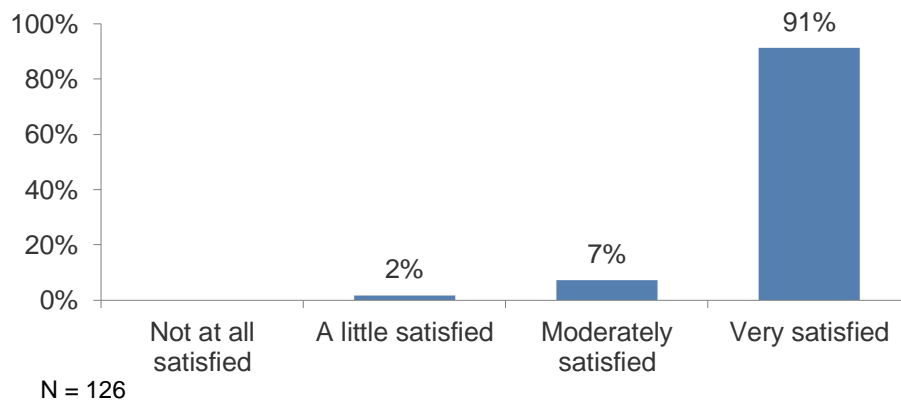
Table 4. APEX Science Observations: Ratings of Engagement during APEX Science Lessons

Dimension		Rating	
		Mean	Median
Physical	Hands-on participation	4.4	5.0
	Attention	5.0	4.0
Intellectual	Expressing enthusiasm	4.7	5.0
	Sharing ideas	3.9	4.0
	Conducting activities independently	3.7	4.0
	Asking questions	3.4	4.0
	Sharing connections	2.0	2.0
	Voicing reflections	2.0	2.0
Social	Discussion	3.9	5.0
	Collaboration	3.7	5.0

PC con CHISPA

Parents participating in PC con CHISPA were highly positive about their experiences and valued what they learned in the program. In the post-program survey, the large majority of respondents (91%) reported being “very satisfied” with the sessions (see Figure 3).

Figure 3. PC con CHISPA Survey: Level of Satisfaction



The strongest impacts on parents were increased learning about the structure and function of the U.S. school system and gaining strategies for supporting their children’s learning. Nearly half of respondents (47%), when asked to identify the most important thing they learned through the program, mentioned ideas about supporting their children’s academic success (see Table 5). These takeaways are critical in supporting not only STEM learning, but also their children’s education broadly.

Parents surveyed also reported gaining awareness of the importance of science generally, the importance of engaging in science outside of school, parental roles in supporting science learning, observing children’s interest in science, and encouraging fun STEM learning at home. Additional responses focused on parents’ communication and relationship with their child’s school. Many responses mentioned gaining an understanding of a school’s chain of command and learning about what their children are being taught in school. Some responses addressed learning to get along and work with other parents. Other comments included learning about how to communicate with children, showing gratitude for the program, and learning patience.

Table 5. PC con CHISPA Survey: Responses to: “What is the most important thing you learned through Padres Comprometidos con CHISPA?” by Percentage

Response Category	% of Responses (N=96)
Support for academic and career success	47%
Science	26%
Communication and relationship with school	16%
Other parents	5%
Other	6%

- | | |
|---|---|
| <i>Poner reglamentos en en hogar y hacer tiempo y poner importancias a nuestros hijos [como tener] veinte minutos [de tiempo para enfocar] con ellos.</i> | <i>Have rules in the home and make time and place importance on our children [like having] twenty minutes [focused time] with them.</i> |
| <i>Como educar de mejor manera a nuestros hijos enseñándoles que la ciencia es divertida e importante.</i> | <i>How to better educate our children by teaching them that science is fun and important.</i> |
| <i>Como ayudar a mis hijas en los niveles de estudio.</i> | <i>How to help my daughters at their levels of study.</i> |
| <i>Mi hija y su primo en casa han hecho dos experimentos para pasar el tiempo en vez de ver televisión.</i> | <i>My daughter and her cousin at home have done two experiments to pass the time instead of watching television.</i> |
| <i>Hacer experimentos en la casa cuando hacemos mantenimiento, por ejemplo, pintar los cuartos y mezclamos las pinturas.</i> | <i>Doing experiments in the house when we do maintenance, for example, painting the rooms and mixing the paint.</i> |
| <i>Apoyarlos para que sigan sus metas, y día con día motivarlos a seguir estudiando.</i> | <i>Support them to follow their goals, and every single day motivate them to continue studying.</i> |
| <i>Inculcarles lo importante que es estudiar un postgrado en su vida.</i> | <i>Instilling in them the importance of pursuing a graduate degree in their life.</i> |

To explore participant learning more deeply, we conducted focus groups with parents who had completed PC con CHISPA within the past year. When prompted to reflect on the topics discussed in PC con CHISPA sessions, focus group participants enthusiastically recounted what they had learned in detail as well as the importance and value of that information to their lives. Many participants described a

deepened understanding of the U.S. school system and about how to advocate for their children. Participants explained that after participating in PC con CHISPA they understood their rights as parents and the steps to take, including who to speak with, when problems arose. As a result, they were no longer afraid to advocate for their children. The following are sample comments from parents.

Además de conocer el sistema educativo acá, sé los pasos que voy a seguir para que mi hija logre eso. Y me ha enseñado a abogar—la abogacía, que es muy importante...[PC con CHISPA] te enseña que uno—que lo más importante es ir como padre, de mano a mano con la escuela, con el maestro; como un conjunto...Trabajar en conjunto. Porque, el objetivo en común es el hijo.

Besides knowing the educational system here, I know the steps that I will follow so that my daughter achieves that. And it has taught me to advocate—advocacy, which is very important...[PC con CHISPA] teaches you that one—that the most important thing is to be as a parent, hand in hand with the school, with the teacher; [work] as a unit...Work together. Because, the common goal is the daughter/son.

También ponen el programa de Padres Comprometidos, por ejemplo, como el common core para que esos padres aprendan a abogar, como dice ella, los derechos, y ver cómo son los estándares, a conocer el sistema [de educación en el E.E.U.U.]. Porque, muchas veces, tenemos los niños en la escuela, pero no sabemos cómo es el sistema de educación.

They also have the program Padres Comprometidos, for example, as the common core so that those parents learn to advocate, as she says, the rights, and see what the standards are, to learn the [U.S. education] system. Because, many times, we have children in school, but we do not know what the education system is like.

Many also reported learning ways to help their children attend college (e.g., making sure they do well in elementary school, making sure their children's high school is strong academically, and/or becoming aware of the availability of college scholarships). Some participants emphasized that they had always wanted their child to go to college and now had the specific tactics required to reach this goal. They also realized the importance of their children's elementary and high school education. Others said they had gained an understanding of how children are always learning, and that it can benefit parents to slow down and explicitly attend to that learning. Moreover, some participants reported that the discussion in PC con CHISPA sessions had sparked conversation with their children about college.

Y también que instauren la mentalidad para introducirlos al college, cómo es el camino, cómo van a recorrer ese camino para enfocarlos. Y así se lograría que más niños, más jóvenes puedan lograr el college porque, según las estadísticas, muchos niños no llegan, no lo logran.

And also to establish the mindset to introduce them to college, what that road is, how will they go down that road, to focus them. And that way realize [the goal] that more youth can achieve [going to] college because, according to statistics, many children do not reach [that goal], they do not.

Haberme involucrado en el programa de CHISPA me ayudó más a conocer, por ejemplo, cómo mi hija puede llegar a la universidad, los medios que tiene que seguir.

Having been involved in the CHISPA program helped me more to know, for example, how my daughter can get to university, what she has to follow, and the means [to getting there].

Parents also discussed the program's STEM focus, relating that they enjoyed and were excited about the hands-on science activities. They remembered the activities and shared connections they had made between science and everyday life. For example, some participants explained that cooking involves measuring and science, and others connected spending time in nature to science. Many participants who were new to the U.S. drew connections to their experiences in their home countries. Some participants described specific scientific content they had learned, such as the scientific method and the relationship between math and different STEM fields. Many participants enthusiastically shared what they had learned about salaries associated with STEM careers.

Moreover, affiliate staff observations of parents' behaviors indicated that parents had begun to transfer what they learned. Half of staff survey respondents provided examples of such parent behaviors, including attending parent meetings at school or in the afterschool program, speaking up and asking questions of the school, volunteering to lead or support extracurricular activities, and/or continuing their engagement in PC con CHISPA itself. Nearly a third of responses cited examples related to activities and support at home, such as assisting with children's homework, discussing career paths with children, and spending quality time together (e.g., visits to science museums). Other responses included parents asking for activities to complete at home and additional resources for their families as well as parent testimonials about the effectiveness of the PC program at the end of the year.

More family outings to museums of science. Parents are [also] requesting more STEM programs at school during meetings with principals. Parents engaging in more science fair activities at school. — Affiliate staff member

Parents are now well versed and feel comfortable asking the school questions. — Affiliate staff member

Parents have asked for STEM activities that they can do at home with their children. Parent participation during our science expo has gone up. — Affiliate staff member

Participants also reported that they would have liked to attend more than the nine program sessions offered, that they would like to cover additional material and topics, and that they wished more parents in their communities would become involved with PC con CHISPA. They also shared that they appreciated that PC con CHISPA provided an opportunity to share and discuss parenting experiences with other parents. Those who had participated in family CHISPA activities said that they valued forming connections with other families.

Family Science Day

Interviews with affiliate and museum staff revealed varying levels of overlap between the families involved in APEX Science and PC con CHISPA and those attending Family Science Day. In some locations, Family Science Day was offered as the culminating activity for families engaged in the other CHISPA components. In other locations, however, Family Science Day was open to families that the affiliate served, but who did not participate in CHISPA (and/or was used as a kickoff to recruit families for CHISPA).

We actually opened [Family Science Day] up to all of [the affiliates], not just [those with children] the age of the CHISPA content, because we knew there would be families who would have older or younger kids. So if they [the families] were involved in [the affiliate] in any way, whether it be the school or the afterschool program, it was an open invitation. — Museum staff member

Family Science Day events did draw families that had not previously visited, with just over half (54%) of surveyed respondents reporting visiting the museum for the first time. When asked to rate Family Science Day on a 1–4 scale, the vast majority (92%) of respondents provided the top rating (a “4”, indicating that they “agreed strongly” that they felt welcome at the museum. Similarly, 88% rated the day as “very enjoyable” (a “4” rating).

The survey also asked respondents what they enjoyed most about the day. Approximately half of the responses (51%) mentioned a specific exhibit, area, or content of the museum (see Table 6).

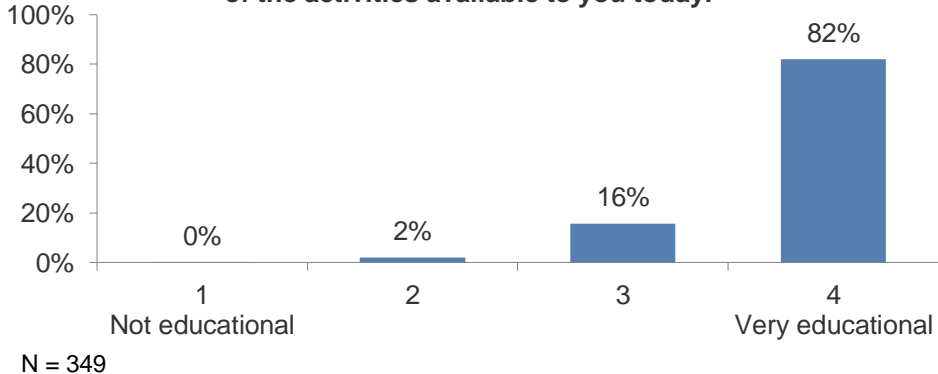
Table 6. Family Science Day Survey: Responses to: “What did you enjoy most about your visit?” by Percentage

Category	% of Responses (N=366)
Favorite exhibits, areas, or content of museum	51%
General praise about the museum	16%
Spending time with family	7%
Interactive activities and experiments	7%
Learning/educational aspect of visit	6%
Fun or enjoyment generally	6%
Staff hospitality	3%
Other*	3%

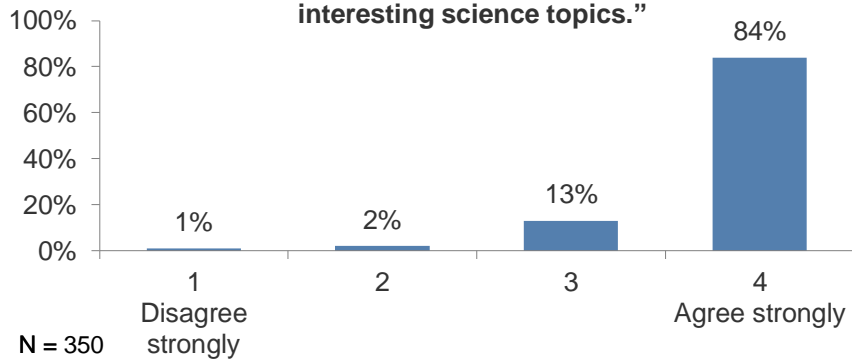
*Responses included socializing with other families, the museum’s extended hours, and the food provided

Respondents were also asked to rate their visit along several dimensions: a) the educational value of activities available to them; b) the extent to which the event provided opportunities to learn about interesting science topics; and c) their comfort returning to the museum. On a 1–4 scale, more than three-quarters of respondents (82%) rated the activities as very educational (see Figure 4). Likewise, 84% agreed strongly that the event provided opportunities to learn about interesting science topics (see Figure 5).

Figure 4. Family Science Day Survey: Responses to: “Please rate the educational value of the activities available to you today.”

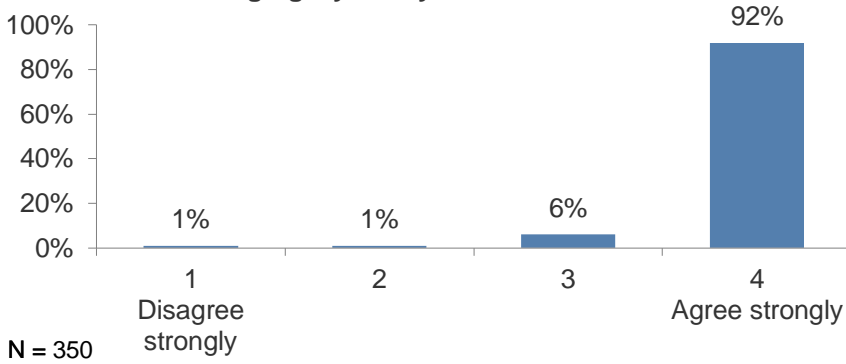


**Figure 5. Family Science Day Survey:
Responses to: “This event provided me and
my family with opportunities to learn about
interesting science topics.”**



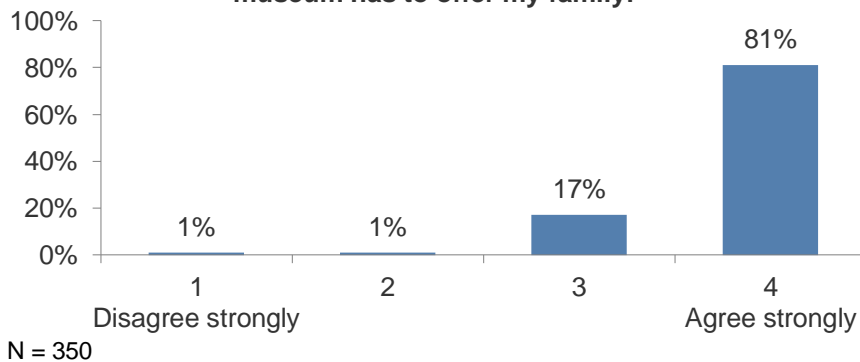
Almost all (92%) respondents also agreed strongly that they would feel comfortable returning to the museum (see Figure 6).

**Figure 6. Family Science Day Survey:
Responses to: “I would feel comfortable
bringing my family back to this museum.”**



Additionally, more than three quarters of respondents (81%) agreed strongly that they gained a greater understanding of what the museum had to offer their family (see Figure 7).

**Figure 7. Family Science Day Survey:
Responses to: “As a result of my visit, I
have a greater understanding of what this
museum has to offer my family.”**



Respondents were also invited to share additional comments about their experiences at Family Science Day. Nearly two-thirds (65%) of the comments praised and/or expressed thanks for the event. The remainder of the comments discussed other positive dimensions of their experience. Some comments noted that Family Science Day was fun for children and families (9%) or educational (8%), while others expressed a desire to visit again (6%) or commented positively on staff hospitality (3%). A few comments (4%) offered suggestions, including keeping the museum open late more frequently, featuring live animals in the exhibits, expanding the tour that was provided, and providing greater crowd control in exhibition spaces. Other responses (5%) included comments about the positive experiences of meeting new people or getting to explore the museum generally.

Nos encantaron las instalaciones con deseos de volver a visitarlas.

We loved the installations and we want to come back again to visit them.

Fue muy interesante. Todo es muy bonito y didáctico-educativo.

It was really interesting. Everything is great and educational.

Este museo esta súper bien para q nuestros hijos disfruten y aprenda muchas cosas. Gracias.

This museum is super great for our children to enjoy and learn many things. Thank you.

Todo estuvo muy bien. Felicidades y sigan organizando mas eventos.

Everything was great. Congratulations and keep organizing more events.

Me encantó la amabilidad del personal, muy bonito todo.

I loved the friendliness of the personnel; everything was great.

Although CHISPA was conceived as having three components for families (APEX Science, PC con CHISPA, and Family Science Day), focus groups and interviews with parents revealed that not all participants understood that CHISPA included three components and only a few participants were able to distinguish APEX Science or CHISPA activities from their children's other afterschool program activities. However, those parents who were aware of the three components and understood which activities were part of CHISPA saw great value in the program's multi-pronged approach. When asked about the relative importance of each component, these parents were adamant that all three were required to realize the full potential of CHISPA.

Yo siento que los tres es un componente, uno va llevando a la otra. El que los niños estén en CHISPA es súper importante porque ya nos empiezan a ayudar a nosotros a que ellos se desarrollen. Pero también, el que nosotros como padres nos integremos es súper importante. Y la tercera, que no es menos, es entonces cuando hacemos actividades con ellos. Si le damos un valor, yo siento que las tres son importante.

I feel that the three is a component, one is leading to the other. The fact that the children are in CHISPA is very important because they are already beginning to help us to develop them. But also, the fact that we as parents integrate is super important. And the third, which is no less, is when we do activities with them. If we give it a value, I feel that all three are important.

Para mí, CHISPA es el complemento completo todo. CHISPA es lo que—los Padres Comprometidos con CHISPA, los paseos son CHISPA. Entonces, ese es el complemento. Solo no hay tres divisiones, es una sola palabra: CHISPA.

For me, CHISPA is the complete complement to everything. CHISPA is what—los Padres Comprometidos con CHISPA, the walks are CHISPA. So, that is the complement. There are not only three divisions, it is a single word: CHISPA.

Affiliate and museum staff members also shared similar feedback when asked about the overall value of CHISPA. More than half of affiliate staff (51%) and museum staff surveyed (60%) emphasized the importance of CHISPA's whole-family approach, noting that the program provided families an opportunity to learn together. Respondents also emphasized the value of STEM learning, noting increased interest in science, confidence in learning science, developing critical thinking and other skills necessary to engage in science, and exposing and inspiring children to pursue STEM careers. Affiliate staff responses cited additional aspects they saw as a value to families, including that families enjoyed the program and that it provided families with access to resources such as the interactive and experiment-focused activities fostered by CHISPA.

The program raises awareness for students about the viability of science as a possible course of study and helps parents see the value in supporting their children even when they as parents might not understand completely. — Affiliate staff member

Parents want to get involved in their child's learning. This program does that. The family learns together. — Affiliate staff member

It gets students and families involved and informed about the importance of STEM in a fun yet educational way. — Affiliate staff member

CHISPA is an amazing program. It unites families, the community, and the museum together for one cause: encouraging youth to explore science through hands-on programming. — Museum staff member

It is a holistic approach to engaging this community. Activities are not just translated into Spanish; they are developed specifically to be developmentally and culturally appropriate, as well as to be engaging and simple to facilitate. Extending the learning experience to include parents and community institutions makes for a complete approach. — Museum staff member

**Capacity Building among
Affiliates and Affiliate Staff**



Capacity Building among Affiliates and Affiliate Staff

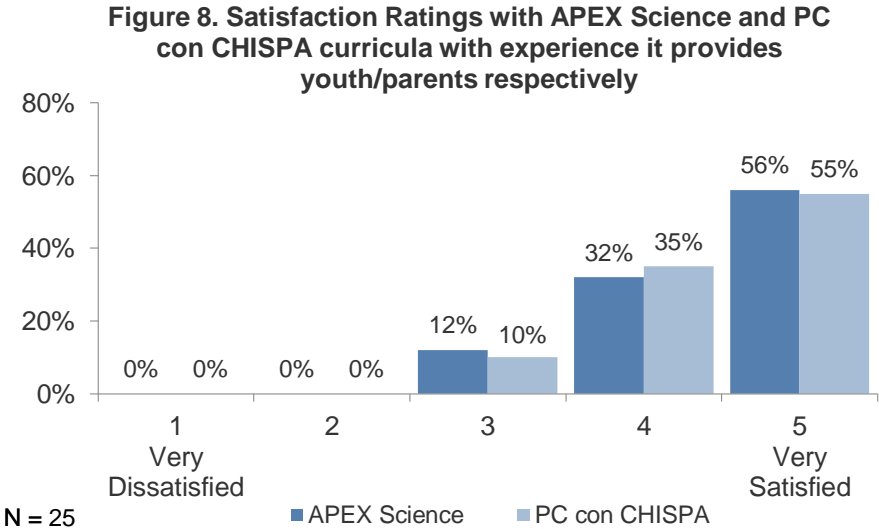
The project aimed to build capacity for affiliate organizations to engage Latino youth and families with STEM. CHISPA sought to accomplish this by: a) providing the APEX Science and PC con CHISPA curricula; b) training affiliate staff to implement these curricula; and c) fostering links between the affiliates and their partner science museum and relationships among affiliate organizations. This section of the report focuses on capacity building related to curricula and programming while the section on linkages addresses the relationships developed through CHISPA.

CHISPA Curricula

Data indicated that APEX science filled a major need for K-5 curriculum in afterschool programs. More than half (53%) of affiliates surveyed reported offering no science activities or lessons prior to participating in CHISPA. APEX Science activities were the only science enrichment offered. In fact, affiliates and CHISPA national leaders reported that many elementary schools in the participating communities did not offer science instruction. In those cases, CHISPA served as the only engagement with science that children in grades K-5 received. Even among affiliates who reported offering some science, APEX Science was likely to be the only professionally-developed science curriculum. Many affiliate staff had no prior experience offering STEM activities to youth.

Similarly, while more than two-thirds (70%) of affiliates surveyed already engaged parents in activities or sessions prior to CHISPA, few offered any comprehensive parent-specific curriculum. In fact, most of the sessions offered were generally one-time meetings, workshops, or events. The exceptions were generally those affiliates that had offered the original Padres Comprometidos program developed by UnidosUS—on which PC con CHISPA is based—which aims to foster strong connection between schools and parents but does not have any science focus. Additionally, there did not appear to be any parent engagement activities that included content relating to supporting youth in STEM.

Overall, affiliate staff were highly satisfied with both the APEX Science and PC con CHISPA curricula. More than half of respondents (56%) were “very satisfied” (rating “5” on a 1–5 scale) with the experience that the curriculum provided to youth. Similarly, more than half of respondents (55%) were “very satisfied” with the PC con CHISPA curriculum for the experience it provided parents (rating “5” on a 1–5 scale) (see Figure 8).



When asked to explain the reason for their satisfaction with APEX Science, the majority of respondents cited positive characteristics of the APEX Science curriculum, commenting on the range of topics covered and that the lessons were clear, interesting, hands-on, and culturally relevant. Other responses focused on the fact that youth were clearly learning, such as growth in critical thinking, collaboration, and language development. Additional responses described the ways in which APEX Science and CHISPA generally benefitted affiliates by providing new opportunities for youth and the community. A few responses indicated that their satisfaction was somewhat limited because they needed additional lessons and/or materials.

Interviews with affiliate staff and discussions with national program leaders reflected similar themes, with respondents commenting that they valued the hands-on and bilingual aspects of the curriculum. They also valued that the content aligned with Next Generation Science Standards. Respondents emphasized that the activities promoted working collaboratively in pairs and groups and that the lessons were flexible in that they could be divided into multiple sessions to accommodate afterschool program schedules. Respondents also appreciated that written materials were professionally produced (with strong visual elements and use of color) and that all required supplies were included. Further, they valued supplies for their quality, durability, and seamless alignment with the lesson plan.

In terms of reasons for the high level of satisfaction with the PC con CHISPA curriculum, many responses cited parents' learning (e.g., parents gaining an understanding of how the educational system works, how they can advocate for their children, and how to help their children with homework). Others discussed the importance of the subject matter covered in PC con CHISPA, including both the STEM content and parental involvement in their children's overall education. Still others focused on the opportunity for parents to connect with one another and for instructors to develop relationships with parents.

Satisfaction for Family Science Day was also high; nearly two thirds (63%) of affiliate staff reported they were "very satisfied" (rating "5" on a 1–5 scale) with the experience it provided families. Nearly one-third (30%) rated their satisfaction a "4" and 7% provided "3" ratings. In explaining the reason for their Family Science Day satisfaction rating, about a third noted families' high level of enjoyment of the event. Others emphasized the opportunity it provided families to visit the museum. Another group of responses praised the event for being well-designed, well-organized, and/or carefully planned. Another group of responses focused on the positive family interaction the event afforded. Other comments noted that the event exposed Latino families to the resources that the museum partner had to offer and provided valuable out-of-school learning. A few responses identified aspects of the planning that could be improved, such as fewer changes in the date during planning or providing a nicer meal for families.

APEX Science Training and Implementation

APEX Science Training

CHISPA sought to equip affiliate staff with the ability to lead APEX Science lessons through a train-the-trainer model supplemented by written materials and support from national program leaders. In the train-the-trainer approach, the national program team led a brief session at the first National Professional Development Institute for museum staff and also provided individual support via phone to staff as needed. Museum staff then trained a small number of affiliates staff members on the APEX Science curriculum. Those affiliate staffers, in turn, were charged with training additional APEX Science instructors.

Trainings were led by museum staff once a year on average. Typically, training sessions provided an overview of APEX Science along with a sample hands-on exploration lesson from the curriculum. Museum staff interviewed stressed that the purpose of the training was to provide an orientation to the APEX Science curriculum and, when possible, provide affiliate staff with an opportunity to experience participating in and leading a lesson. Others noted that part of the sessions provided an overview of best practices and tips for leading sessions.

We set it up so that I have the whole curriculum and all of the materials, the consumables and non-consumables there, and we talked about everything from the easiest way to set things up that you can be organized when you get these big boxes [...] to best practices when facilitating. Then, we modeled a lesson, and then we have them pick a lesson from the curriculum and take some time to work together as a group to figure out how they would facilitate it. Then they facilitated it to us. — Museum staff member

Although affiliate staff found the training they received very helpful in providing a basic understanding of the APEX Science curriculum, they reported that the training received was not as robust and as in-depth as they needed to feel fully comfortable and ready to implement and deliver sessions. Affiliate staff interviewed described needing more focused and sustained support around the science content and teaching strategies as well as on the logistics of the curriculum. Given the fact that affiliate staff had little prior experience teaching science content, it appeared that they needed more training and support than planned in the CHISPA model.

The time budgeted for staff trainings seemed to be part of the challenge. One museum staff member commented that the focus and structure of the trainings was determined by time allotted and also noted the different expectations between affiliate and museum staff.

It was very different expectations. We had seen it as, “OK, well, we’ll talk about how an example lesson works and how you should proceed when doing this independently.” Because we only had 2 hours set aside to train. And so, we were like, “We’ll go through an example lesson and talk about how it works and how to use the kits”...I remember their response was, sort of, “OK, well, now are you going to do the other lessons?” — Museum staff member

Affiliate staff also expressed a desire to have museum staff visit their sites to observe them implement an APEX Science lesson and provide feedback and coaching. It appears, however, that most museum staff were occupied with their own afterschool programming during the same hours that affiliate staff led APEX Science activities. Further, most museum staff did not have enough time dedicated to CHISPA to enable them to provide this level of support.

Staff at affiliate sites found ways to supplement these trainings. Some affiliates developed their own internal training processes and structures to provide ongoing support. At one affiliate, for example, the APEX Science instructors gathered weekly to review the activity leaders’ guide for the next week’s lesson, familiarize themselves with the vocabulary, and organize the necessary supplies. At the same site, the CHISPA coordinator also observed instructors’ lessons and provided feedback. A number of affiliate staff members also supplemented their own learning with further research. For example, some conducted online searches to help them better understand the content or to find other resources. While these strategies proved useful, some commented that it was difficult to find the time.

The train-the-trainer model seems to have assumed that affiliate staff would be able to train on the general principles of instruction and extend that to other lessons. However, the overall need for more robust training seemed to reflect the fact that affiliate staff had limited background in science, pedagogy, or informal learning.

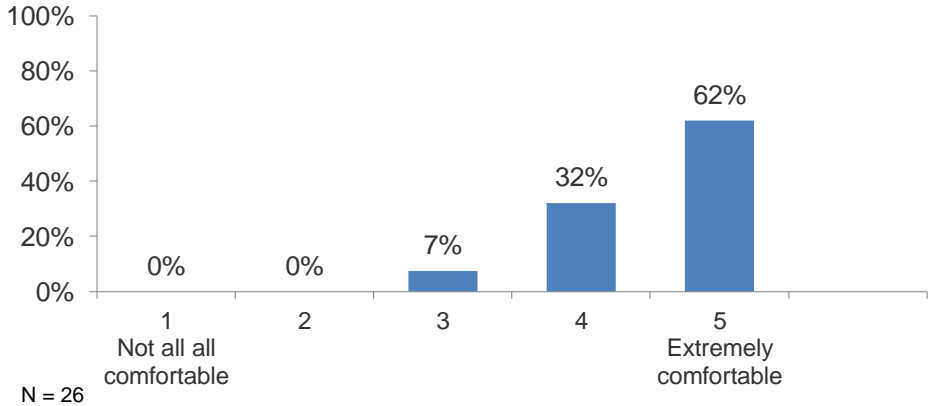
Additionally, the high turnover at many affiliates highlighted a need for more frequent training rather than solely once a year. At many affiliates, APEX Science instructors and/or trainers changed each year (or more frequently if staff members left the organization and/or changed roles within the affiliate). While there was evidence at some sites that existing knowledge about APEX was transferred from outgoing staff to new staff for many affiliates, there was little or no knowledge transfer among instructors. This meant that introductory training became an ongoing requirement. Turnover at museums also affected APEX Science training. In one metropolitan area, for example, the museum and an affiliate both lost key personnel at approximately the same time. When the affiliate requested training for new staff, the museum was unable to provide the training because the CHISPA coordinator position was vacant.

APEX Science Implementation

The success of CHISPA was predicated on the ability of affiliates to implement APEX Science after receiving the curriculum and training. The evaluation found that all participating affiliates did implement the required APEX Science lessons and affiliate staff reported that they felt successful. The evaluation documented a wide range of ways in which APEX was implemented across different contexts and settings.

Despite the need and desire for more training and support, by the end of the Year 4, affiliate staff surveyed were comfortable implementing the APEX science curriculum. About two-thirds of respondents (62%) reported feeling “extremely comfortable” (rating “5” on a 1–5 scale) leading APEX Science activities (see Figure 9).

Figure 9. Level of comfort in ability to effectively lead APEX activities with students



Observations of affiliate staff leading APEX sessions confirmed that instructors were mostly comfortable conducting sessions. Evaluators observed sessions and rated instructors' level of comfort as indicated by the instructor's apparent familiarity with the lesson, ability to proceed through the lesson smoothly without needing to backtrack to cover material that was missed or wasn't clear, ability to explain content and processes in multiple ways, and ability to answer questions. Based on a 1–4 scale (1="did not seem comfortable" and 4="seemed entirely comfortable"), observations showed a mean rating of 3.0 for sessions observed.

Observations conducted also confirmed that APEX lessons could be led successfully by facilitators with varying levels of skills and experience. The clear, step-by-step directions included in the APEX Science lessons provided less experienced instructors with guidance through the process of leading the lesson. This appeared to be critical to the success of CHISPA since, at many affiliates, APEX Science sessions were led by less experienced part-time staff members and, in at least one instance, by AmeriCorps volunteers.

Despite the fact that APEX science could be led by facilitators with varying skills and experience, this evaluation found that instructors were more challenged in their ability to adapt lessons to accommodate a range of youth ages and levels in their afterschool setting.

National program leaders emphasized the importance of instructors modifying lesson delivery to accommodate varying student levels, a concept known as differentiation of instruction. Given the variation in afterschool program contexts and settings and the challenges identified, the evaluation examined the extent to which affiliate staff adapted, modified, or enriched APEX Science lesson content and activities. Observation data collected as part of this evaluation found that instructors largely taught the lessons as written with little to no differentiation. Using a rubric which rated the extent to which instructors modified or adapted the lesson plan during observations of APEX Science (on a 1–4 scale, 1="taught exactly as written" and 4="taught none of what was written"), the mean rating of 1.7 from observation data indicated that instructors largely taught the lessons as written.

Interestingly, in self-reports, affiliate staff reported that they did modify lessons, but follow-up interviews revealed considerable variation in what respondents considered to be a "modification," most of which would not be considered true adaptations focused on differentiating lessons. This suggests that staff needed more support in understanding ways to more appropriately adapt lessons. (The national program leaders noted that affiliates needed training in differentiating instruction. Leadership considered providing such training at the national PD Institutes, but time was not allocated to this activity.)

Factors affecting implementation

Data from observations, interviews, and affiliate staff surveyed also revealed a number of factors and challenges that seemed to most affect implementation: a) youth composition in afterschool program at a specific site; b) available number of youth/population in afterschool programming; and c) the degree or consistency and/or control of logistical aspects in the specific afterschool setting.

Although one of the strengths of the APEX curriculum was its flexibility—which allowed affiliates to implement in ways most appropriate for their settings—data, nonetheless, indicated that APEX implementation was easiest under certain circumstances. Specifically, it was easiest for instructors to implement when youth were divided by age or grade level or when the lessons were delivered to a mix of

students close in age. Groups that had relatively similar levels of reading and writing abilities brought somewhat uniform knowledge of vocabulary and progressed at a relatively similar pace through the activities. In contrast, implementing APEX Science with a wide mix of age or grades required instructors to present material and lead activities in ways accessible and understandable for younger children while still challenging for older students. Several affiliates addressed this challenge by pairing older and younger participants and/or by engaging older students in leadership or teaching roles for the lessons.

At affiliates with younger children who were not yet able to read and write independently (in English or Spanish), however, staff found it more difficult to implement the range of APEX lessons. One site described the difficulty they faced in implementing APEX Science:

A lot of our kids were younger. A lot of them didn't know how to write. A lot of them don't know how to read... There were 5 lessons that were required out of the 8. So, we went through the easier data sheets. We looked through them. And there were some that were even hard for us to understand how to fill out. So, we knew that the kids were not going to be able to do it. So, we looked for the ones where there was more... drawing [rather than writing]. Questions that were easy vocabulary or that asked for a drawing that the younger ones could grasp and be able to do on their own. — Affiliate staff member

Grouping youth by grade or age, however, was not necessarily possible given that affiliate sites had varied ways in which they structured their afterschool programming. Although some affiliates structured their entire afterschool program by grade level, at other affiliates, youth from various ages/grades participated together in the afterschool programming and all activities were delivered to mixed age groups. Still other affiliates made participation in APEX Science voluntary and invited children from multiple grade levels to opt-in and participate in APEX Science together.

The specifics of the population served also affected who ultimately participated in APEX Science annually. Many afterschool programs repeated the APEX Science lessons with the same individuals, year after year. The repetition occurred for several different reasons. First, many afterschool programs served a stable population of youth, meaning the same youth attended from year to year. In some of these programs, staff implemented APEX Science with every student every year, perhaps because it didn't occur to them to engage only a subset of students with APEX Science or because they may not have had enough students implement APEX Science with a new group each year and meet grant requirements for the number of students served. Other programs operated on a model in which activities were open to all youth who wanted to participate, even if the students had participated previously. There were also cases in which it appeared that APEX Science lessons were repeated because they had been well received and the affiliate lacked other science curricula.

Repeating the curriculum with the same individuals presented challenges because, while students enjoyed and continued to be engaged with the hands-on activities, they were less interested in covering the same material that had been presented the prior year(s).

The students in 5th grade who have completed the CHISPA activities already multiple times grow disinterested and aren't motivated to do them again. — Affiliate staff member

The curriculum did not change throughout the years which affected students who had previously been in CHISPA. It lowered their motivation and excitement about the program. However, the new students were very excited and always ready for the lessons. — Affiliate staff member

The degree of consistency and/or logistical control present in the afterschool program on the whole also affected implementation. Some afterschool programs required that youth attend the program consistently and participate in the full schedule of activities each day. In contrast, other programs were structured more like drop-in programs; attendance could vary day to day or week to week and parents could pick up their children at any time during the schedule of activities. Some programs also had to contend with external factors that limited their control over the flow of daily activities. At least one program, for example, was required by its funder to prioritize homework assistance over enrichment activities, resulting in limited time available for APEX Science. Another program faced internal “competition,” as students could choose from a variety of optional activities, including APEX Science.

We have a lot of parents who pick up their students early, right? Afterschool programming is from 3:30 until 6:00, but parents start to pick their kids up really early [...] So, everybody who stays with us does [CHISPA], but there’s always a drastic drop in attendance from 3:30 when afterschool starts to 5:00 when we’re starting our enrichment...You’re never exactly sure when the parent is going to pop in the door and collect their child. — Affiliate staff member

Last year we found that there were a lot of competing activities. So, what I didn’t want to happen was that the kids not stay with the APEX curricula because they’re being pulled for soccer or [other activities]. — Affiliate staff member

At some sites, affiliates also had little control over the number of hours youth participated in afterschool programs on a given day since students might be pulled away for other activities or be picked up early by their parents. The flexible curriculum supported staff in adapting on-the-fly to the number of youth present for a specific lesson. The data, overall, suggest that programs with more consistent attendance and participation were better positioned to implement APEX Science; they were able to engage the same youth in the full sequence of lessons and could more readily plan those lessons since they could anticipate how many (and which) students would participate.

PC con CHISPA: Training and Implementation

Training

To equip affiliate staff members to implement PC con CHISPA, UnidosUS national leadership provided annual training and support for affiliates. In post-training surveys, participating affiliate staff rated the training, resources, and supports highly with the mean rating of 4.4 to 4.7 on a 1–5 scale (1=“not at all helpful” and 5=“extremely helpful”), citing the CHISPA National Professional Development Institutes, school administrators and coaches, the UnidosUS Facebook page, and conversations with other affiliates implementing PC con CHISPA. (See Table 7.)

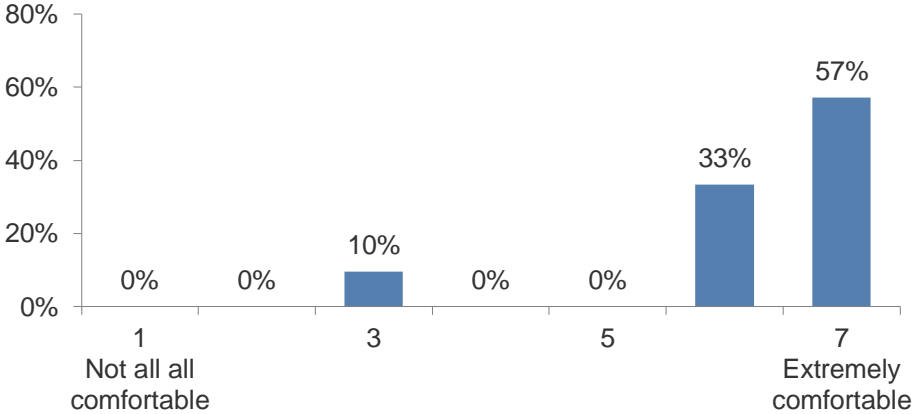
Table 7. Affiliate Survey: Helpfulness of Resources in Preparing to Lead PC con CHISPA Sessions

Resource	N	Mean	Median
Training conducted by UnidosUS staff	20	4.6	5
Training by affiliate staff	15	4.7	5
Conversations with national leadership	21	4.6	5
PC con CHISPA curriculum	21	4.5	5
Other	10	4.4	5

Implementation

It was hoped that the training would help affiliate staff members become comfortable implementing the curriculum with parents. More than half of the respondents to the affiliate staff survey (57%) reported being extremely comfortable leading PC con CHISPA sessions (rating “7” on a 1–7 scale) (see Figure 10).

Figure 10. Affiliate Survey: Respondents’ Level of Comfort Leading PC con CHISPA Sessions



N = 21

Despite high levels of comfort implementing PC con CHISPA, about one third (33%) of sites did not implement the program. Initially, affiliates were required to conduct two cycles of PC con CHISPA each year. (Each cycle consisted of nine sessions, and affiliates were required to enroll 30 parents per cycle.) These requirements were reduced, however, after some affiliates had difficulty fulfilling this obligation. In Year 4, affiliates were required to implement one cycle of PC con CHISPA that served at least 10 parents. Although the curriculum included nine sessions, each site was required to implement only five. Year 4 program records indicated that two-thirds of affiliates (67%) implemented at least one cycle. Of those that did, nearly all (94%) met the requirement of serving at least 10 parents.

Factors affecting implementation

Interviews with affiliate staff and discussions with national program leaders identified some of the factors that led to some sites not implementing PC con CHISPA. These included: a) available parent population; b) overall structure of programming; and c) level of staffing at affiliate sites.

Some affiliate sites served a relatively stable population each year (i.e., they generally served the same families). This meant that as parents joined and completed PC con CHISPA, the remaining pool of parents eligible to participate decreased and affiliates had progressively smaller groups of parents from which to recruit. To address this challenge, some affiliates invited parents whose children were not participating in APEX Science to join PC con CHISPA. This strategy could be considered somewhat successful in that it boosted the numbers of parents in PC con CHISPA; however, it also diluted the comprehensive nature of CHISPA, a program intended to serve the entire family unit.

The overall structure of the afterschool programs also affected implementation. While some affiliates worked closely with parents, others had historically focused their services exclusively on the children they served and did not require parents to be involved in the programs. For affiliates that fell into the latter

category, it was a considerable shift in culture to request parents to participate in a nine-session educational program. Although many affiliates cited parents' busy schedules (including multiple jobs, varying shift-work schedules, and responsibilities to care for other children) as a challenge, the data seem to indicate that schedule-related challenges were present for all of the affiliates, including those that did implement PC con CHISPA. This leads us to hypothesize that a program structure or culture that emphasized parent involvement helped overcome scheduling challenges, while those programs with no history of intensive parent engagement were unable to do so.

The available number of staff at affiliates was also a factor at some sites which lacked additional staff to lead parent programming. This meant that if a staff member was assigned to lead a PC con CHISPA session, they were not also available for afterschool programming. As a couple of affiliate staff described:

The assumed model of operation is that one person runs PC con CHISPA and a different person does the CHISPA curriculum with the students. We don't have the capacity to do that. [...] So, in real life, there is one person who does both of those things. And because they work Monday through Friday, we can't have a Saturday piece. That would require funding to pay a different person to come in and do that.
— Affiliate staff member

And then, you know, how do you compensate people for their time if they're staying until 8:00 at night [to lead a PC con CHISPA session]?...so, if we comp'd people for their time, then those people weren't present during the school day [to lead afterschool programming]. — Affiliate staff member

Adaptations to Context

Data suggest that at those affiliates that implemented PC con CHISPA, implementation was relatively successful as indicated by the high levels of parent satisfaction and learning documented. Given the variation in affiliate contexts, the evaluation sought to examine affiliate efforts to adapt, modify, or enrich the content and activities of PC con CHISPA sessions.

Affiliate staff surveyed were asked to describe any ways in which they modified or adapted the PC con CHISPA sessions in their setting. More than a third of staff who responded described ways in which they adapted delivery of the sessions in some minor way, such as having parents read questions, reviewing or translating vocabulary, or delivering multiple sessions in the same meeting to address scheduling challenges. Others indicated they incorporated additional experiments, science activities, and special speakers into sessions. Some also noted they included examples or resources specific to their school (e.g., bringing in a report card from the local school to show parents).

We didn't have a consistent amount of parents each time. Every time we would hold a meeting, we would do two lessons at a time because we knew we wouldn't be able to get all 9 lessons or however many there was...we weren't going to be able to get that many. We tried to do 2 or 3 meetings in one meeting so we could meet the requirements. — Affiliate staff member

Curriculum was followed mostly as recommended. Occasionally our parents were given the challenge to present along with the instructor to increase engagement and a sense of ownership. — Affiliate staff member

As the facilitator, much of the curriculum had to be modified to make it easier to understand. The lingo of it was not what parents know. — Affiliate staff member

I have purchased several online resources that were more up to date to complement the CHISPA curriculum. I would send parents local events happening around the Science and Technology components around the area so they could take their family. I use “Teachers Pay Teachers.” Pinterest has great teaching strategies as well. — Affiliate staff member

We brought guest speakers to talk to the parents about different issues that the parents were interested to learn. Also, we incorporated the different ideas and suggestions given by parents by bringing school administrative staff to talk to them about how they can help their children with school work and how to work together to have a successful school year. — Affiliate staff member

It was helpful for me to create my own presentation slides and use specific examples to our school setting. — Affiliate staff member

While we have kept the science part of the curriculum the same, we have modified some of the non-science activities to more accurately reflect our school, such as our use of standards-based grading instead of letter grades, and the vast majority of resources we offer parents that exceed the chart that is in the curriculum. — Affiliate staff member

Finally, in addition to the challenges of scheduling already discussed, some affiliate staff commented on the practicalities of implementing PC con CHISPA sessions as an additional challenge, including such issues as working in two languages, not having enough time to cover all of the content, and differentiating the instruction to match parents’ needs.

Overall Impact of CHISPA on Affiliate Staff’s Capacity

Overall, evaluation found that affiliate staff gained skills, experience, and confidence in delivering STEM programming to youth and in leading parent activities. The project supported affiliate staff in feeling more equipped to offer STEM programming.

The affiliate staff survey asked respondents to reflect on the influence of CHISPA on their work. On a 1–5 scale (1=“no influence” and 5=“significant influence”), the vast majority of respondents (89%) reported its influence as a “4” (38%) or a “5” (51%). When asked to reflect on what they had learned as a result of implementing APEX Science the largest category of responses focused on teaching strategies, including comments about using interactive and project-based methods, connecting science to students’ daily lives, and considering the many learning styles of students (see Table 8).

Table 8. Affiliate Survey: Categories of Responses to: “What, if anything, have you learned as a result of implementing APEX?”

Response Category	% of Responses (N=24)
Teaching strategies	46%
Importance of science activities	25%
Science is enjoyable	17%
How to encourage students to pursue STEM	13%

Another frequent response category focused on learning the importance of offering science activities, noting that Latina/o children need greater exposure to STEM and that science activities can build students' comfort and motivation. Some responses emphasized learning that science is fun, that students enjoy it, and that students are eager to engage with science. Additional responses discussed learning how to encourage students to pursue STEM learning and careers.

[I learned that] students learn in different ways and it's important to have classroom management before implementing a program with the students. — Affiliate staff member

There's a stigma with Science, that's it's difficult, too hard to do Science. It's really not. [I learned that] it's actually quite fun. The students really enjoy the activities. Hands-on learning. — Affiliate staff member

[I learned that] students enjoyed project based activities. Providing scripted lessons provided good framework for the teacher. — Affiliate staff member

[I learned] the importance of implementing STEM activities at a young age to build motivation and excite the students about the topics. — Affiliate staff member

[I learned] to encourage our Latino and minority students that they can pursue STEM careers by helping prepare them for it and to provide additional resources in order that they understand [the] necessary steps when they are ready to enter post-secondary education. — Affiliate staff member

When asked whether there were any ideas or strategies from APEX science that they had applied to their work, the vast majority of respondents once again mentioned teaching strategies they had learned. These included communicating learning goals before teaching a lesson, using hands-on activities, providing background information, familiarizing students with vocabulary, giving students the opportunity to lead lessons, and having students assess themselves. Some responses mentioned other programs or contexts in which they were using APEX lessons (including during the school day and as part of early childhood education).

In terms of affiliate staff's learning from their implementation of PC con CHISPA, many reported that they learned that parents want to be involved and want to learn more about supporting their children. Some respondents reported they learned the importance of parent involvement, while others emphasized learning how to work with parents or that they were able to do so. A few comments focused on learning that parents lack information about STEM and about schools. Finally, other comments included learning the importance of scheduling when engaging parents and about the benefits of a multidisciplinary team when implementing this type of programming.

[I learned] that parents want to learn effective ways to help their child/dren in school and how to succeed in school. — Affiliate staff member

[I learned that] our parents want their children to be successful. Parents want to support their children's education and the entities that they find helpful. — Affiliate staff member

[I learned] that parents want to be involved. — Affiliate staff member

[I learned that] the parent engagement is just as important as APEX to our organization and community. — Affiliate staff member

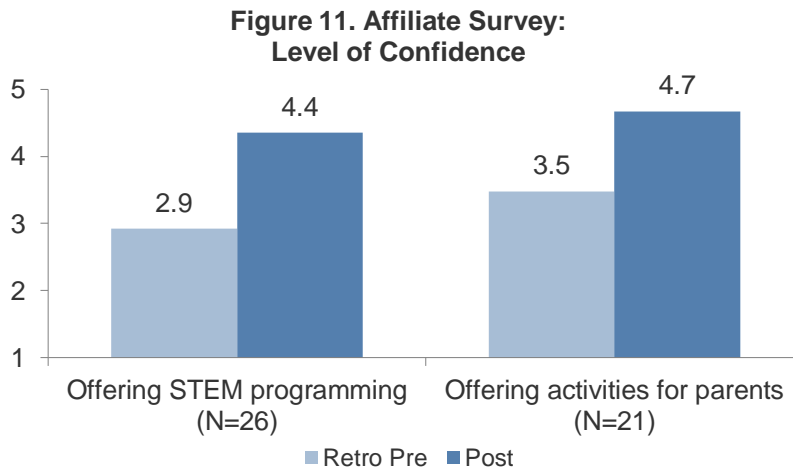
We learned that if we talk to parents like they are our peers than they are more willing to participate and feel like they can contribute to the conversation, especially when we're talking about science. — Affiliate staff member

[I learned] that parents didn't know of STEM programming and didn't fully understand what science is. — Affiliate staff member

When asked about ideas or strategies from PC con CHISPA that they had applied to their work, commenters most often noted the importance of creating a welcoming and open environment (e.g., fostering open communication, having an open-door policy, greeting parents with smiles) and the importance of activities and incentives (e.g., making meetings fun, including with food). Other responses discussed logistics such as scheduling parent activities later in the evening, considering the entire school calendar when scheduling parent sessions, and making reminder calls to parents. A few responses focused on session content such as providing information about the schools, aligning parent sessions with the students' curriculum, and incorporating parent input and feedback into parent sessions.

Interviews revealed that some staff had also introduced CHISPA activities into other areas of their programming. For example, one affiliate reported incorporating select APEX Science activities into a family science program they offered on Saturdays. Another affiliate explained that they hoped to use the CHISPA model to focus on reading and literacy for their students by offering activities for youth as well as parents.

Overall, CHISPA aimed to support affiliate staff members in feeling more equipped to offer STEM programming for children and educational activities or sessions for parents. To assess changes in staff members' level of confidence, we used a retrospective post-then-pre design. Staff surveyed were asked to rate their current level of confidence on a 1–5 scale (1="not at all confident" and 5="extremely confident") in offering STEM programming and offering activities for parents. The results showed statistically significant gains in confidence for both (See Figure 11).

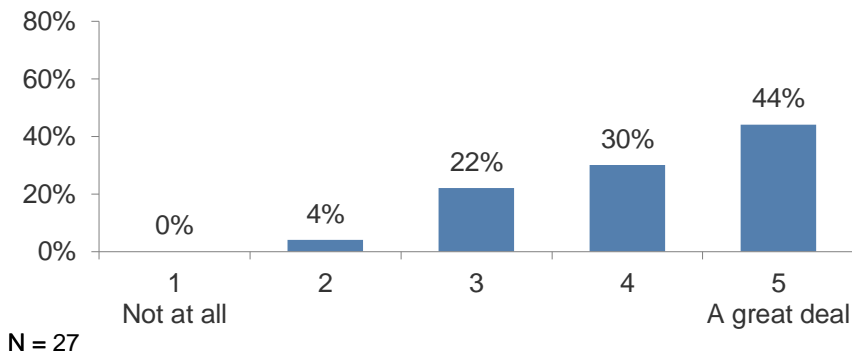


Paired *t*-test for confidence offering STEM programming: Retro pre (M=2.9, SD=1.13) and post (M=4.4, SD=.75); $t(25) = 6.19, p = 0.000$.

Paired *t*-test for confidence offering activities for parents: Retro pre (M=3.5, SD=1.40) and post (M=4.7, SD=.58); $t(20) = 4.23, p = 0.000$.

Finally, affiliate staff surveyed were asked to reflect on their own learning in regard to Family Science Day. Nearly half of respondents (44%) reported learning a great deal about the resources available at the museum (rating "5" on a 1–5 scale) (see Figure 12).

Figure 12. Affiliate Survey: Responses to: “To what extent did Family Day help you learn about the resources your partner museum has to offer families?”



Most Valuable Aspect

Affiliate staff surveyed were asked to reflect on what they valued most about their involvement with CHISPA. More than half of the responses (57%) described the positive impact of CHISPA on the families they served. About a quarter of the responses (24%) focused on the curriculum and resources that CHISPA provided to the affiliates, noting that these were valuable because they focused on science learning, encouraged children to pursue STEM careers, fostered parent-child learning, encouraged parents to get involved with their children’s education, and brought the community new opportunities for science learning. Other responses (12%) noted CHISPA’s value in helping affiliates develop relationships with families and museum partners and provide opportunities for networking with other affiliates. Finally, some comments (8%) were more general in nature, indicating that CHISPA was valuable because it was fun, allowed affiliates to help others, and that having a new program, in general, was good.

I believe that the most valuable thing about participating in CHISPA is seeing all the students fully engaged in the academic activities after school. Having parents involved in their child's learning is something that we strive for and CHISPA allowed us to have what the students were learning in the classroom extend to home conversations. — Affiliate staff member

The most valuable aspect had been engaging our parents to become active participants with the school to pursue learning opportunities for their children, both in school and outside the school. — Affiliate staff member

The love children have developed for science at our school. — Affiliate staff member

The most valuable thing about participating in CHISPA was being able to provide science at a school that would otherwise not be able to provide a hands-on focused curriculum. — Affiliate staff member

The curriculum model for science and the Padres Comprometidos integration. — Affiliate staff member

CHISPA national leaders also identified ways in which CHISPA added value at the organizational level for affiliates. First, CHISPA provided an opportunity for affiliates to serve the entire family, something not often possible or feasible since services for children and parents are funded through different mechanisms and, as a result, are delivered through different staffing structures. Second, participating in a multi-year, federally-funded program was a new experience for most of the affiliates. The longer timeframe enabled them to plan and iterate more than was typically possible in the single-year programs they implemented, and they also gained an understanding of how to implement a large project.

Challenges

On the other hand, many affiliates struggled to fulfill the reporting requirements associated with a project funded through a federal grant and being formally evaluated. This appeared to be due to the fact that the required level of reporting was new to affiliates, many of which lacked the infrastructure to conduct it. Interviews with affiliate staff confirmed the level of reporting to be challenging for some affiliates, with some staff noting that the reporting requirements were significantly greater than they had experienced with other similar grant-funded projects.

Resources were also a challenge. Some affiliate staff reported that the funding they received for CHISPA was low in relation to the project's requirements. Additionally, for example, CHISPA did not specifically fund new affiliate (or museum) staff positions as part of the grant; some affiliates did not have the staff to deliver all of the programming required, and CHISPA funding was not sufficient to hire additional staff. The transportation requirements for Family Science Day also often exceeded available resources. Some affiliates expressed a commitment to implement CHISPA nonetheless and were willing to absorb the additional costs.

Here's the outcome. We agreed to this. If the outcome takes an additional \$5,000 and an additional 50 hours of staff time, then that's what's actually going to happen, because we agreed to this. — Affiliate staff member

We had to pay extra, in terms of the staff who participated [in Family Day], because we had to have enough staff to ensure they are covering the [teacher to student] ratio as we usually do. We had to have 7 or 8 staff get paid. So, you have to add another expense to ensure the staff would be paid for those hours [...] We were over [the budget provided] in many ways. We were over hours. For each trip, we [were over transportation]...it involves a lot of budget. We went over our expectations. — Affiliate staff member

People in my organization would say, "But you don't work for CHISPA, you work for [the affiliate]" because I always had something to do for CHISPA. Creating the best way to provide the staff the materials, creating sets, to buy consumables...it was a lot. At the same time, having a group of parents in the afternoon and having all of the presentations and all the materials and the instructions. And having the responsibilities of collecting the attendance, the surveys. It was a lot, a lot, a lot of elements we had to work out, not having experience, and it was kind of challenging [...] No matter what, we did it. But it was very difficult. Very, very difficult. — Affiliate staff member

Improvements

Affiliate staff surveyed asked respondents to share their suggestions for improving CHISPA. More than half of responses (59%) requested that the curricula be expanded, with most of these responses suggesting adding more lessons/topics to the APEX Science curriculum and developing lessons suitable for younger children. About a tenth of responses (14%) focused on continuing to offer the program in the future. Another 14% requested more professional development or networking opportunities. Finally, 14% requested additional funding or supplies.

Although both the APEX Science and the PC con CHISPA curricula were provided to affiliates in English and Spanish, there were staff requests (in Year 4 and previous years) for materials to be provided in Spanish. This suggests that some affiliate staff either did not receive or were not aware they had received Spanish language materials. In interviews, affiliates also noted difficulties they had experienced because not everything was in place at the beginning of each year and because of the challenge of juggling CHISPA's many demands. Some staff members also described CHISPA requirements as vague and complicated.

This initiative was very ambitious in the way that we have to work in so many pieces at the same time. It's a lot. The first year it was crazy, sending data every week. [...] We had a lot of demands from a lot of people. In terms of the Padres Comprometidos, the expectations, not having a curriculum in Spanish, I had to translate the first year because I started right away. —Affiliate staff member

One challenge we've faced is just our calendar years, aligning in terms of ways that make sense for both parties [...] I get it that everyone is working with different, like, limitations and resources. But the reality is, that's not useful for us. I can't just start CHISPA randomly any time. We also work with little kids; having a routine is really important. I can't just wait until the day that the CHISPA supplies come and then we start this new thing. That's not how it works. We need to develop our schedules in advance. —Affiliate staff member

The Padres Comprometidos, like the actual book, was another hassle. It was printed wrong. There were English lessons in the Spanish one, there were Spanish lessons in the English. It was terrible. The headings of specific sections were on a different page than the actual...it was all over the place. When we were making copies of it, sometimes the headings wouldn't print out because it was on the previous page. The printing of the actual curriculum book was not very good. —Affiliate staff member

Capacity Building among Museums and Museum Staff



Capacity Building among Museums and Museum Staff

This evaluation found that museum staff built capacity-building by partnering with community-based organizations and also had some influence in Latino families. Museum staff members gained confidence in implementing a family event, convening stakeholders, and training community partners. They valued the opportunity for partnership and networking, professional development, and engaging with communities.

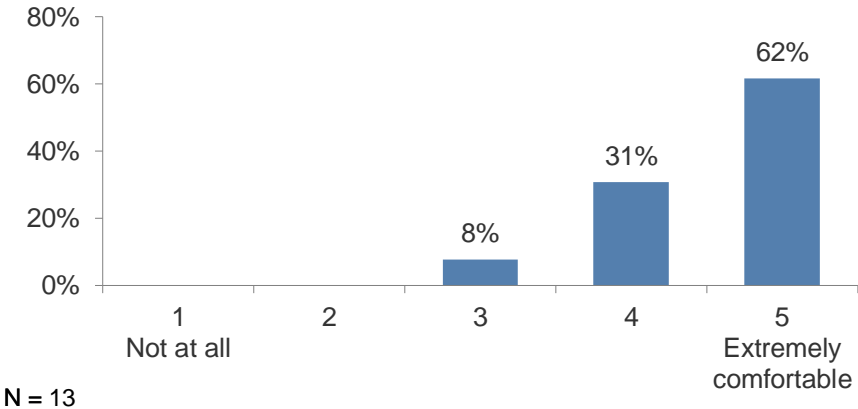
APEX Science Training

Of the museum survey respondents involved in delivering APEX training, only about half (54%) reported prior experience in delivering professional development training. Of those respondents with prior experience, most indicated having trained teachers, while some reported having trained community partners or leaders. Thus, while leading APEX Science training was not intended primarily to build capacity for museum staff members, it, in fact, served as a capacity-building opportunity for museum staff. The considerable variation in staff experience, however, meant some sites had a longer learning curve than others and some struggled to identify museum staff that had the experience to deliver training.

Respondents to the museum staff survey indicated that the range of resources provided—including discussions and support with the national leadership team, implementation and activity learning guides, and training by other museum staff—were all helpful. However, there were indications that museum staff needed more robust training and support and content to foster their learning. Although national leadership did provide one-on-one support as needed and staff had an implementation guide, much of it focused on logistics (e.g., brief checklists, forms and documents to use). Thus, museum staff learning depended on each museum team’s ability (and time) to reflect on their own practice and experiences with partners.

Having reached the end of CHISPA, respondents were asked to reflect on their level of comfort providing APEX training. Nearly two thirds (62%) of respondents indicated feeling extremely comfortable (Figure 13).

**Figure 13. Museum Survey:
Comfort Providing APEX Science Training**



In reflecting on their own learning from training community partners on the APEX curriculum, museum staff—in both surveys and interviews—discussed the importance of talking with community partners to

understand their needs and tailoring the training accordingly as well as understanding one another's expectations regarding training and support.

[I learned the importance of] asking community partners for specifics on where we can help with respect to science content training rather than assuming we know where the difficulties are. — Museum staff member

[I learned] It's important to initiate conversation with our community partners—they bring their own expertise and insight to the trainings and it is important to make sure that it can be incorporated into APEX. — Museum staff member

[We had understood the training] as, "OK, well, we'll talk about how an example lesson works and how you should proceed when doing this independently." Because we only had, what, like 2 hours set aside to train... "We'll go through an example lesson and talk about how it works and how to use the kits." [...] I remember their response was, sort of, "OK, well, now are you going to do the other lessons?" And we were like, "No...we can't." — Museum staff member

Steering Committee

Each museum was tasked with forming a local CHISPA Steering Committee to coordinate the project. The majority of the findings related to the Steering Committees are reported in the section on links between affiliates and museums, while the findings focusing on the capacity of the museum to lead the Steering Committee are presented below.

Although surveyed museum staff reported that the resources provided were helpful, the evaluation found that many museum staff faced challenges in convening the committees due to geographic distance, the number of members involved, and members' other work duties. These difficulties may have arisen from, or been compounded by, the inability of many affiliate staff members to be away from their program site and/or challenges in communication between affiliates and museum (often related to staff turnover). At times, it was even difficult for museum staff to identify the individual currently responsible for CHISPA at a particular affiliate and even more difficult to contact that person.

Scheduling [multiple sites] and finding time we could all meet in one location was challenging. Site coordinators wear multiple hats at their sites, making it difficult to meet. — Museum staff member

It was really hard getting people from so far away into the same room. — Museum staff member

Because in that first year, when we would try to schedule something in person, it was pulling teeth. Everyone had crazy schedules with different restrictions. And there was no allegiance to one another...at all...because, why? Why would [an affiliate] be willing to say, "Fine, we'll miss X, Y, or whatever for you" when they had no buy-in to each other necessarily or to [the museum]. — Museum staff member

It's almost like herding cats. It really is. It's not always that easy, especially because a lot of the groups that we work with, and that we've learned over the years of working with them, is that they have a high turnover. So, every year, every organization except one has had new staff that have taken over CHISPA. — Museum staff member

Further, differences in organizational culture between museums and affiliates may have made it more difficult to convene CHISPA Steering Committees. We hypothesize that these cultural differences may have affected members' comfort and willingness to prioritize and attend Steering Committee meetings.

My experience with working with outside groups and partnerships...it's very [much] functional relationships. And [CHISPA] really fostered an interpersonal relationship. And so I think that comes with significantly more time attached to it. But, again, the time is worth the investment. — Museum staff member

I don't know how to describe the [affiliate's organizational culture] without sounding negative. It didn't seem super...to be honest, it didn't seem super organized at [the affiliate]. And yet they get stuff...there's stuff they do, and they're always doing it. — Museum staff member

In reflecting on their own learning from coordinating the Steering Committee, museum staff described learning the importance of relationship building, establishing common ground, and shared commitment.

We tried to be really clear about agenda. We always had an agenda of what we were going to be looking at. But we also let the conversation flow, you know...try to be as organic as we can. And there were times...we also leave room for just kind of asking them how they were doing in their communities. Really trying to humanize our relationship. So, it wasn't just about: "let's just talk about CHISPA and let's move on." We really tried to build in time for just "Hey, how are you? How are things going? What are you working on?" — Museum staff member

[I learned] it is important to create relationships and an understanding for each organization. — Museum staff member

[I learned that] finding common ground is difficult, but once you do, it's rewarding. — Museum staff member

I learned that if all parties are committed, then the activity will happen. It may not happen the way I want it to, but it will happen. — Museum staff member

[I learned] to understand how factors as a transportation, time, [and] distance can affect our collaboration and how to find way to go over it. — Museum staff member

Others noted the need to recognize differences in organizational culture and establish honest communication.

I think there was a big cultural hurdle to cross about how CBOs and museums run differently, what is considered polite, and what is considered necessary to make a meeting work. — Museum staff member

I think when you enter [the museum], it seems like we have unlimited resources and unlimited time and we get paid so much money. And that is so not true....We just had to be honest with them. It looks like there are unlimited resources but there are, in fact, finite amounts. They were very understanding when we had a conversation with them about that...It's funny because it's almost like a little bit of an act of humility on our part, to be like, "we're not [about] infinite resources." The building is really impressive, but we don't control all of it. — Museum staff member

Family Science Day

Every participating museum was expected to host one Family Science Day per year for the families participating in CHISPA across each of their partner affiliates. Overall, data indicated that Family Science Day provided an opportunity for museums and museum staff members to build capacity in engaging Latino families through events and offerings. Although all but one museum reported their organizations previously offered some family events, there were indications that the planning and implementation of Family Science Day in the context of the CHISPA project developed and/or deepened staff capacity. Overall, museum staff reported the support they received by museum staff through one-on-one conversations and the brief event-planning checklists included in the CHISPA implementation guide were useful. Museum staff, however, sought other supports, including talking with their affiliate partners and drawing on the experience of others in their institution.

Every participating museum was expected to host one Family Science Day per year for the families participating in CHISPA across each of their partner affiliates—and met this requirement. Each museum determined the specific structure of Family Science Day and what activities to develop and offer. Almost half (44%) of museum staff surveyed indicated the day included demonstrations, lectures, or shows. A third of responses (33%) mentioned hands-on activities. Orientation sessions or tours were also specifically named by some (11%). “Other” additional activities named (11%) included book signings, games, music, and a family photo booth incorporated into Family Science Day.

Although it was expected that Family Science Day activities would directly connect to APEX lessons that youth had completed, the degree to which activities at the museum linked varied. Although it was unclear why some sites chose activities that were not directly aligned, it appeared that in at least a couple of instances, staff missed that this was an expectation or thought the museum visit should provide something completely different. Over time, however, staff came to realize that intentionally developing activities for Family Science Day in ways that connected to the APEX curriculum provided opportunities for youth to share what they were learning with their families. It was interesting to note that for some, this was a shift from their initial conceptions that a free-choice environment should be much less structured and, thus, an important learning for staff.

We were thinking the museum should provide a totally new experience that will “wow” them. We’ll impress them with all this new stuff we had. Then the [affiliates] were the ones that suggested, “Can we have an APEX lesson on the table and then the kids get to do it and show [their families] what they’ve been doing?” — Museum staff member

High satisfaction levels and documented learning from participating families suggest that, overall, Family Science Days were a successful aspect of the program. Museum staff, however, identified a number of challenges implementing these events, including: practicalities related to planning (e.g., in electing a date, choosing activities, and navigating event logistics); levels of attendance; difficulties collaborating with affiliate partners; and lack of Spanish-speaking staff and volunteers.

Navigating event logistics and coordination seemed especially difficult at some sites and staff described a number of aspects that took significant time, including a) submitting work requests across multiple departments within the museum (such as education, operations, and custodial teams); d) raising awareness about the event across the entire museum staff; and c) managing budgets in light of catering and union contracts.

Interviews with museum and affiliate staff members also emphasized the challenge of providing a welcoming and accessible museum visit for parents who primarily spoke and/or read Spanish.

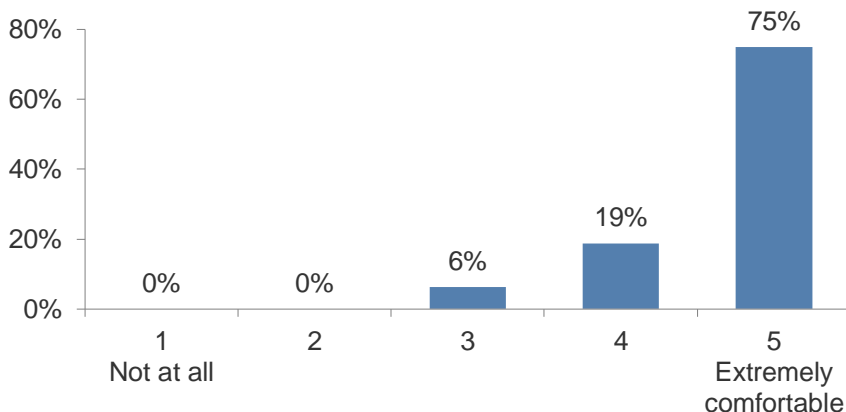
We try to staff [Family Day] entirely with our bilingual staff, although we don't have everybody...we do have folks who are monolingual sometimes. And we've had other folks who were making announcements, bilingual staff. — Museum staff member

There's somebody who you can probably spot, they'll be standing there, not wearing a uniform. It was like, "Go talk to a bunch of strangers who may or may speak your language in a space you've never been to before that's full of other strangers." — Museum staff member

Some staff members also indicated that just a subset of the museum's signage and labels were available in Spanish, further constraining some parents' ability to navigate the museum and engage with its exhibitions.

Nonetheless, museum staff surveyed reported high levels of comfort implementing Family Science Day, with three quarters (75%) of respondents indicated feeling extremely comfortable (Figure 14).

**Figure 14. Museum Survey:
Level of Comfort Implementing Family Science Day**



N = 16

Reflecting on their own learning as a result of planning and implementing Family Science Day, museum staff surveyed identified a number of insights, including the importance of: a) including participatory activities and being attentive to resources and amenities available (e.g., Spanish language interpretation, food); b) being attentive to creating a welcoming environment; c) developing relationships with affiliates; and d) flexibility.

Our families love the participatory environment at our museum and we want to make sure that there is ample opportunity for them to be involved. — Museum staff member

The implementation of Spanish guides and information were helpful in [helping families feel welcome]. — Museum staff member

[We] need more Spanish language exhibits. — Museum staff member

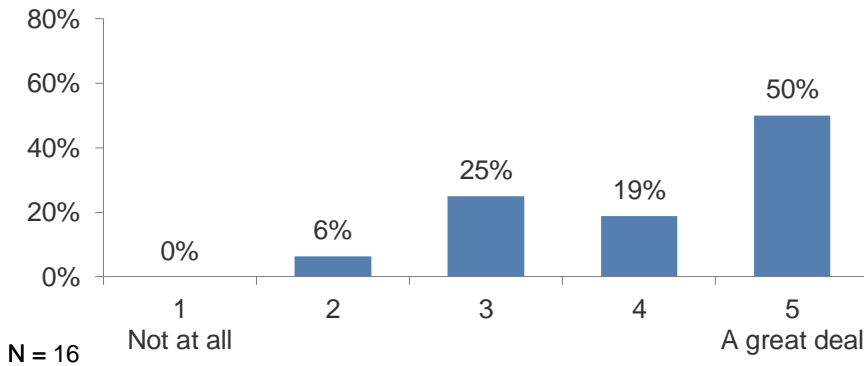
The most important thing is to be friendly and welcoming. It does not have to be perfect. It just needs to be thoughtful. — Museum staff member

Being more intentional with invitations for families, you need to do more than just throw the doors open. — Museum staff member

The importance of a strong relationship with the community partner to ensure the Family Day is mutually / maximally beneficial for both partners and the Families. — Museum staff member

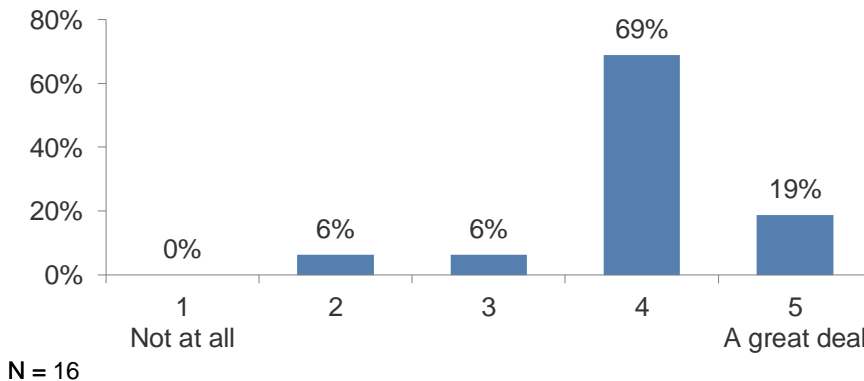
Museum staff also reported that Family Science Day had helped them learn about engaging CHISPA families overall. About two-thirds of museum staff surveyed (69%) rated the extent of their learning as “4” or “5” on a scale of 1 to 5 (1=“not at all” and 5=“a great deal”) (see Figure 15).

Figure 15. Museum Survey: Responses to: “To what extent did Family Day help you learn about engaging CHISPA families?”



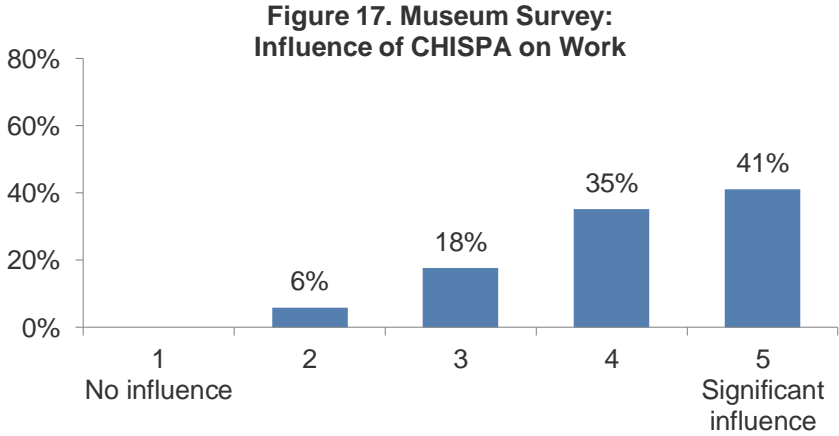
Respondents also indicated that Family Science Day helped them learn about partnering with community-based organizations. The vast majority of respondents (88%) rated their learning as a “4” or a “5,” with more than two-thirds (69%) rating their learning as a “4” (see Figure 16).

Figure 16. Museum Survey: Responses to: “To what extent did CHISPA help you learn about partnering with community-based organizations?”



Overall Impact of CHISPA on Museum Staff’s Capacity

More than three quarters of museum survey respondents (76%) reported its influence as a “4” or “5” on a scale on a 1–5 scale (1=“no influence” and 5=“significant influence”). (See Figure 17.)



N = 17

In terms of specific ways in which CHISPA influenced their work, half of the responses (50%) focused on understanding partnering with CBOs, including better understanding their work cultures. More than a quarter of responses (28%) discussed learning to better engage Latino families and communities. Additional responses focused on general strategies for improving museum services (17%) and being part of a national community of museums (6%).

The biggest [influence] is getting a better understanding of the different work cultures in CBOs versus museums. We operate on very different timelines, which can be a source of conflict if you don’t understand each other. Also, the museum can be more standoffish with audiences as a way of giving people space, but CBOs take a much more personalized approach that is more “hands on” than a typical museum interaction. — Museum staff member

Because of CHISPA, [the museum] has been able to expand its relationship with ASPIRA partners in the city. [We] recently submitted (and were accepted for) a grant that will allow the museum to continue working with ASPIRA partners in another community focused learning initiative. Without CHISPA, these community connections and mutual respect and understanding may not have occurred. CHISPA has laid the foundation for a positive partnership between our organizations. — Museum staff member

I have been able to get to know the community-based organization partners, and learn how projects like CHISPA can support their work. — Museum staff member

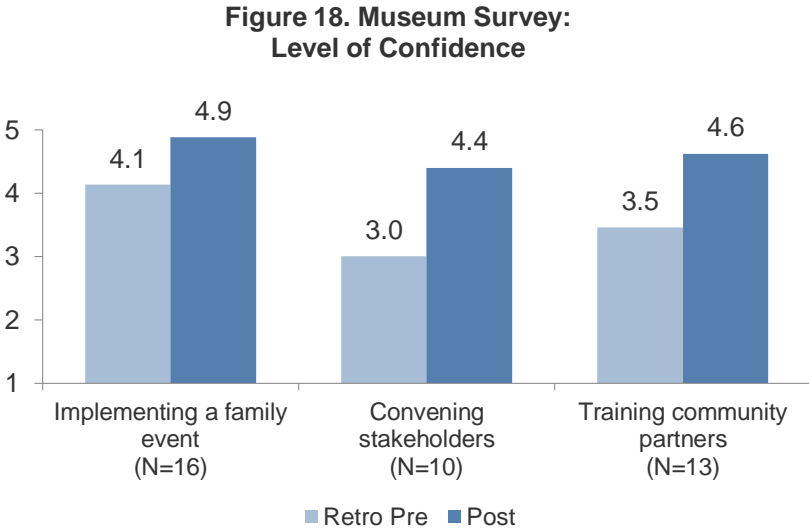
Increased accessibility for Latino families and greater inclusion for all underserved communities; more diverse programming and bilingual signage and maps. — Museum staff member

We have really internalized the importance of including parents. We have worked with other Spanish-speaking audiences and included parents in the programming and social elements of this program. — Museum staff member

Confidence

Data also indicated that museum staff gained confidence in implementing family events, training community partners, and convening stakeholders. Using a retrospective “post-then-pre” design, we also

assessed changes in respondents’ level of confidence in implementing family events, training community partners, and convening stakeholders. Respondents were asked to rate their current level of confidence on a 1–5 scale where 1 meant “not at all confident” and 5 meant “extremely confident.” They were then asked to rate their level of agreement with these statements before they were involved with CHISPA. Respondents reported statistically significant gains in confidence for all three measures (see Figure 18).



Paired *t*-test for confidence implementing family event: Retro pre (M=4.1, SD=1.26) and post (M=4.9, SD=.34); $t(15) = 2.66, p = 0.018$.

Paired *t*-test for confidence convening stakeholders: Retro pre (M=3.0, SD=1.16) and post (M=4.4, SD=.70); $t(9) = 4.58, p = 0.001$.

Paired *t*-test for confidence training community partners: Retro pre (M=3.5, SD=1.39) and post (M=4.6, SD=.51); $t(12) = 3.43, p = 0.005$.

Learning

In terms of the most valued aspect of their involvement with CHISPA, more than a third of responses (39%) focused on networking, including comments about collaborating with CBOs, networking with other science centers, and learning about UnidosUS. About a quarter of responses (26%) discussed their own professional development, such as learning best practices in the field, discovering new strategies, developing an understanding of issues and trends in STEM education, and receiving training. Additional responses focused on working with communities (16%) and the support built into the CHISPA initiative (10%). Other responses (9%) discussed the value of developing multilingual programming and science programming as well as seeing the impact of CHISPA on families.

Similar themes emerged in interviews with museum staff members. Several staff emphasized the value of working closely with their affiliate partners and gaining a better understanding of the issues that those affiliates face.

Getting to see the inner workings of [the affiliate], that was eye-opening. They’re just so vast, they have different arms...[and] they try to do a lot of things. So, just watching how they’re organized, that was interesting. — Museum staff member

We’ve worked with these partners at different levels throughout the years....But [CHISPA] gave us a really good opportunity to work with them long-term. We really got to see how they work in a different light, versus some of the small programs in which

[programs] happen and then they end within the year...[We got] to know how the organization and the staff work, what are the challenges in the community. We know the challenges, but sometimes it's different to see it from their perspective and hear about some of the things that are kind of prevalent. — Museum staff member

You also have another positive because you're working with organizations that have a solid foundation in their communities. They're trusted by the families. They trust that the programs and what they're offering to the children are solid. So even if this is a program that comes from a different partner, there's not any question about the quality of it. — Museum staff member

I really feel like some of the biggest things that I've learned is the importance of having a bilingual face in the museum because, really, we wanna be accessible to everybody who walks through the door. But that was a huge part where we were really lacking, and so that was really something that we learned through CHISPA. — Museum staff member

Improvements

About a third of survey respondents (33%) requested that the curricula be expanded or enhanced, with requests for more lessons and activities (including more activities for older children) and updated online resources. Another third of responses (33%) focused on enhanced communication, clarity of roles, and/or accountability. The final third (33%) provided additional suggestions, including that museums be able to choose their own affiliate partners and that a CHISPA “package” be created for additional museums and community-based organizations to purchase and implement.

In interviews, museum staff shared additional suggestions for improvement, including requests for clearer and more detailed information about how to implement the program, information about working with Latino families, and resources to help partners identify and discuss differences in their organizational cultures.

In an ideal world, it would have been awesome to have a CHISPA manual that I could have referenced when I started. I know that would look different depending on what role it was written for, whether it was the museum or the [affiliate], but I think that would have been so very helpful. I felt like I didn't wanna keep bothering [the national staff], but I also wanted to run the program well, and so figuring out that balance was tough in the beginning, and I feel like if there was some sort of manual, that would have been helpful. — Museum staff member

When we went [to the affiliate site], we were surprised at...perhaps, like...the level of information that was being differently received from the [affiliate] and from us. So, the expectation of what we were going to be able to do. And also how we were going to help them implement these programs and help with support in the content was very unclear. But not anyone's fault. It was just unclear. — Museum staff member

Having more direct cultural support would be, I think, something that would be useful. And I just say this, not that we should operate out of stereotypes. But, like, the realities of being a first-generation Hispanic family, Latin American family. [...] What expectations from the community side might the museum need to know? Cause I think when you work in a museum, there's sort of this founding assumption that everybody wants to come visit the museum, in the same way. And the reasons people don't come are, like, material barriers. Or they're intimidated. Which is true, and they have reasons. But it's also, like, lots of communities that just don't think the museum's worth their time or it's just not interesting, it's not a leisure time activity. And then there's also a lot of things that might make a visit unpleasant, that would make you turn away from that. — Museum staff member

Linkages between Affiliates and Museums



Linkages between Affiliates and Museums

CHISPA sought to foster links between affiliates and museums in order to leverage collective efforts to engage families in STEM. This section reports on the three levels at which these links were enacted: individual partnerships between affiliates and museums, the Steering Committees in specific metropolitan areas, and the national-level CHISPA community.

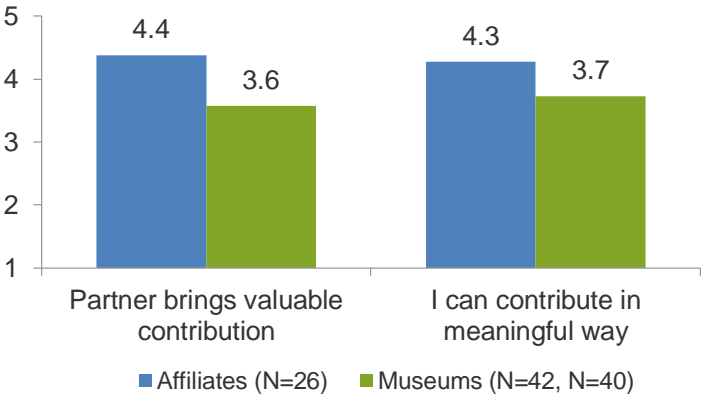
Individual Partnerships

Overall, both affiliate and museum staff placed high value on CHISPA, with 90% of responding affiliates and 82% of responding museums reporting they would like to continue offering CHISPA in the future, dependent on funding. Additionally, museum and affiliate staff both reported positive experiences with the partnership overall. Affiliate staff, however, reported a more positive perception of the partnership than did museum staff. This pattern was consistent across all the aspects examined.

Affiliate and museum staff were asked about their and their partners’ contributions to CHISPA through two statements for which they rated their level of agreement: “My partner brings valuable contributions to this partnership” and “I am able to make meaningful contributions to this partnership.” (Since most museums partnered with multiple affiliates, museum respondents were asked to consider the partners one at a time and answer the survey items for each affiliate, in turn.) For both statements, affiliate respondents agreed more strongly than did museum respondents; the differences were statistically significant.

On a 1–5 scale (1=“strongly disagree” and 5=“strongly agree”) the mean response for partners’ contributions among affiliate respondents was 4.4, while the mean response among museum respondents was 3.6 (see Figure 19). Similarly, the mean rating for respondents’ own contribution among affiliate respondents was 4.3, compared with a mean rating of 3.7 among museum respondents.

Figure 19. Affiliate and Museum Surveys: Contribution to Partnership



Independent *t*-test for Partner brings valuable contribution: Affiliate (M=4.4, SD=.85) and Museum (M=3.6, SD=1.09); $t(66) = 2.62, p = .011$.

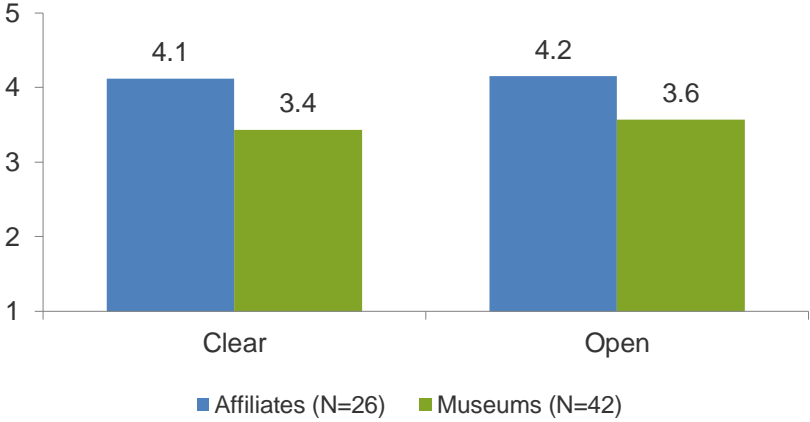
Independent *t*-test for I can contribute in meaningful way: Affiliate (M=4.3, SD=.87) and Museum (M=3.7, SD=.91); $t(64) = 2.42, p = .018$.

The patterns of responses for the two groups differed as well. More than half of affiliate respondents (58%) strongly agreed that their partner brought a valuable contribution, compared with fewer than a

quarter (17%) of museum respondents. A similar pattern was observed for ratings of respondents' own contributions. Half the affiliate respondents (50%) strongly agreed that they made a meaningful contribution compared with well under a quarter (18%) of museum respondents. (See Appendix E.)

As might be expected given the range of contexts and aspects that can influence partnerships, evaluation documented that the strength of collaborations varied. Using communication as a proxy for robustness of the partnership, respondents were asked to reflect on communication with their partner by considering: a) the clarity of communication and b) openness of communication and rate each dimension using a 1–5 scale (1="not clear"/"not open" and 5="very clear"/"very open"). (Since many museums partnered with multiple affiliates, museum respondents were asked to consider the partners one at a time and answer the survey items for each affiliate in turn.) Affiliate respondents rated communication more highly than did museum respondents on both aspects and differences were statistically significant (see Figure 20).

Figure 20. Affiliate and Museum Surveys: Communication with Partner



Independent *t*-test for clear communication: Affiliate (M=4.1, SD=1.03) and Museum (M=3.4, SD=1.06); *t*(66) = 2.62, *p* = .011.

Independent *t*-test for open communication: Affiliate (M=4.2, SD=1.08) and Museum (M=3.6, SD=1.066); *t*(66) = 2.18, *p* = .033.

The patterns of responses were also different between the two groups. Nearly half of affiliate respondents (46%) rated the communication as extremely clear compared with less than a fifth of museum respondents (14%) doing so. When considering openness of communication, half of affiliate respondents (50%) rated the communication as extremely open compared with about a fifth of museum respondents (21%). (See Appendix E.)

To explore these differences more deeply, we conducted further analysis on the 16 affiliate-museum pairs for which at least one staff member each from the affiliate and the museum provided data about communication. Based on the ratings provided, we classified each pair into one of three groups. Pairs were placed in Group A if both partners rated clarity and openness of communication within 1 point of each other and on the high end of the scale (i.e. "4" or "5"). Pairs were placed in Group B if both partners rated clarity and openness of communication within 1 point of each other and on the low end or middle of the scale (i.e. between "1" and "3"). Pairs were placed in Group C if the partners differed in their ratings of

clarity and openness of communication by two or more points. Although more than half the pairs (56%) agreed that communication between partners was strong, a few (13%) agreed that communication was weak, and nearly a third (31%) disagreed about the strength of communication, suggesting varied perceptions between partnerships (see Table 9).

Table 9. Affiliate and Museum Surveys: Agreement about Communication by Percentage

Groups	# of Pairs (N=16)
Group A: Both partners agreed communication was strong	56%
Group B: Both partners agreed communication was weak	13%
Group C: Partners disagreed about strength of communication	31%

Interview data illuminated some factors that may have led to communication challenges. In several instances staff turnover was identified as a contributing issue. In other cases, there appeared to be internal communication issues where information was not shared. For example, an employee at a central office received program information and materials but didn't pass those along to the person implementing CHISPA at the program site.

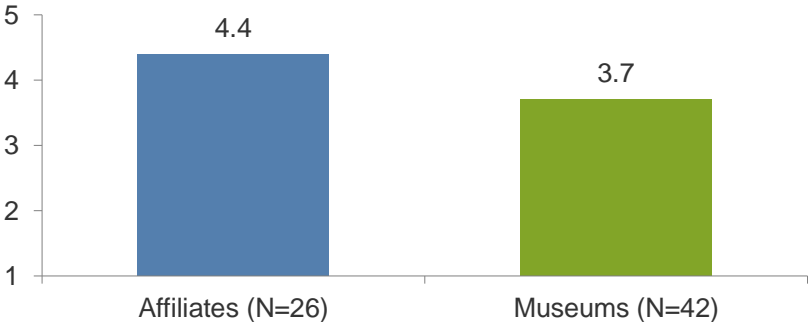
We didn't even know that this [project] would have a steering committee. To be honest with you, when we received the award notice on the CHISPA, we weren't that much informed about what is going to happen and the expectations. We saw a memorandum of understanding that somebody in the [main office] signed...we never saw that until we were asking, "What is the expectation of us on this?"

A lot of the directors signed up for CHISPA but didn't really share a lot of information with their coordinators. So, [affiliate staff]...most of the time when they came as new to the committee, they didn't exactly know what they were getting into. It was just another program they had to add to their plate. Nobody had any ill feelings about it. It's just the nature of the organizations...They're doing a lot, with very little people. That's not a reflection on CHISPA; it's just how they're structured.

Satisfaction with Collaboration

Respondents were also asked to rate their satisfaction level with their collaboration using a 1–5 scale (1=“very dissatisfied” and 5=“very satisfied”), with museum staff rating for each affiliate partner separately. The mean satisfaction rating for affiliate respondents was 4.4 while the mean rating for museum respondents was 3.7 (see Figure 21). This difference was statistically significant.

Figure 21. Affiliate and Museum Surveys: Overall Satisfaction with Collaboration

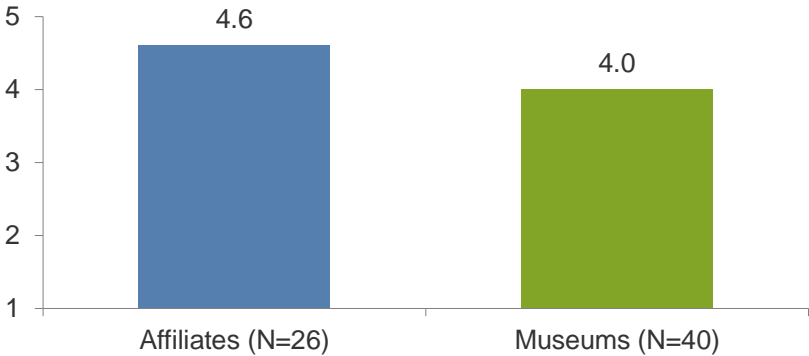


Independent t-test: Affiliate (M=4.4, SD=1.06) and Museum (M=3.7, SD=1.01); t(66) = 2.37, p = .021.

The pattern of responses also differed between the two groups. Among affiliate respondents, nearly two-thirds (62%) reported they were very satisfied compared with about a quarter (24%) of museum respondents (see Appendix E).

Affiliate and museum staff were also asked to rate their likelihood of collaborating with their particular partner(s) again in the future on a 1–5 scale (1=“extremely unlikely” and 5=“extremely likely”). Among affiliate respondents, the mean rating was 4.4, while the mean rating among museum respondents was 3.7 (see Figure 22). This difference was statistically significant, although it’s important to note that museum staff ratings were still on the high end of the scale.

Figure 22. Affiliate and Museum Surveys: Likelihood to Partner Again in the Future



Independent *t*-test: Affiliate (M=4.6, SD=.64) and Museum (M=4.0, SD=1.01); *t*(64) = 2.99, *p* = .004.

As with previous items, the overall pattern of responses differed between the two groups. Among affiliate respondents, more than two-thirds (69%) reported that they were extremely likely to partner again compared with two-fifths (40%) of museum respondents (See Appendix E).

Interviews with affiliate and museum staff shed light on how partners envisioned their future collaborations. Many staff members expressed interest in and motivation for continuing to work together following the CHISPA project. When asked to describe specific examples of how this partnership might be enacted, most respondents focused on families served by affiliates visiting the museum and participating in summer camp and other special programming.

Overall, data indicate that CHISPA did help foster relationships between museums and affiliates, with some relationships being quite robust. Given the range in contexts and that factors that can influence collaborations, partnerships reflected that variability. Although both affiliate and museum staff reported positive experiences with the partnership overall, affiliate staff on the whole reported more positive ratings. Although the reasons for this difference are not clear, it is possible that affiliate staff perceptions of CHISPA’s positive impact (particularly for families) led them to view the collaboration more positively—even when there were bumps in the road. It is also possible that since CHISPA was initially framed as museum staff building affiliate capacity and “running” key aspects such as Steering Committees, museum staff may have felt more responsible or accountable for the success of partnerships and, therefore, felt more frustrated by challenges experienced in the collaboration.

CHISPA Steering Committees

Although the CHISA leadership team set expectations as to the number of times Steering Committees were to meet, partners encountered several challenges, including in many cases the significant distance between participating organizations’ locations and finding meeting times that would work with very different schedules. In Year 4, for example, about half of the Steering Committees met the required three times per year. Additionally, although national program leaders envisioned these as in-person meetings (in part as a way of building and strengthening relationships among museum and affiliate staff), partners used a variety of formats given scheduling and distance challenges. While all nine responding museums did meet in person, seven groups identified additional ways they convened, including meeting by phone, video call, or by email.

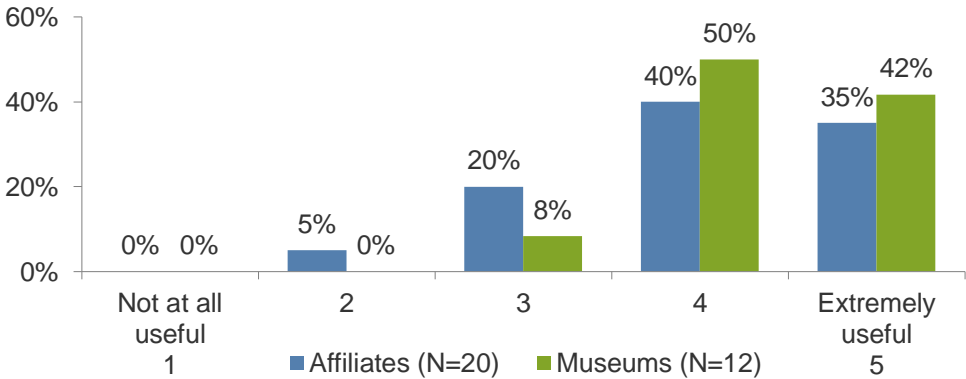
In terms of focus and content, partners used meetings primarily to address logistics of activities (e.g., choosing APEX training and Family Science Day dates, figuring out supplies affiliates needed for implementing lessons) as well as sharing information such as best practices and challenges. Two sites also used committee meetings to conduct training.

This evaluation found that greater clarity about the goals of the Steering Committees was needed and that members did not have a full understanding about the purpose and aims of the Committees. Nonetheless, data indicate that both affiliate and museum team members found Steering Committee meetings useful in building relationships with their partnerships and in implementing CHISPA.

While there were no significant differences in ratings between affiliate and museum staff, the pattern of responses for the utility of meetings differed somewhat between the two groups. Affiliates found the meetings useful for both implementing CHISPA and building relationships, while museums found meetings more useful for building relationships than for implementing the project.

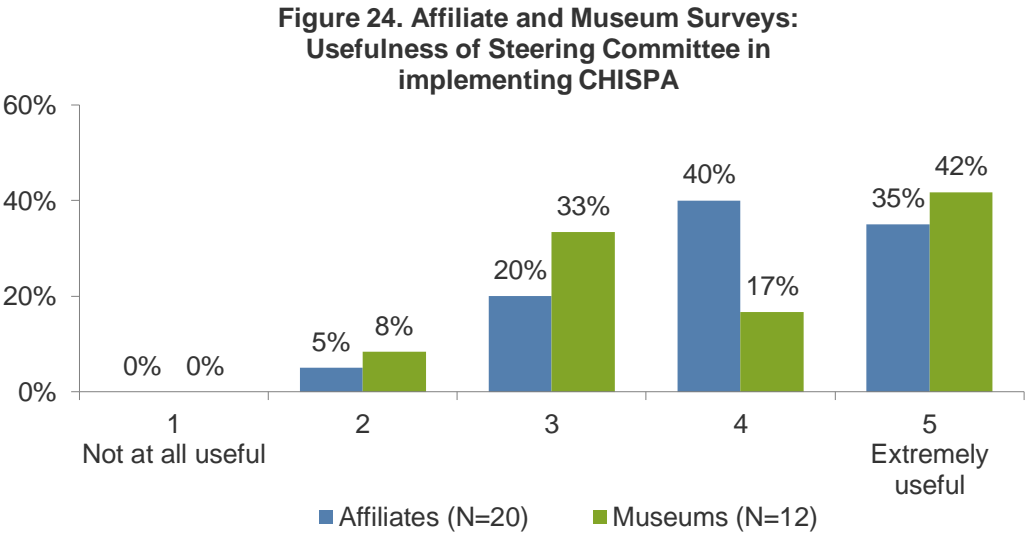
Using a 1–5 scale (1=“not useful” and 5=“very useful”), three quarters of affiliate respondents (75%) rated the usefulness for building relationships as a “4” or “5” compared with the vast majority of museum respondents (92%) (see Figure 23). It was also interesting to note that museums rated the usefulness of meetings for relationship-building higher (mean 4.3) than their ratings of usefulness for program implementation (mean 3.9).

Figure 23. Affiliate and Museum Surveys: Usefulness of Steering Committee in Building Relationships



In their open-ended comments about reasons for their ratings, many respondents who found the meetings useful emphasized their information-sharing aspect. Those who found the meetings less useful cited a lack of communication outside of meetings and staff turnover as factors that limited utility for relationship-building.

Both affiliate and museum staff rated highly the Steering Committee meetings' utility in implementing CHISPA, with no significant differences between the groups. The mean response was 4.1 among affiliate respondents and 3.9 among museum respondents. The pattern of responses was somewhat different between the two groups, however, with three-quarters (75%) of affiliate respondents rating the usefulness for implementing CHISPA as a "4" or "5" compared with close to two-thirds (59%) of museum respondents (see Figure 24).



Many respondents who found the meetings useful emphasized information-sharing among members as especially important. Those respondents who found the meetings less useful cited a range of factors, including staff turnover that affected group dynamics and meetings being too infrequent for effective resource-sharing among affiliates.

It was great to share ideas and opinions with other partner organizations that were implementing CHISPA. — Affiliate staff member

It is helpful to learn from our colleagues' experiences. — Affiliate staff member

It was very helpful to get to know the people involved in the project and how pieces can work together to have a great program for the participants. — Affiliate staff member

It provided a way to bring all of the stakeholders together to discuss challenges and successes with CHISPA. It also gave space to compare notes and learn from other partners around the city. — Museum staff member

It allowed everyone to have input and achieve the overall goals of the program including a highly attended Family Night. — Museum staff member

Other comments seemed to point to a need for greater intentionality in order to realize the Steering Committees' potential in fostering creativity, innovation, and problem-solving in implementing CHISPA. For example, one respondent described the meetings as repetitive, while another noted that affiliates

did not understand how they might benefit from collaborating. Another respondent indicated that the meetings became less necessary as CHISPA moved forward. Affiliate and museum staff members also voiced concerns about this lack of clarity and intentionality in the Steering Committees. These individuals were aware that they were required to meet but did not always have a strong understanding of the purpose and aims of the Steering Committees.

I didn't really know the purpose of steering committee meetings going into it. I was thinking of them more of as a check-in to make sure everything's going well, and we're moving forward, and to really create excitement around our Family Day. — Museum staff member

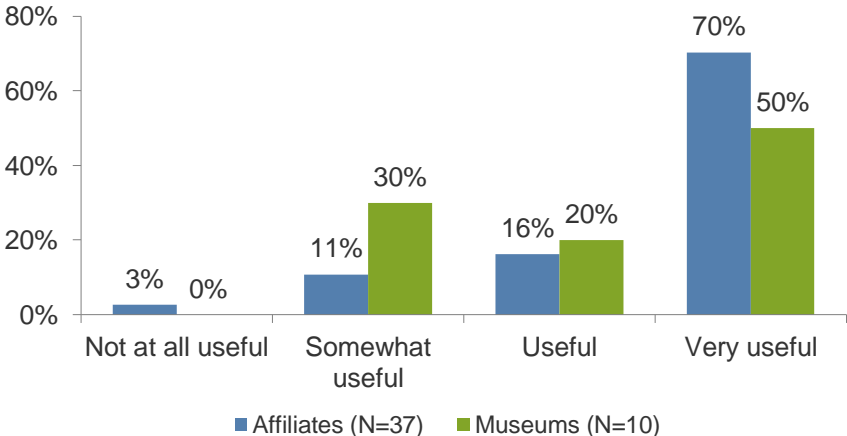
The steering committee was a good aspect of the CHISPA program in that it forced the CBO leaders to meet each other and see where each was coming from, but other than the Museum, they didn't have much in common and didn't necessarily see the reason for working together for the sake of the Museum. — Museum staff member

National Professional Development Institutes

The primary activity that supported national-level links was the annual CHISPA National Professional Development Institute, which provided training and coordination across all program sites. Data indicate that participants found the Institute helpful in building relationships and obtaining the information necessary to implement the program. This seemed especially true for affiliate attendees, who tended to have had less involvement with CHISPA than did museum attendees. Participants, overall, requested more time at these meetings for relationship-building with sites in other parts of the country as well as more hands-on and practical training. They also hoped for ways to continue networking at a national level beyond the annual Institutes.

Overall, two-thirds of Institute survey respondents (66%) indicated that they found the Institute content very useful (a rating of “4” on a 1–4 scale) (see Figure 25). The pattern of responses differed somewhat between affiliate and museum staff, with more than two-thirds of affiliate respondents (70%) rating the content as “very useful” compared with just half of museum respondents (50%).

Figure 25. CHISPA Institute Survey: Usefulness of Content



The reason for this difference is unknown but may relate to differences in the two groups' level of involvement with CHISPA; about half (51%) of affiliate respondents had been personally involved in implementing CHISPA over the prior year compared with nearly all museum respondents (90%).

Survey respondents were also asked to name the aspects of the CHISPA Institute that were most useful in helping them implement CHISPA. Just over half of the responses (53%) mentioned aspects of relationship-building, including meeting with and learning from other affiliates and museum partners, and receiving feedback from others as most useful. Nearly a quarter of responses (21%) discussed the resources provided at the Institute. These included new strategies, methods, and best practices for implementing CHISPA curriculum and activity extensions and the website. Specific Institute sessions were identified in some responses (10%), while other comments (16%) included discussion of learning about the reach and impact of the CHISPA program and particular Institute activities. Overall, the responses indicated that the opportunity to meet and strategize with others from across the country was highly valuable, and respondents would have liked for it to have had a higher priority and more time on the Institute agenda.

In retrospective interviews, affiliate and museum staff noted that the Institute also helped orient them to the bigger picture of CHISPA, filling in gaps in their understanding of the program and helping their teams synchronize their efforts.

I think reaching out to the [CHISPA] network is beneficial. This past summer was the national [Institute] and I'd already been doing [CHISPA] for a chunk of the year [...] so this summer was the first national [Institute] that I got to go to and it made a lot more sense. To see everyone working together on those work plans, to see what CHISPA looked like in these different environments, at these different sites. — Museum staff member

[At the Institute you] see the larger impact that these other sites are having, you feel really super-energized. You're like, "We're gonna do this. We're gonna do it really well." I think that that convening was really helpful for me, especially given my loose knowledge of the program going into it. I think it really helped me solidify what is CHISPA, what's the mission, and really feel excited about it. — Museum staff member

Museum staff, in fact, noted the shortcomings of not including the affiliates in the first Institute and provided positive feedback on having affiliates at subsequent gatherings.

None of the [affiliates] were present at that initial training. So we had never met them before other than one steering committee meeting we had. — Museum staff member

The second CHISPA conference...was very helpful for [museums and affiliates] to go through the same experience and feel like this was happening as a team.... It was really helpful...just to have the same reference frame when we came back...to know what we were all talking about. To be there, to experience it, to talk about it. — Museum staff member

Others, meanwhile, expressed a desire for the national-level collaboration and networking to continue beyond the yearly Institutes.

Reaching out and realizing that there is that network there...is really beneficial. Being able to tap into that. If there was a way to encourage—and this could be on a website, an online platform...more sharing between the sites. — Museum staff member

So I know we have to upload the sign-in sheets and the pictures and things, but I think the sharing of the practices and the projects...so, like, for example, we have a collaboration with [another partner], you know, so things like that, I would like to share with the network, versus just, 'Oh, here are the pictures, and here are the sign-in sheets.'
— Affiliate staff member

Infrastructure

Finally, the infrastructure at the national leadership level is worth noting. The success of collaboration between affiliates and museums depends on a high degree of coordination, strong communication, and a significant level of resources and support from the lead organizations. Therefore, strong infrastructure was key to accomplishing the program's objectives.

Infrastructure was aligned with the three lead organizations: UnidosUS, ASPIRA, and FMS. Logistically, however, the project seemed to operate as three separate projects conducted in parallel. For example, each group maintained separate systems for reporting and communicating with organizations. There were also indications that capacity of national partners varied, resulting in different levels of support for museums and particularly affiliates. UnidosUS affiliates seemed to receive the most support, primarily because UnidosUS had more staff allocated to support its affiliates in its CHISPA efforts.

Additionally, there were indications that certain aspects of the project were under-resourced given the number of affiliates and families served. Staff at both affiliates and museums were significantly stretched. One major lesson for future projects is that having fewer partners, or at minimum, scaling the program up over the life of the project would be desirable to set partners up for greater success.

Conclusions and Lessons for the Field



Conclusions and Lessons for the Field

Overall, this evaluation found that CHISPA largely succeeded in its primary objectives: Engaging families in STEM and building capacity for both affiliate and museum staff. It also mostly succeeded in strengthening links between science museums and Hispanic-serving CBOs.

Youth and Family Engagement in STEM

CHISPA increased student and family engagement in STEM. Youth who participated in APEX Science enjoyed the lessons, demonstrated high levels of engagement with science activities, and could describe specific scientific content that they had learned. Parents who participated in PC con CHISPA enjoyed and valued the experiences the program afforded. The strongest outcomes for parents were learning about the U.S. school system, ways to advocate for their children, and how to support their children's education. There was also evidence that parents increased their awareness of the importance of their children engaging in science outside of school and the role they, as parents, can play in the process.

Participants also enjoyed Family Science Day; parents reported that it was educational for their families and that they engaged with and remembered specific exhibitions and activities. Furthermore, many families visited the host museum for the first time on Family Science Day, and both new and returning participants felt welcome. Participants valued CHISPA for its multi-faceted approach that engaged the entire family in complementary STEM-focused activities.

Capacity Building

APEX Science filled a need for K-5 science curriculum for afterschool programs and was valued for being hands-on, engaging, easy to implement, and age-appropriate. Additionally, there did not appear to be any parent engagement activity or program prior to PC con CHISPA that included content relating to supporting youth in STEM.

Many affiliate staff members had no prior experience offering STEM activities for youth. The evaluation found that overall, affiliate staff gained skills and confidence in delivering STEM activities. These experiences supported affiliate staff in feeling more equipped in their ability to offer STEM programming. There were indications that for some staff, being involved in CHISPA raised awareness of the importance of STEM. Concerning Padres Comprometidos con CHISPA, affiliate staff reported gaining awareness of the importance of involving parents and in gaining strategies to do so; the majority reported comfort in leading PC con CHISPA sessions. There was also evidence that affiliate staff learned about the resources that their partner museums can offer families.

Although affiliate staff found APEX training helpful, data suggest that the program could have benefitted from more robust training, particularly given affiliate staff's limited backgrounds in science, pedagogy, and/or informal learning. Staff members were challenged in their ability to modify or adapt the lessons to meet the various needs of the youth they served. Although affiliate staff found the PC con CHISPA curriculum valuable and well suited to parents, many affiliates struggled to recruit and retain parent participants.

CHISPA was primarily conceptualized as a capacity-building opportunity for affiliates, with museums supporting and training CBOs. The evaluation, however, found that CHISPA, in fact, built capacity among museums *and* museum staff. Evaluation documented that museum staff deepened their experience with and learning from partner CBO organizations. They also reported increased confidence in engaging Latino families, implementing family events, convening stakeholders, and training community partners.

Although APEX Science training was not primarily intended to build capacity for museum staff, about half the museum staff members in the training had no previous experience delivering professional development. Many museum staff who conducted the training reported learning the importance of communication with affiliates, indicating a need to understand affiliates' needs, align expectations between affiliate and museum staff, and deliver training that positioned affiliates for success. Museum staff reported ultimately feeling comfortable training their affiliate partners.

Implementing Family Science Day also provided capacity-building opportunities for museums and staff, particularly in engaging Latino families through events and offerings. Museum staff reported varying connections between Family Science Day activities and other CHISPA components, some noting tensions between the desire to provide free-choice learning experiences and the desire to provide structured activities to make museums more accessible and welcoming. Many staff reported their museum's limited capacity for offering activities and information in Spanish. Implementing Family Science Day involved complex logistics; prior experience hosting such events likely contributed to museums' success. Overall, museum staff valued the opportunities to partner and network, the professional development, and the community engagement. CHISPA was most influential both in partnering with CBOs and in directly engaging Latino families.

Linkages between Science Museums and Hispanic-serving CBOs

The evaluation found that in strengthening connections between participating museums and affiliates, CHISPA was mostly successful

At the individual partnership level, affiliate and museum staff both reported positive experiences with the partnership, including value of partner contributions, quality of communication, satisfaction with the partnership, and likelihood of future partnership. Affiliate staff, however, reported more positive perceptions overall and these differences were statistically significant. Overall data indicate that CHISPA did help foster relationships between museums and affiliates, with some robust and others not as strong. Given the range in contexts and how factors can influence collaborations, partnerships reflected that variability.

Steering Committees were intended to further foster links. Affiliate staff members found the Steering Committee meetings useful both for implementing CHISPA and building relationships while museums found meetings more useful for building relationships. The evaluation, however, found that greater clarity about the purposes and aims of the Steering Committees was necessary.

The CHISPA National Professional Development Institute helped affiliates and museums build relationships and gain the necessary information to implement the program. There were indications, however, that participants wanted more time devoted to relationship-building with sites in other areas of the country; more hands-on, practical training; and ways to continue networking at a national level beyond the annual Institutes.

Infrastructure

Finally, while leadership at the national level provided important guidance and support, the evaluation found that the project could have benefitted from more coordinated and aligned activities and communication. Although national partners had a collective vision, the project seemed to operate logistically as three separate projects conducted in parallel.

Additionally, capacity of national partners also varied, resulting in differing levels of support. The UnidosUS affiliates received the most support, primarily because UnidosUS had more staff allocated to support its efforts. Certain aspects of the project also seemed under-resourced given the number of affiliates and families served. Staff at both affiliates and museums were significantly stretched. One major lesson for future projects is to have fewer partners or, at minimum, scaling the program up over the life of the project.

Recommendations

Should CHISPA expand to additional sites, evaluation findings point to several opportunities to strengthen its implementation.

It would be beneficial to position affiliates and museums as mutual learners, with resources and structure supporting capacity-building for affiliate *and* museum staff learning. Additional resources for Family Science Day could also boost staff's ability to implement the event, particularly in providing structured activities and incorporating Spanish-speaking personnel and Spanish-language content, signs, and labels.

The evaluation also found that implementing APEX Science and PC con CHISPA was most straightforward in locations with existing conditions or infrastructure. For APEX Science, this included settings in which youth were grouped by age or grade level, when the lessons were delivered to a subset of afterschool program participants that changed each year, and when attendance and participation were relatively consistent each week. For PC con CHISPA, this included settings with sufficient staff to implement the parent component, structures to engage parents in multi-session activities, and a parent population that changed each year. To maximize success, CHISPA may wish to target sites where these conditions (or infrastructures) are in place, provide support and resources to help sites achieve these conditions, or offer specific guidance for implementing the program in sites lacking these conditions.

Turnover at affiliates and museums was a considerable challenge to implementing CHISPA. It will be necessary to develop systems to address turnover and to support communication in both types of organizations. This might include structures to track turnover and new staff members at the national level and processes for on-boarding new staff during the year. National leadership could implement a "buddy system," assigning seasoned staff to sites with new or struggling staff members. Sites could be required to designate additional staff that know and are trained in CHISPA to provide redundancy.

Finally, CHISPA could revisit the funding structures to ensure alignment between funding levels and activity expectations. Issues to consider include the level of staffing affiliates needed to implement the APEX Science and PC con CHISPA curricula, transportation and staff costs for Family Science Day, and funding for data collection (for monitoring program implementation and for evaluation). Funding should also enable museums to provide APEX Science training more than once a year and provide adequate staffing for museum staff to occasionally observe affiliates' CHISPA events and APEX Science lessons.

Lessons for the Field

The evaluation identified lessons learned through CHISPA that can contribute more broadly to informal science education.

STEM Curriculum and Programming

The evaluation identified a clear need for STEM-focused, hands-on, out-of-school-time curricula for youth of differing ages that can be adapted for a wide range of settings and can be used by instructors with varying experience. The evaluation also highlighted a need for programming and opportunities with a whole-family approach to broadening participation in STEM that engages youth and their parents. This approach is valuable because it simultaneously fosters engagement among youth while equipping parents to support their children in exploring STEM education and careers. This approach, however, appears to require considerable coordination to ensure that the same families are engaged across program components and that the content for each component is aligned.

Importance of Context

The evaluation revealed considerable variation among program sites that implemented CHISPA, particularly in terms of the populations they served, communities in which they were situated, organizational structures, and program logistics. This indicates that curricula and training must allow for considerable adaptation to local context and customization to meet local needs. Even when expanding a strong, successful program, significant planning is needed to ensure that new contexts are fully understood and taken into account and that supports are provided for successful adaptation.

The assets, needs, and configurations of program staff also varied significantly across program sites. This indicates the importance of creating flexible program structures that are adaptable to local context. For example, programs must not assume that particular staffing structures will exist in all sites or that all staff will have similar skills or backgrounds. Therefore, planning for professional development requires careful attention to context, since what is needed may vary significantly across communities, organizations, and sites. In addition, structures must allow sites to identify feasible and appropriate staffing patterns for the local context. Programs should also look to support communication within organizations since internal breakdowns can disrupt program implementation.

Turnover was found to be a core issue in CBOs and museum sites. Program structures must account for turnover by ensuring redundancy in staffing, systems to track personnel changes, and on-boarding processes that include practical training and information about overall program framing and background.

Growth and Scaling

The evaluation illuminated the complexity of such multi-city, multi-site, multi-organization initiatives. A project as complex as CHISPA requires substantial planning to ensure that resources, processes, and communication channels are in place before project activities begin and that information-sharing is clear and consistent. Sites require clear, detailed information about how to implement programs—as well as information about framing and rationale—to position themselves for success. The evaluation also showed that communication channels can benefit from feedback between local staff and national leadership to ensure that leaders can address problems with materials, resources, and information flow.

The findings of this evaluation indicate that new program sites should grow and expand slowly and deliberately, with all partners included in decision-making. As noted above, even expanding a strong and successful program requires considerable planning to ensure that new contexts are fully understood and accounted for. This contextual variation suggests that successfully “scaling up” a project like CHISPA is

more likely to be accomplished through a process of adaptation rather than one of replication, since adjusting the program to local context is a key contributor to success.

Positioning the Museum

The evaluation highlighted the interest in (and need for) collaboration between museums and CBOs. It also revealed underlying assumptions that museums already had sufficient capacity to conduct the project or would gain it by engaging in project activities. While museums *do* have expertise in STEM content and informal learning, their abilities to provide professional development and their levels of community expertise vary. CBOs, meanwhile, have deep community expertise and relationships with families. Therefore, capacity-building for museums should be built into projects such as CHISPA. Moreover, museums must not approach CBOs and communities as deficient, providing STEM expertise that the CBOs and communities “lack.” It is also critical to address the important differences in organizational cultures and operating realities between museums and CBOs.

Multi-year Partnership

A multi-year partnership such as CHISPA provides rare opportunities for relationships between partners to mature over time and for learning to unfold. A potential key outcome of such a multi-year project is a deepening of relationships between local partners and between national-level partners. The CHISPA evaluation has captured (and informed) changes in program structures, especially those regarding professional development and capacity-building. Such changes point to the importance of flexible, responsive program structures that allow for adjustment and adaptation as partnerships mature.

Infrastructure

Additionally, initiatives at this scale require strong coordinated infrastructure at the national level and systems that allow for unified reporting and communication systems and strong supports for museums and community-based organization partners. Projects could develop strong infrastructures by closely and carefully integrating the program across organizational boundaries.

Partnering with National Organizations

As the CHISPA project demonstrates, national organizations such as UnidosUS and ASPIRA are attractive partners for ISE; they are highly respected, bring cross-country reach, and include on-the-ground staff in a range of local communities. In turn, partnering with ISE institutions can enable these organizations to access multi-year federal funding and develop the necessary administrative and reporting capacities for this type of project.

Museums and funders might expect these local sites to function as “branch offices” of the national group, with standardization across local sites, strong lines of communication and “command,” and consistent policies and practices. However, this evaluation found great variability among affiliates in terms of structures and operations. Organizations that operate with an affiliate model are structured in ways that leverage local assets and respond to the variability across communities. This enables affiliates to succeed in widely varying contexts. There can be gaps, however, in communication and in knowledge about what is happening on the ground across local sites. For greatest success, projects must be structured to align with and leverage the affiliate model.

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Appendices



Appendix A: Program Information

Table 10. Science Museums and Affiliates that Participated in Year 4

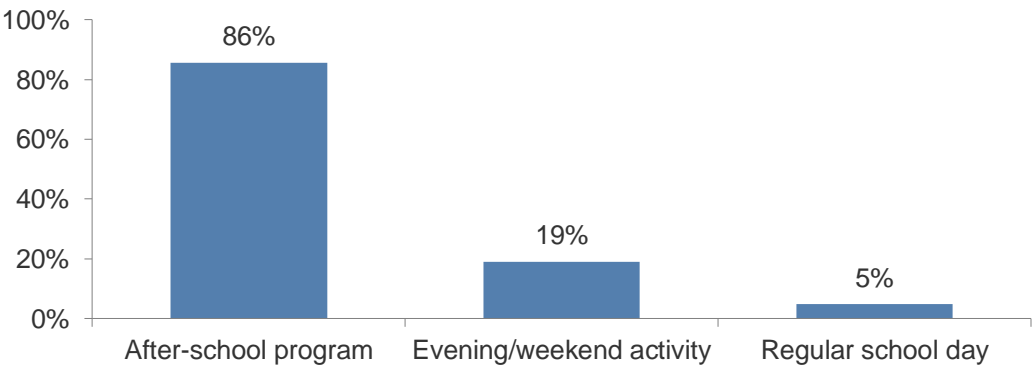
Metropolitan Area	Science Museum	UnidosUS Affiliate(s)	ASPIRA Affiliate(s)
Albuquerque	Explora	<ol style="list-style-type: none"> 1. HELP New Mexico 2. Youth Development, Inc. 	
Chicago	Chicago Children’s Museum	<ol style="list-style-type: none"> 1. Brighton Park Neighborhood Council 2. Erie Neighborhood House of Chicago 3. Gads Hill Center of Chicago 4. Instituto del Progreso Latino 5. La Causa Charter School (Milwaukee, WI) 	<ol style="list-style-type: none"> 1. ASPIRA of IL at Rudy Lozano Bilingual and International Center Elementary School 2. ASPIRA of IL at Alfred Nobel Elementary School
Houston	The Health Museum	<ol style="list-style-type: none"> 1. Diversity, Roots and Wings Academy 2. Tejano Center for Community Concerns 	
Jersey City, NJ	Liberty Science Center		<ol style="list-style-type: none"> 1. ASPIRA of DE at Las Américas ASPIRA Academy (Newark, DE) 2. ASPIRA of NJ at Luis Muños Marín School (Newark NJ)
Los Angeles	California Science Center	<ol style="list-style-type: none"> 1. Building Skills Partnership 2. El Sol Science & Arts Academy (Santa Ana, CA) 3. New Economics for Women 4. Para los Niños Charter Elementary School 5. Youth Policy Institute 	
Kansas City, MO	Science City at Union Station	<ol style="list-style-type: none"> 1. Guadalupe Centers 	
Philadelphia	Academy of Natural Sciences of Drexel University		<ol style="list-style-type: none"> 1. ASPIRA of PA at Eugenio María de Hostos Charter School 2. ASPIRA of PA at Antonia Pantoja Charter School
Miami	Frost Museum of Science		<ol style="list-style-type: none"> 1. ASPIRA of FL at South Youth Leadership Charter School Homestead
New York City	American Museum of Natural History	<ol style="list-style-type: none"> 1. Amber Charter School 2. Committee for Hispanic Children and Families 3. Cypress Hills Local Development Corporation 	
Washington, DC	Smithsonian National Museum of Natural History	<ol style="list-style-type: none"> 1. Latin American Montessori Bilingual PCS 2. Latin American Youth Center 	
<i>Did not participate in Year 4</i>			
Charlotte, NC	Discovery Place		<ol style="list-style-type: none"> 1. ASPIRA of NC at Oaklawn Elementary School

Program implementation varied across affiliates. Some commonalities across the sites provide background about each component of CHISPA.

APEX Science

Of the affiliates with staff members who responded to the affiliate staff survey, more than three-quarters (86%) reported that they implemented APEX Science as part of an afterschool program (see Figure 26). A few affiliates reported that they implemented APEX Science as part of an evening or weekend program (19%) or during the regular school day (5%).

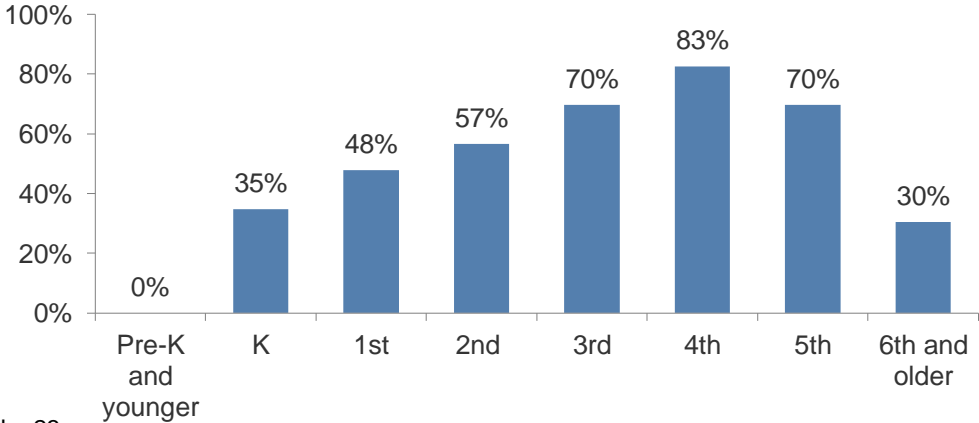
Figure 26. Setting for APEX Science
(Respondents chose all settings that applied)



N = 21

Responding sites reported that APEX Science was implemented with students in kindergarten through sixth grade and beyond, with more than two-thirds of sites reporting that they delivered the lessons to students in third grade (70%), fourth grade (83%), and fifth grade (70%) (see Figure 27).

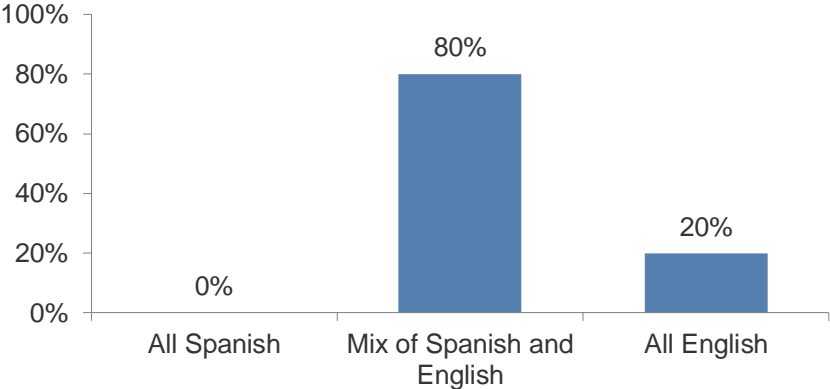
Figure 27. Grade Level(s) for APEX Science
(Respondents chose all grade levels that applied)



N = 23

More than three-quarters of the responding sites (80%) reported that they implemented APEX Science in a mix of Spanish and English, with the remaining sites (20%) implementing the curriculum entirely in English (see Figure 28).

Figure 28. Language for APEX Science

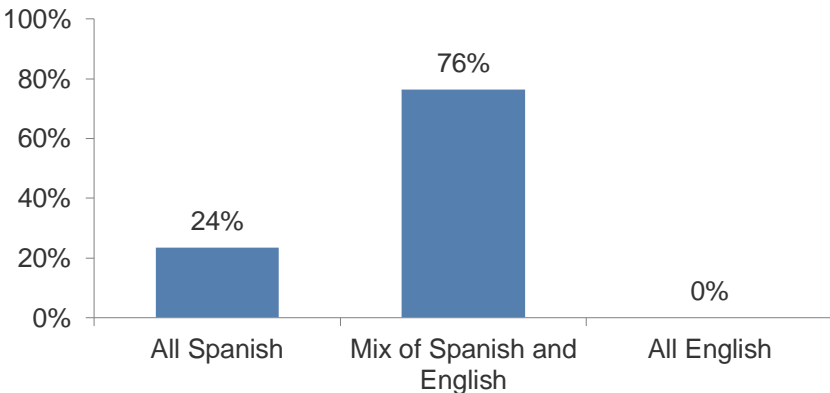


N = 20

PC con CHISPA

As with APEX Science, implementation of PC con CHISPA varied across affiliates. However, of the sites that responded to the affiliate survey, three quarters (76%) implemented PC con CHISPA in a mix of Spanish and English (see Figure 29). The remaining sites (24%) reported that they conducted PC con CHISPA sessions entirely in Spanish.

Figure 29. Language(s) for PC con CHISPA



N = 20

Family Science Day

Each museum selected the time of year in which to host Family Science Day, as well as the format and structure of the event. In Year 4, five museums reported that they hosted a Family Science Day event that was exclusively for CHISPA families (see Table 11). The other five museums hosted Family Science Day as part of another event at the museum. Family Science Days were bilingual (Spanish/English) events, although the balance of the two languages varied among the museums. Five museums conducted the event primarily in English, four used English and Spanish equally, and one museum conducted the event primarily in Spanish (see Table 12).

Table 11. Type of Family Science Day Event

Event Type	# of Museums (N=10)
Event exclusively for CHISPA families	5
Part of another event	5

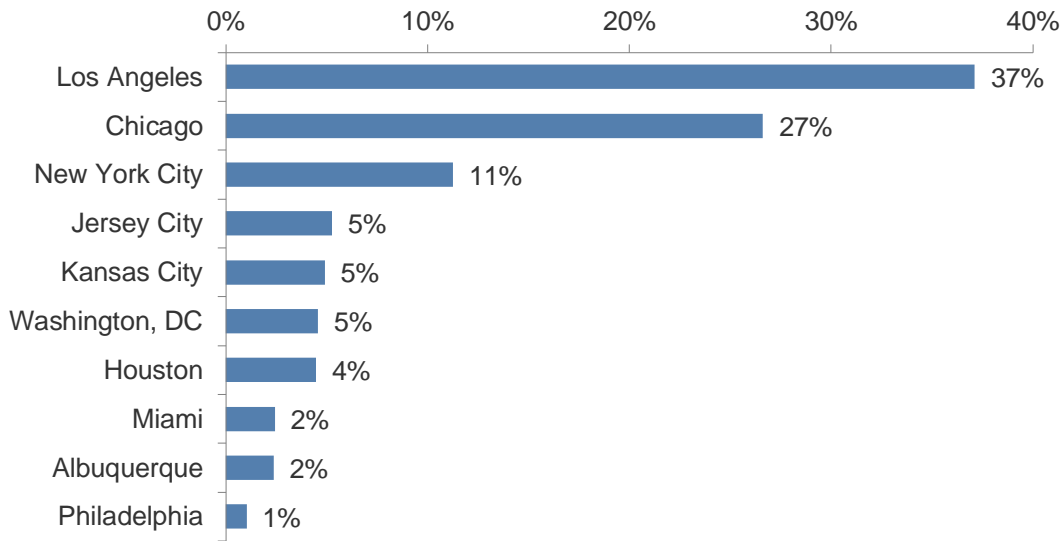
Table 12. Language(s) Used for Family Science Day

Event Type	# of Museums (N=10)
Mostly English with some Spanish	5
English and Spanish equally	4
Mostly Spanish with some English	1

Participation in CHISPA

Across the country, 2,145 youth participated in APEX Science lessons in Year 4, with the majority of children participating in the largest metropolitan areas (Los Angeles, Chicago, and New York) (see Figure 30). Two also had the greatest number of participating UnidosUS and ASPIRA affiliates: seven affiliates participated in the Chicago area and five participated in the Los Angeles area.

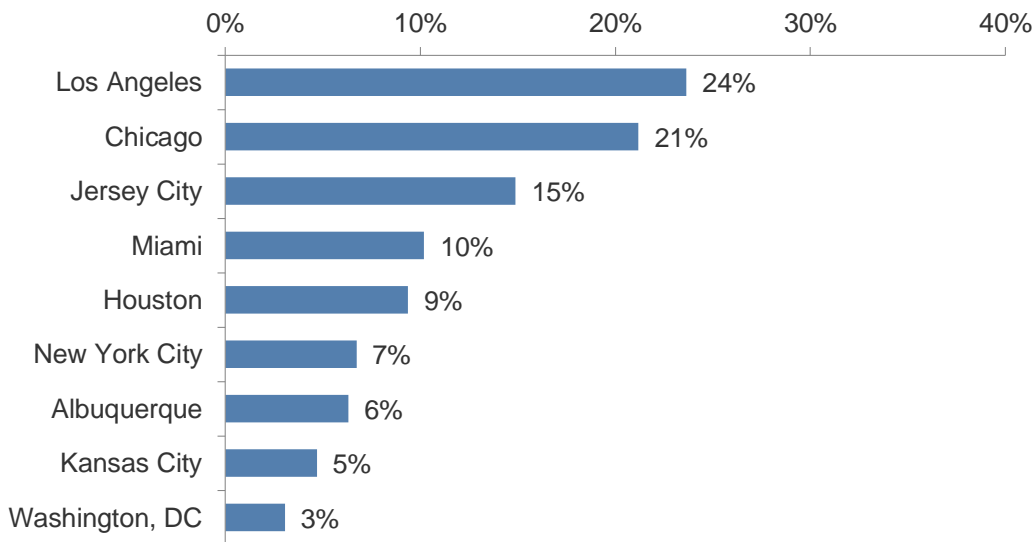
Figure 30. Participation in APEX Science by Metropolitan Area



N = 2145

Similar patterns of participation were observed among the 491 parents who participated in PC con CHISPA sessions in Year 4 (see Figure 31). Additionally, many parents participated in the Jersey City metropolitan area (15%) and in Miami (10%).

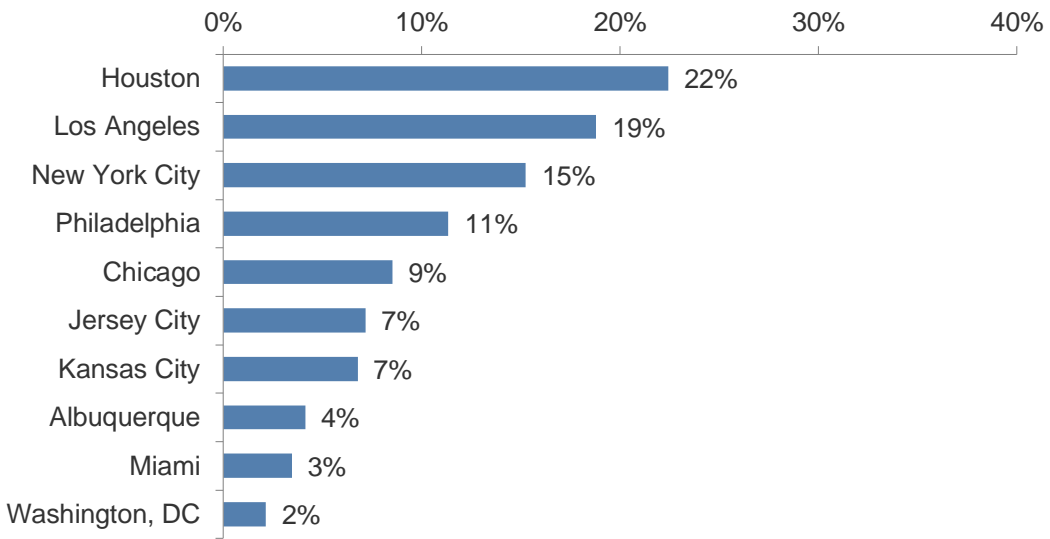
Figure 31. Participation in PC con CHISPA by City



N = 491

Nationwide, 2,230 individuals attended Family Science Days. The largest group attended in Houston, followed by Los Angeles, New York City, and Philadelphia (see Figure 32). Although Chicago served the second largest groups of APEX participants and PC con CHISPA participants, it ranked fifth in Family Day participation, representing 9% of attendees nationwide.

Figure 32. Participation in Family Day by City



N = 2230

Appendix B: Methods

Data for this study were collected through twelve data collection activities using four sampling strategies (see Table 13).

Table 13. Data Collection Activities and Sampling Strategies

Data Collection Activity	Sampling Strategy			
	1. All Sites	2. Focal Sites	3. Additional Sites	4. National Leaders
Review of program records	X	Included in “all sites” data collection		
Affiliate staff survey	X			
Museum staff survey	X			
Family Science Day parent survey	X			
PC con CHISPA parent survey	X			
Review of PC con CHISPA final reports	X			
APEX Science survey	X			
CHISPA Institute survey	X			
Staff interviews		X	X	X
Steering Committee observations		X		
APEX Science observations		X	X	
PC con CHISPA observations		X		
Parent focus groups or interviews		X		

Sampling Strategy 1. All Sites

The Year 4 evaluation plan called for seven data collection activities that aimed to gather information from all participating affiliates and museums:

Review of Program Records

Evaluators reviewed program records that affiliates and museums submitted to the national CHISPA leadership at the conclusion of Year 4. Review focused on the extent to which APEX Science, PC con CHISPA, and Family Science Day activities were implemented and the level of participation in those activities.

Staff Surveys

Evaluators administered online surveys in English to affiliate and museum staff in July 2017. Invitations were sent to every staff member who was involved in CHISPA implementation in Year 4. Surveys focused on respondents’ experiences with CHISPA over the years of the program, their personal learning, and their perceptions of program impact on participants.

Family Science Day Survey

Affiliate staff administered paper surveys in both English and Spanish to parents who attended Family Day events from September 2016 through June 2017. Surveys focused on parents’ experiences and satisfaction with the event.

PC con CHISPA Survey

At the conclusion of each cycle of PC con CHISPA, affiliate staff administered paper surveys in both English and Spanish to the parents who completed the program. The surveys focused on parents' satisfaction with the sessions, what they learned, their child's interest in science, and their families' activities related to science. Response rates were low and, in addition, several of the affiliates who did implement the survey mistakenly administered a version of the survey that had been prepared in Year 3 to collect formative feedback from parent participants. Since many questions varied between the two versions of the survey, the data could not be combined. As a result, this report presents data from both versions of the survey.

Review of PC con CHISPA Final Reports

Since response rates for the PC con CHISPA survey were low, evaluators also examined final reports for Year 4 of PC con CHISPA that were submitted to national CHISPA leadership at the conclusion of the PC con CHISPA in Year 4. Review focused on the level of parent participation, staff experience with the program, and implementation success and challenges.

APEX Science Survey

In May 2017, affiliate staff administered a bilingual (English/Spanish) paper survey to youth who were currently participating in APEX Science sessions. The survey focused on children's enjoyment of APEX Science, the most interesting thing they had learned to date, and their interest in science during APEX Science sessions.

CHISPA Institute Survey

The Year 4 CHISPA National Professional Development Institute was held September 8–9, 2016 at the Smithsonian Museum of Natural History in Washington, DC. At the conclusion of the event, evaluators distributed a paper survey in English to all affiliate staff and museum staff who were present. The survey focused on the perceived usefulness of the Institute and its influence on participants' professional development.

As noted in the Year 3 Evaluation Brief (Garibay Group, 2016), CHISPA sites varied in their capacity for carrying out evaluation tasks. For example, in Year 3, not all program sites administered Family Day surveys and no program sites administered the PC con CHISPA survey. Similar limitations were experienced in Year 4, with just 27% of affiliates administering the PC con CHISPA survey and only 19% of affiliates administering the APEX Science survey (see Table 14). Evaluators sought to maximize the information obtained in Year 4 by collecting additional data from sources sampled in three ways: Focal sites, additional sites, and national leaders. These sampling strategies and the corresponding data collection methods are described next.

Table 14. Survey Response Rates

Data Collection Activity	Population	Respondents	Response Rate
Affiliate staff survey	64	34	53%
Museum staff survey	22	17	77%
Family Science Day parent survey	2,230	351	16%
PC con CHISPA parent survey	491	126	26%
APEX Science survey	2,145	212	10%
CHISPA Institute survey	49	47	96%

Sampling Strategy 2. Focal Sites

Three sites (i.e. affiliate/museum pairs) were selected for additional, in-depth data collection:
 Los Angeles: New Economics for Women and California Science Center
 New York: Committee for Hispanic Women and Children and American Museum of Natural History
 Washington, DC: Latin American Montessori Bilingual Public Charter School and Smithsonian National Museum of Natural History

Focal sites were purposively selected in consultation with national program leaders. Extreme case sampling was used to select a varied sample of successful CHISPA sites that could shed light on contexts, characteristics, and strategies associated with success. Since the study sought to evaluate CHISPA, rather than the strengths and weaknesses of specific sites, this sampling strategy enabled evaluators to examine the program when fully and faithfully implemented. This strategy also ensured that evaluation resources would be wisely invested, since information gathering was focused on the sites with the greatest capacity to participate in data collection.

The evaluation team worked with program leaders to select focal sites based on the following criteria: (a) sufficient capacity to participate in data collection, (b) history of successful APEX Science implementation, (c) history of successful PC con CHISPA implementation, (d) strong partnership between the affiliate and museum, (e) geographic diversity, and (f) variation in population served.

Data were collected throughout Year 4, with the majority of data collected during multi-day site visits conducted in February 2017 (Los Angeles), March 2017 (Washington, DC), and April 2017 (New York City). Data collection sought to identify essential conditions for CHISPA success and determine the extent to which CHISPA, at its best, was a sound and effective program model. Therefore, examinations of focal sites were not case studies *per se* and were not used to produce detailed portraits of the three sites. Instead, the focal site data were used to identify patterns and trends across the sites.

The following data collection activities were conducted for each focal site:

Staff Interviews

The evaluation team conducted a series of interviews in English with affiliate and museum staff. Two initial one-hour telephone interviews were conducted in November 2016 (one with affiliate staff and one with museum staff) and several in-person interviews (totally approximately eight hours per site) were conducted during site visits. Interviews focused on the community and organizational context for each site, staff members' experience implementing CHISPA, staff learning, and staff members' perceptions of the impact of CHISPA on participating families.

Steering Committee Observations

Evaluators observed all steering committee meetings for the focal sites that took place between October 2016 and January 2017. This included video observations of two meetings for Los Angeles and Washington, DC (November 2016 and January 2017). The New York City site conducted a single steering committee meeting by telephone in January 2017, and evaluators joined that phone call. Steering committee observations focused on interactions among participants, the overall tenor of the meeting, participants' levels of preparation and engagement, and CHISPA successes and challenges.

APEX Science Observations

The evaluation team observed APEX Science sessions during site visits to each focal site. One lesson each was observed at New Economics for Women in Los Angeles (February 2017) and at Latin American Montessori Bilingual Public Charter School in Washington, DC (March 2017), and two lessons were observed at the Committee for Hispanic Women and Children in New York City (April 2017). Observations focused on instructors' comfort with the APEX Science material as well as fidelity of implementation and/or adaptation of the curriculum. Evaluators also observed students' levels of engagement during the lesson.

PC con CHISPA Observations

Evaluators observed PC con CHISPA sessions during focal site visits. One session each was observed at New Economics for Women in Los Angeles (February 2017) and at Latin American Montessori Bilingual Public Charter School in Washington, DC (March 2017). PC con CHISPA was not observed at the Committee for Hispanic Women and Children in New York City because the program was not in session during the time of the site visit (April 2017). Observations focused on instructors' comfort with the PC con CHISPA material as well as fidelity of implementation and/or adaptation of the curriculum. The evaluation team also gathered data on parents' levels of engagement during the session.

Parent Focus Groups and Interviews

The evaluation team conducted focus groups and interviews with parents during focal site visits. Two focus groups were conducted in Spanish at New Economics for Women in Los Angeles (February 2017) and at the Committee for Hispanic Women and Children in New York City (April 2017) for a total of four focus groups. Due to low parent turnout at Latin American Montessori Bilingual Public Charter School in Washington, DC (March 2017), evaluators conducted individual interviews rather than focus groups. Two parents were interviewed in Spanish and two parents were interviewed in English based on parent preferences. Focus groups and interviews focused on parents' experience with PC con CHISPA and Family Science Day as well as their perception of their child's experience with APEX Science.

Sampling Strategy 3. Additional Sites

Data were collected from additional sites to test findings generated by the examination of focal sites. As with the focal sites, data collection sought to illuminate essential conditions for CHISPA success and to identify patterns and trends across sites. Sampling was purposive and based on the extent to which a site could shed light on the topic of interest. Evaluators contacted 14 affiliates and two museums to request participation in a total of 19 data collection activities between February and October 2017. These proposed data collection activities included APEX Science observations, PC con CHISPA observations, steering committee observations, parent focus groups, and staff interviews.

Seven of the 19 data collection activities were completed as requested. Data collection was not completed when the evaluation team did not receive a response from an affiliate, when an affiliate indicated that the specified CHISPA activities were not being conducted, or when an affiliate was not able to schedule a specific time when evaluators could collect the desired data. In total, data were collected from each of the two museums and five of the 14 affiliates that were contacted with data collection requests. Successful data collection activities included:

APEX Science Observations

The evaluation team observed APEX Science sessions in Chicago in May 2017. Two lessons were observed by video, one at Brighton Park Neighborhood Council and one at Instituto del Progreso Latino, and one lesson was observed in person at Gads Hill Community Center. As with the focal sites, observations focused on instructors' comfort with the APEX Science material and fidelity of implementation and/or adaptation of the curriculum. Evaluators also observed students' levels of engagement during the lesson.

Staff Interviews

Evaluators conducted one-hour telephone interviews with affiliate and museum staff members in October 2017. Interviews focused on staff members' experience implementing CHISPA, the organizational context for their site, and the lessons learned through CHISPA implementation. Interviews were conducted with staff at Chicago Children's Museum, Erie Neighborhood House of Chicago, Latin American Youth Center in Washington, DC, and Science City at Union Station in Kansas City.

Sampling Strategy 4. National Leadership

Finally, evaluators gathered data from the four national program leaders.

Discussions

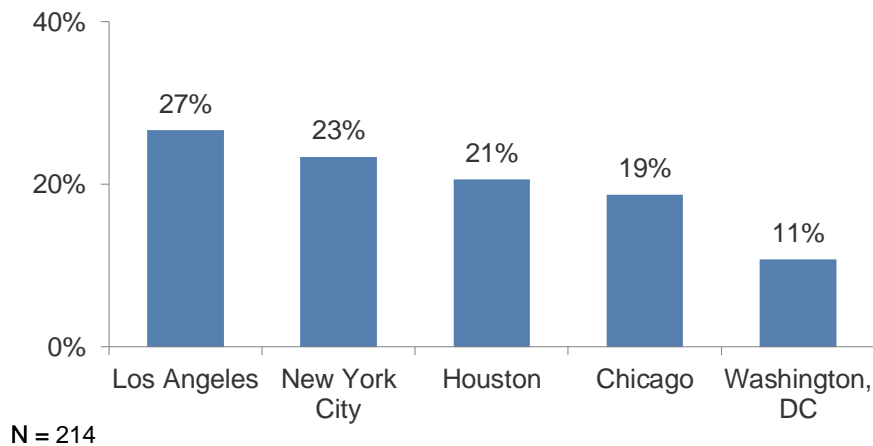
Evaluators held frequent discussions with the four national CHISPA programs that focused on the impact of CHISPA at the national level as well as leaders' experience the program and with specific sites. Discussions also sought leaders' reflections on emerging evaluation findings.

Appendix C: Respondents

Youth

Youth from five affiliates completed the APEX Science survey. About a quarter of respondents (27%) participated in CHISPA in Los Angeles through New Economics for Women and another quarter (23%) were involved in New York City at The Committee for Hispanic Children and Families (see Figure 33). About one-fifth of respondents (21%) participated in Houston at the Tejano Center for Community Concerns while another fifth (19%) attended CHISPA sessions in Chicago at Brighton Park Neighborhood Council. Finally around one-tenth of respondents (11%) were involved in Washington, DC through the afterschool program at Latin American Montessori Bilingual Public Charter School.

Figure 33. APEX Science Survey Respondents by Metropolitan Area



Evaluators observed APEX Science lessons delivered at seven affiliates in four cities (see Table 15). Students participating in those lessons ranged from kindergarten to eighth grade, and group size ranged from seven to 34 students. The mean group size was 17 and the median was 16. The percentage of female students in groups ranged from 43% to 65% with a mean of 56% female and a median of 57% female.

Table 15. APEX Science Observations

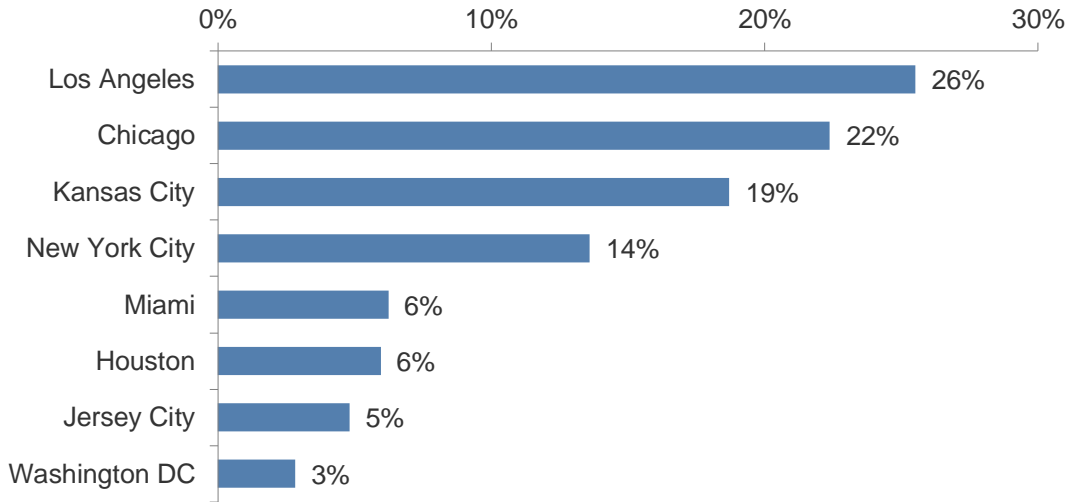
Metropolitan Area	Affiliate	# of students in group	% of students who were female	Grade level(s) in group
Chicago	Brighton Park Neighborhood Center	10	60%	1
	Gads Hill Center of Chicago	7	43%	K & 1
	Instituto del Progreso Latino	34	65%	2 through 8
Los Angeles	New Economics for Women	21	57%	4 and 5
New York City	The Committee for Hispanic Children and Families, Group 1	16	50%	5
	The Committee for Hispanic Children and Families, Group 2	17	59%	5
Washington, DC	Latin American Montessori Bilingual PCS	16	56%	2 through 5
Mean		17	56%	n/a
Median		16	57%	n/a

Parents

Data were collected from parents through Family Science Day surveys, PC con CHISPA surveys, and focus groups/interviews.

Parents completed Family Science Day surveys following events in eight cities. About a quarter of respondents (26%) participated in the Family Science Day at the California Science Center in Los Angeles (see Figure 34). Approximately a fifth of respondents attended at the Chicago Children’s Museum in Chicago (22%) and Science City at Union State in Kansas City (19%), and more than a tenth of respondents (14%) participated at the American Museum of Natural History in New York City. The remaining respondents participated in Family Science Day at Frost Science in Miami (6%), the Health Museum in Houston (6%), Liberty Science Center in Jersey City (5%), and the Smithsonian National Museum of Natural History in Washington, DC (3%).

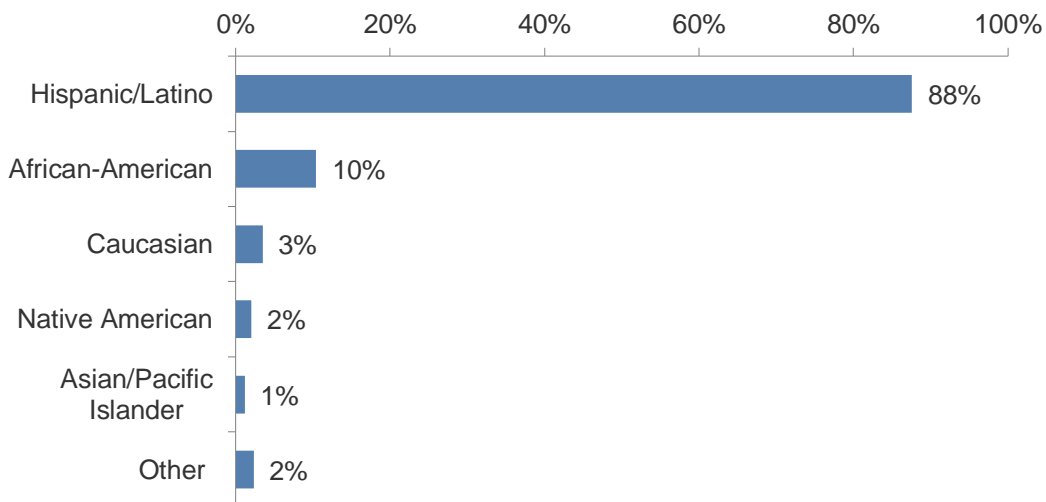
Figure 34. Family Day Survey Respondents by Metropolitan Area



N = 353

A strong majority of Family Science Day respondents (88%) described their ethnic origin as Hispanic/Latino, and about a tenth described their ethnic origin as African-American (10%) (see Figure 35). Other respondents described their ethnic origin as Caucasian (3%), Native American (2%), or Asian/Pacific Islander (1%). Some respondents who selected Other (2%) listed their country of origin, including Mexico and Brazil, or described their ethnic origin as “mixed.”

Figure 35. Family Science Day Survey Respondents by Ethnic Origin

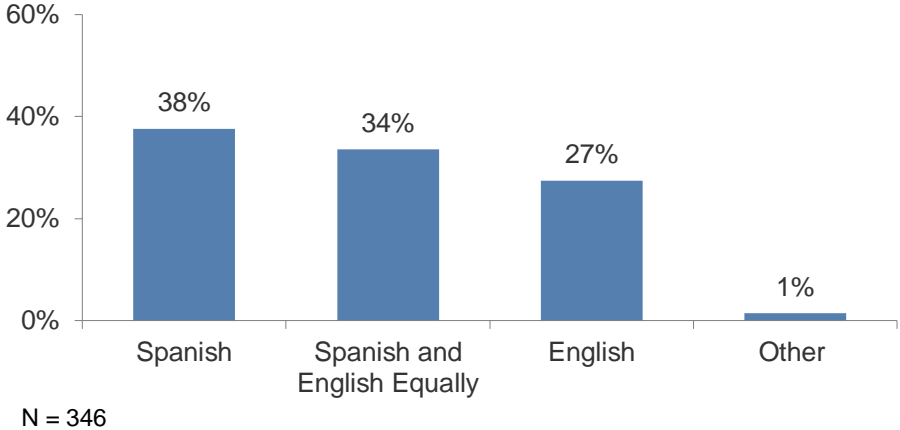


N = 345

Responses could fall into more than one category.

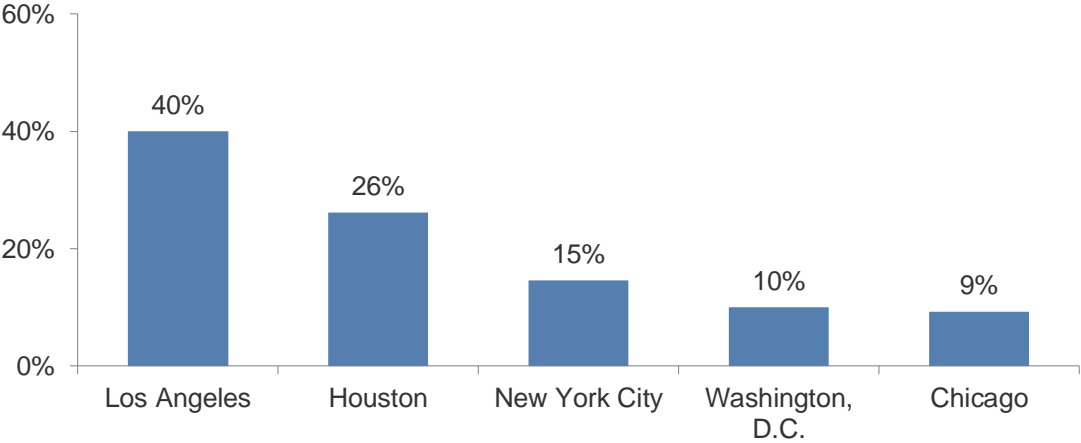
Nearly three-quarters (72%) of Family Day Science respondents indicated that they spoke Spanish at home (see Figure 36). The group was about equally divided between those who reported that they spoke only Spanish at home (38%) and those who indicated that they spoke Spanish and English equally (34%). About a quarter of respondents (27%) reported they spoke English at home. Respondents who reported that they spoke another language at home (1%) indicated that they spoke English and Quiche/Kiche, English and Urdu, English and Arabic, only Portuguese, or only Japanese.

Figure 36. Family Science Day Survey Respondents by Language Spoken at Home



Parents also completed surveys at the conclusion of the nine-session PC con CHISPA program at nine affiliates in five cities. More than a third of PC con CHISPA survey respondents (40%) participated in Los Angeles at Building Skills Partnership and New Economics for Women, while a quarter (26%) participated in Houston at Tejano Center and the Diversity, Roots, and Wings Academy (see Figure 37). Additional respondents participated in New York City at the Committee for Hispanic Children and Families (15%), in Washington, DC at Latin American Montessori Bilingual Public Charter School (10%), and at Gads Hill Center of Chicago (9%).

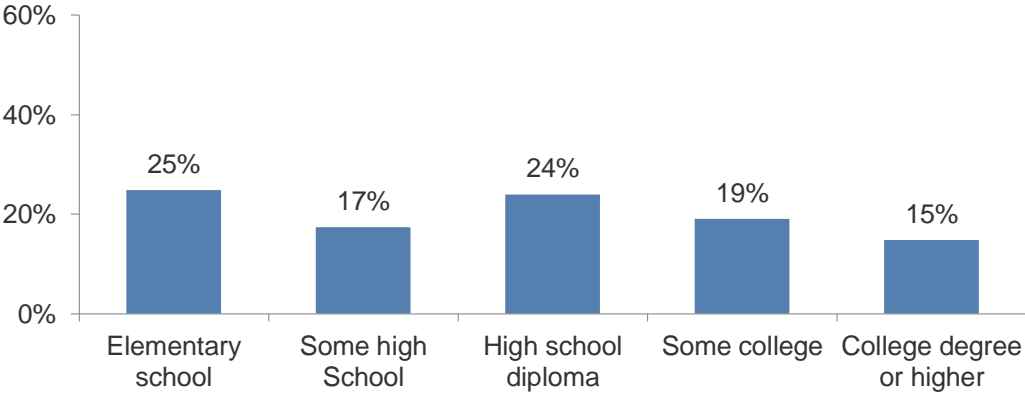
Figure 37. PC con CHISPA Survey Respondents by Metropolitan Area



N = 130

More than a third of PC con CHISPA survey respondents (42%) reported that they had not completed high school, including a quarter of respondents (25%) who had only attended elementary school (see Figure 38). Another quarter of respondents (24%) held a high school diploma. The remaining respondents had either attended some college or vocational/technical school (19%) or had earned a college degree and/or graduate credits or a graduate degree (15%).

Figure 38. PC con CHISPA Survey Respondents by Education Level

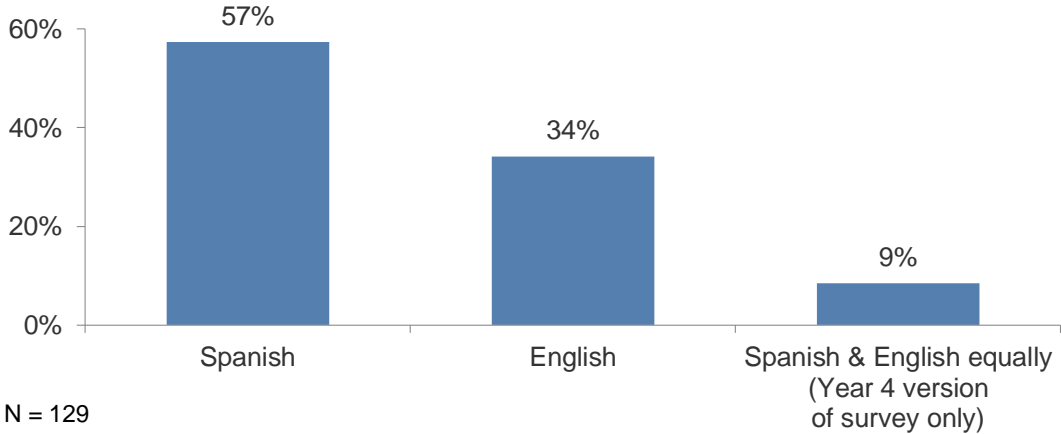


N = 121

As noted above, several CHISPA sites mistakenly administered an earlier version of the PC con CHISPA survey rather than the revised survey prepared for the Year 4 evaluation. One difference between the two versions of the survey was the question addressing the language that respondents spoke at home: the Year 4 version of the survey included the option to indicate that the respondent spoke both Spanish and English equally, while the earlier version did not. Considering responses across both versions of the

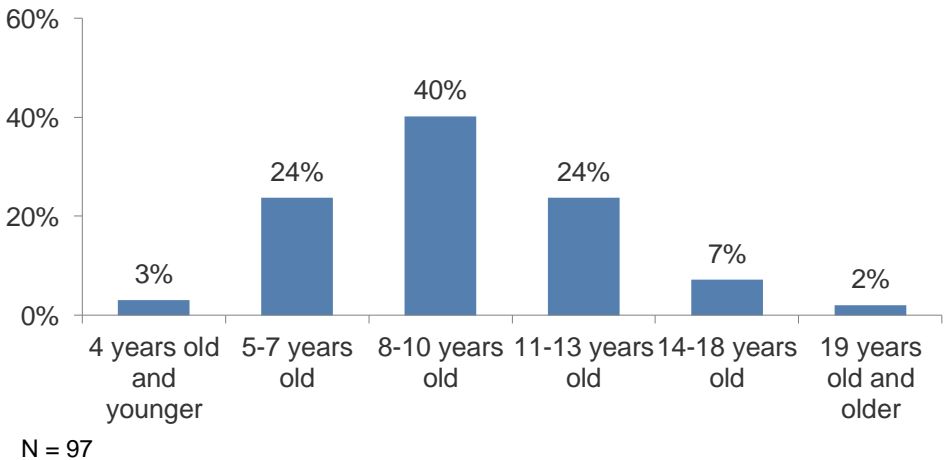
survey, two-thirds of respondents (66%) indicated that they spoke Spanish at home, including those who responded to the Year 4 version of the survey and reported that they spoke both Spanish and English (9%) (Figure 39).

Figure 39. PC con CHISPA Survey Respondents by Language Spoken at Home

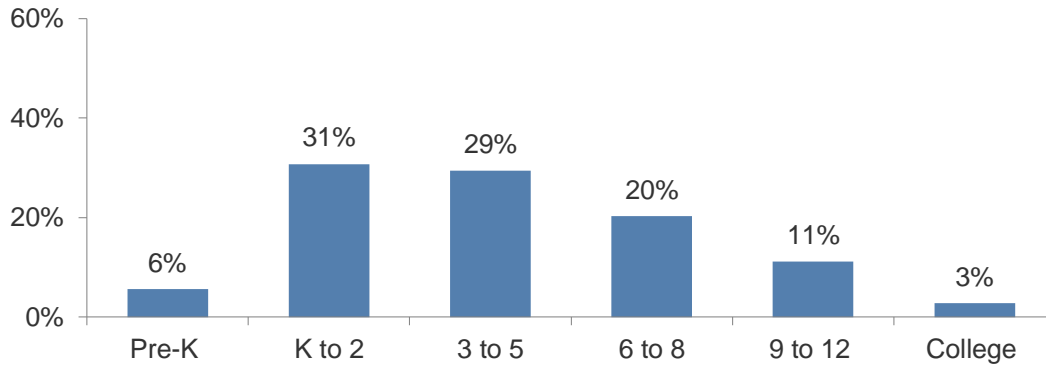


Another difference between the two versions of the PC con CHISPA survey related to the age/grade of the respondents' children (see Figures 40 and 41). The Year 4 version asked respondents to indicate the ages of their children, while the prior version asked respondents to report their children's grade level. Looking across both surveys, the majority of respondents' children fell within the elementary school ages/grades: nearly two-thirds of respondents to the Y4 version (64%) of the survey reported that their children were between 5 and 10 years of age and nearly two thirds of respondents to the prior version (60%) reported that their children were enrolled in grades K through 5.

Figure 40. PC con CHISPA Survey Respondents: Age of Children (Year 4 Version of Survey)



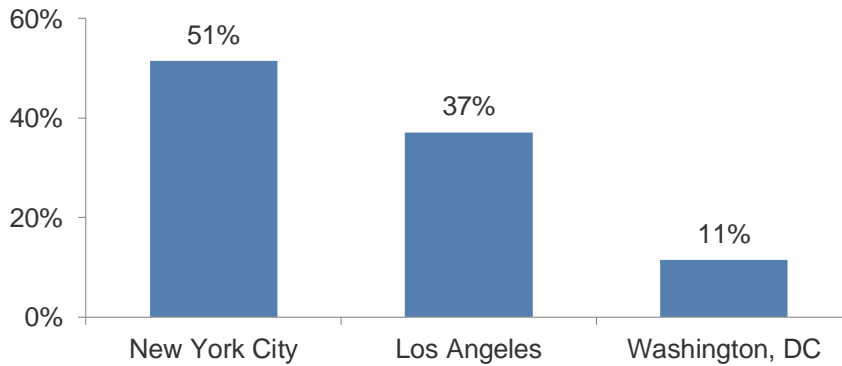
**Figure 41. PC con Survey Respondents:
Grade Level of Children (Prior Version of Survey)**



N = 143

Finally, parents from three affiliates in three cities participated in focus groups or individual interviews. About half of the participants (51%) were involved in CHISPA in New York City at The Committee for Hispanic Children and Families, and over a third (37%) participated in Los Angeles through New Economics for Women (see Figure 42). The remaining participants (11%) were participated in Washington, DC through the Latin American Montessori Bilingual Public Charter School.

**Figure 42. Parent Participants in Focus
Groups/Interviews by Metropolitan Area**

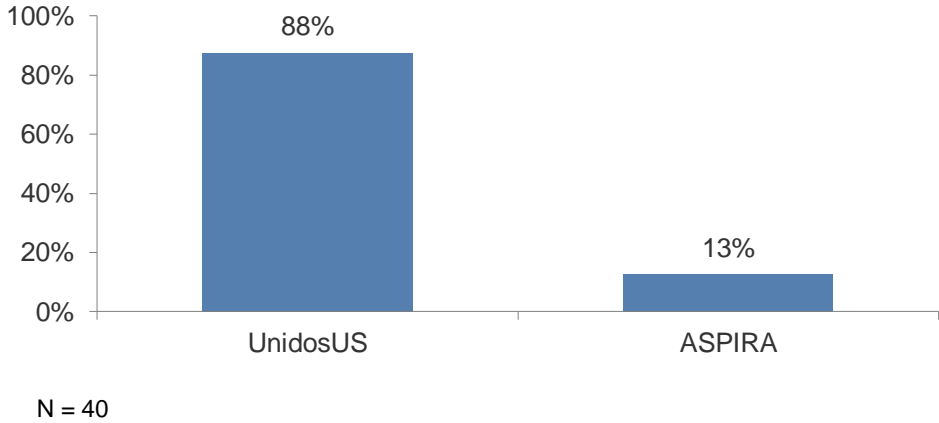


N = 35

Affiliate staff

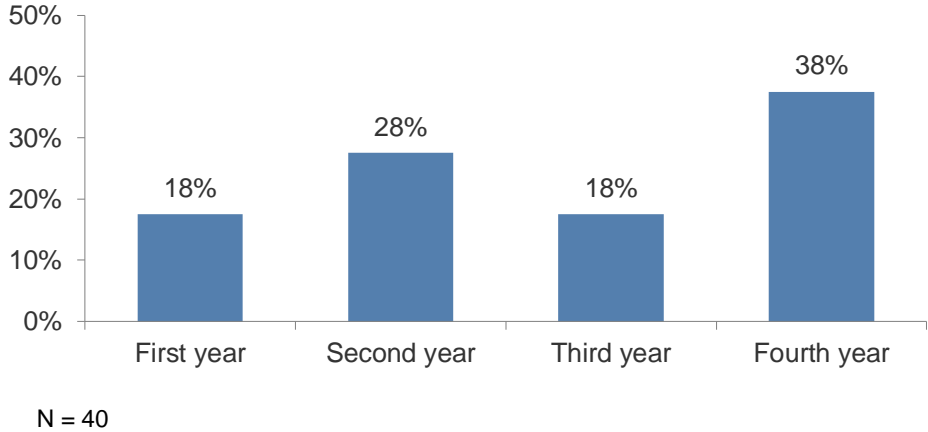
Forty affiliate staff members completed the affiliate staff survey, representing 23 different participating organizations. The vast majority of respondents (88%) worked for UnidosUS affiliates, representing 19 of the 20 UnidosUS-affiliated organizations that participated in CHISPA in Year 4 (see Figure 43). The remaining respondents (13%) worked for four of the seven ASPIRA affiliates that participated in CHISPA during Year 4.

Figure 43. Affiliate Survey Respondents: Affiliation



Over a third of respondents (38%) reported that 2017 was their fourth year of involvement with CHISPA, and less than a quarter (18%) indicated that they were participating for their third year (see Figure 44). Approximately a quarter of respondents (28%) reported that they were currently in their second year with CHISPA, and less than a quarter (18%) indicated it was their first year being involved.

Figure 44. Affiliate Survey Respondents: Involvement in CHISPA



Nearly three-quarters of respondents (72%) reported that they had been involved in teaching or supervising APEX Science lessons (see Figure 45), and about two-thirds (64%) indicated they had been involved in leading or supervising PC con CHISPA sessions (see Figure 46). More than three-quarters (82%) reported that they had been involved in attending or planning Family Science Day (see Figure 47).

Figure 45. Affiliate Survey Respondents: Involvement in Teaching or Supervising APEX Lessons

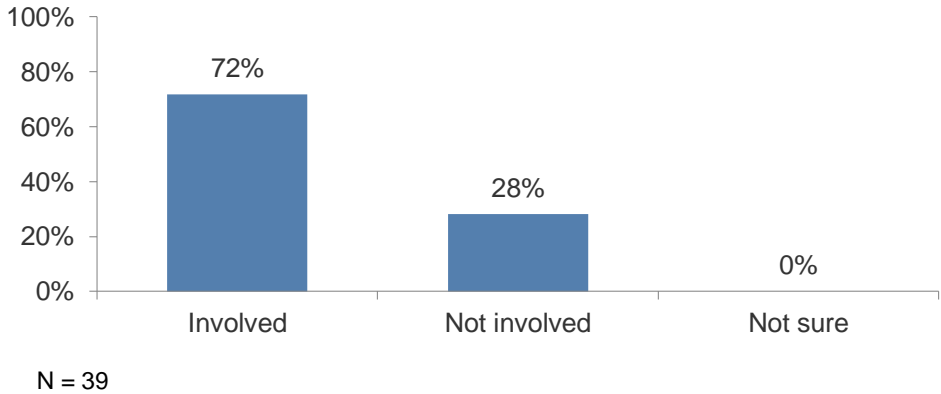


Figure 46. Affiliate Survey Respondents: Involvement in Leading or Supervising PC con CHISPA Sessions

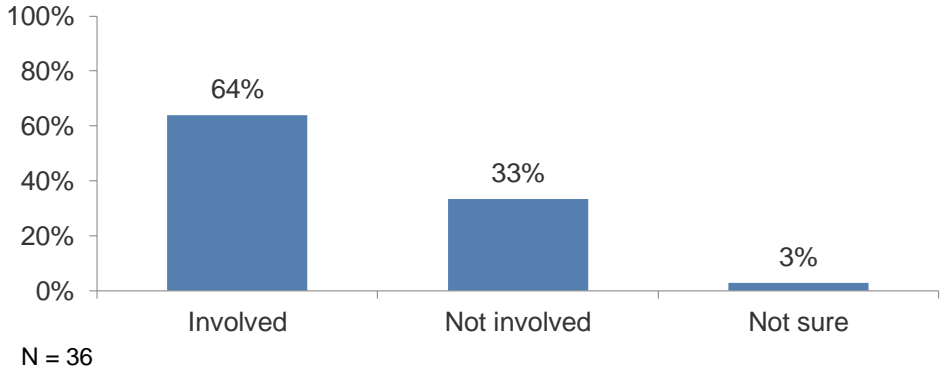
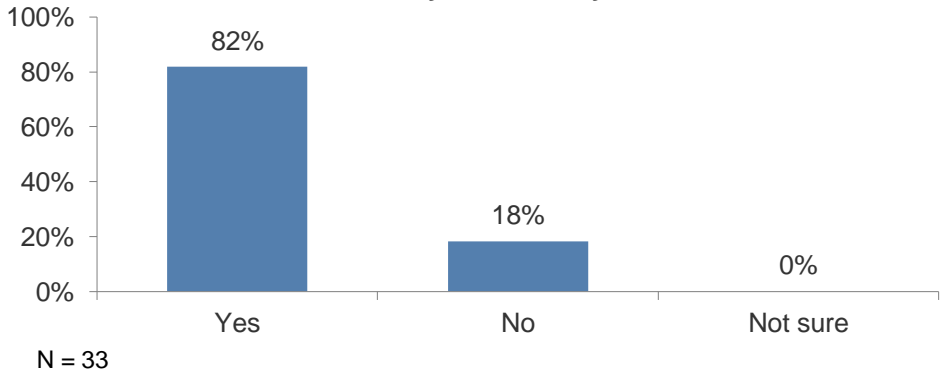


Figure 47. Affiliate Survey Respondents: Involvement in Attending or Planning Family Science Day

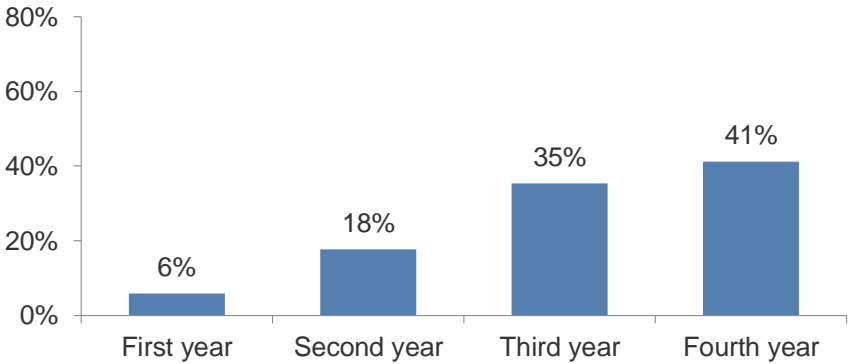


Museum staff

Seventeen museum staff members representing 11 museums completed the museum staff survey. This included the 10 museums that participated in Year 4 as well as the museum that was involved in prior years but did not participate in Year 4.

Over a third of respondents (41%) had been involved with CHISPA since the program began, totaling four years of participation for these respondents (see Figure 48). Another third (35%) had been involved for three years, and a quarter (24%) had been involved for one or two years

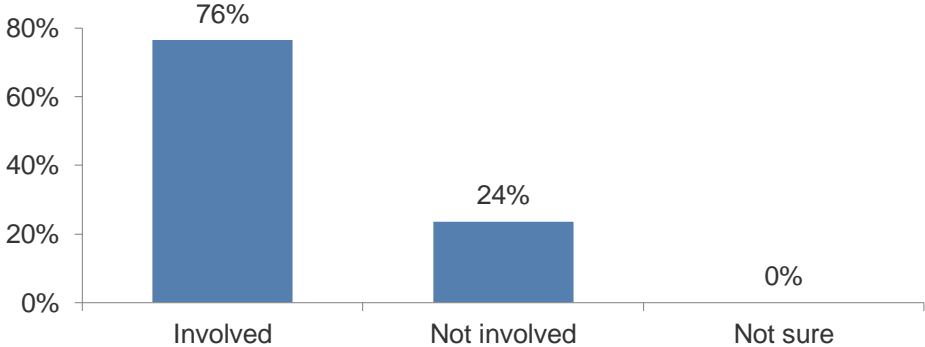
Figure 48. Museum Survey Respondents: Involvement with CHISPA



N = 17

More than three-quarters of respondents reported that they had been involved in training affiliate staff to implement APEX Science (see Figure 49) and had coordinated or run Steering Committee meetings (see Figure 50). Nearly all respondents (94%) had been involved in planning or implementing Family Science Day (see Figure 51).

Figure 49. Museum Survey Respondents: Involvement in Training Affiliates to Lead APEX Science



N = 17

Figure 50. Museum Survey Respondents: Involvement in Leading Steering Committee Meetings

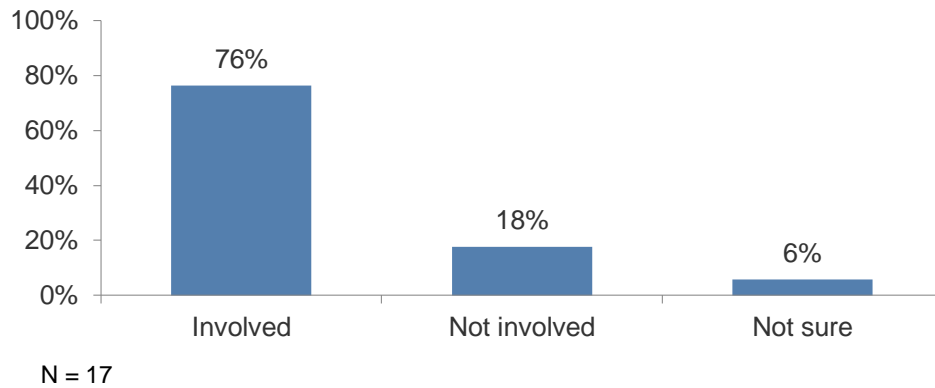
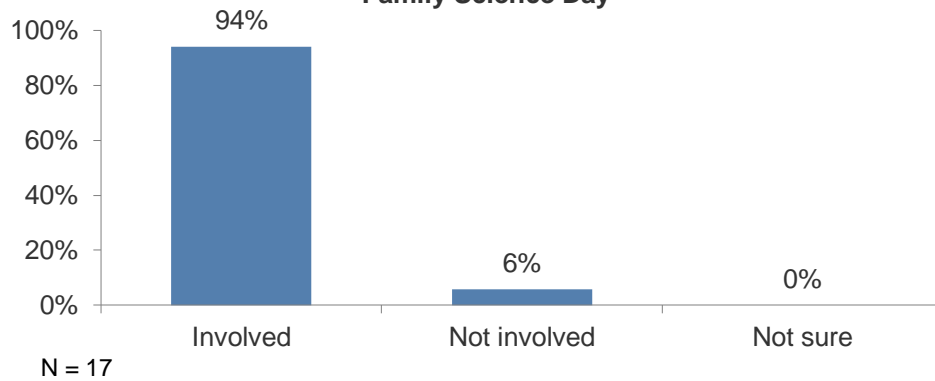


Figure 51. Museum Survey Respondents: Involvement in Planning or Implementing Family Science Day

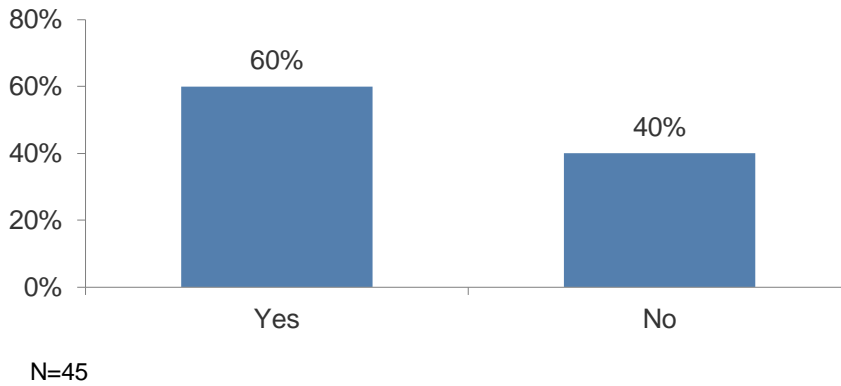


CHISPA Institute Participants

Forty-seven individuals who participated in the CHISPA Institute completed the CHISPA Institute survey. About three-quarters of respondents (79%) were affiliate staff members. They represented 17 of the 20 UnidosUS affiliates and four of the seven ASPIRA affiliates that participated in CHISPA in Year 4. The remaining quarter of respondents (21%) were museum staff members, representing 10 different museums. This included nine of the 10 museums that participated in Year 4 as well as the museum that was involved in prior years but did not participate in Year 4.

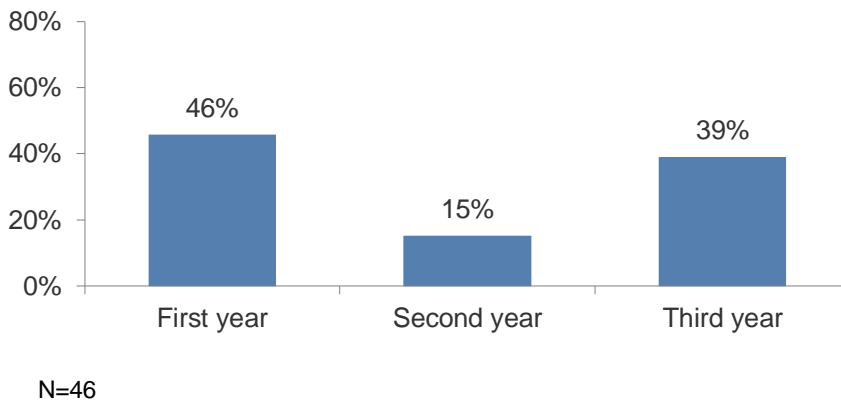
About two-third of respondents reported having been personally involved in implementing CHISPA at their organizations over the past year (see Figure 52).

Figure 52. CHISPA Institute Survey Repondents: Involvement with CHISPA



Nearly half of respondents reported that the 2016 Institute was the first CHISPA Institute they had attended (see Figure 53).

Figure 53. CHISPA Institute Survey Respondents: Participation in CHISPA Institutes



Appendix D: Indicators of Engagement

Table 16. Indicators of Engagement

Type of Engagement	Indicator	Method
APEX Science		
Enjoyment	Youth report enjoyment of APEX Science	Survey self-report using “smiley face” rating scale
Physical engagement	Youth direct their attention to the discussions and activities taking place during the lesson	Observation using behavioral rating scales
	Youth participate in the hands-on activities	
Intellectual engagement	Youth share their ideas or understandings about the lesson	
	Youth ask questions related to the lesson	
	Youth share connections between the lesson and their lives/experiences	
	Youth conduct activities independently of the instructor	
	Youth voice a reflection on what they did or learned, and expressed enthusiasm for the lesson	
Social engagement	Youth express enthusiasm for the lesson	
	Youth work collaboratively in pairs or teams	
Social engagement	Youth discuss the lesson among themselves	
	Interest	Youth report interest in science during APEX Science
Learning	Youth identify specific activities, topics, ideas, and concepts they learned related to APEX Science	Survey self-report using fill-in-the-blank item
Overall engagement	Staff identify specific ways in which youth demonstrate increased engagement with science	Survey open-ended item
PC con CHISPA		
Learning	Parents identify specific ideas, topics, and concepts they learned related to PC con CHISPA	Survey self-report using open-ended item
	Staff report parents have increased understanding of how to support youth in science	Survey rating scale item
	Staff identify specific examples that indicate parents’ increased understanding of how to support youth in science	Survey open-ended item
Family Science Day		
Enjoyment	Parents identify aspects of Family Science Day they enjoyed	Survey self-report using open-ended item
Interest	Parents report the event provided opportunities to learn about interesting science topics	Survey rating scale items
Comfort	Parents report they would feel comfortable bringing their family back to the museum	
Educational value	Parents report that activities were educationally valuable	
Learning	Parents report greater understanding of what the museum has to offer their family	

Appendix E: Affiliate and Museum Survey: Partnership Perceptions

Perceptions of Contributions to Partnership

Figure 54. Affiliate and Museum Survey: Responses to: “My partner brings valuable contributions to this partnership.”

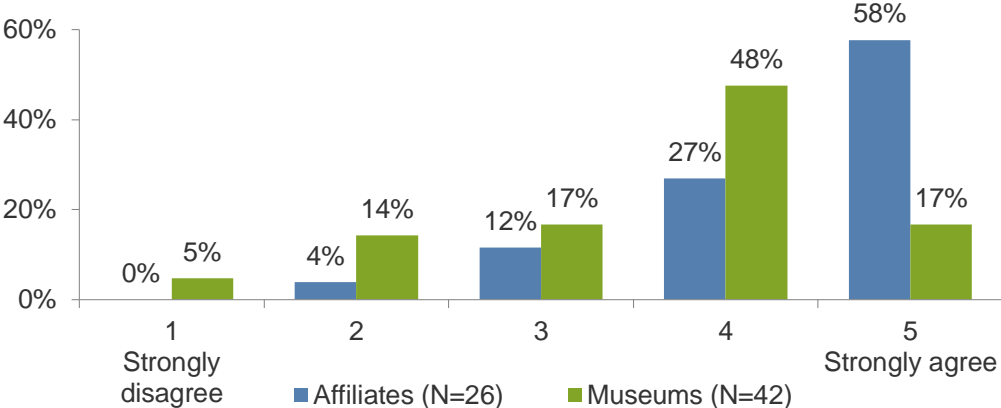
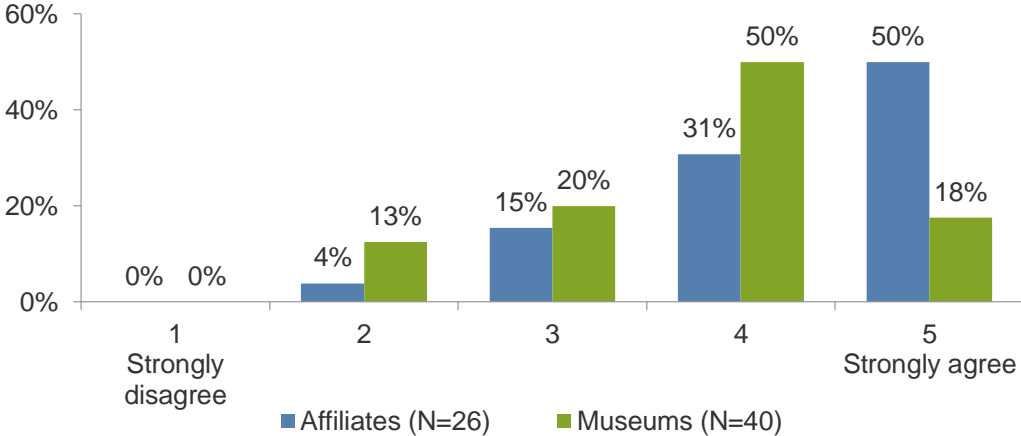


Figure 55. Affiliate and Museum Survey: Responses to: “I am able to make meaningful contributions to this partnership.”



Perceptions of Clarity and Openness of Partnership Communication

Figure 56. Affiliate and Museum Surveys: Clarity of Communication

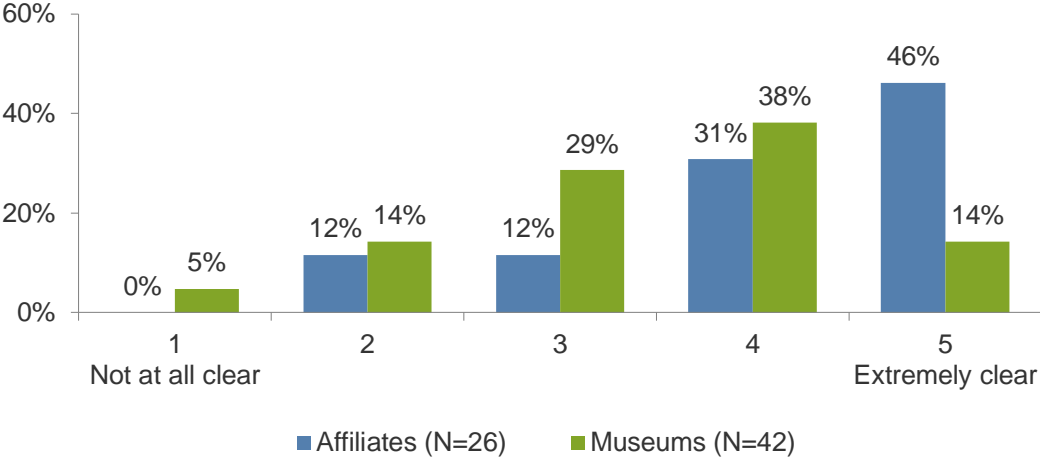
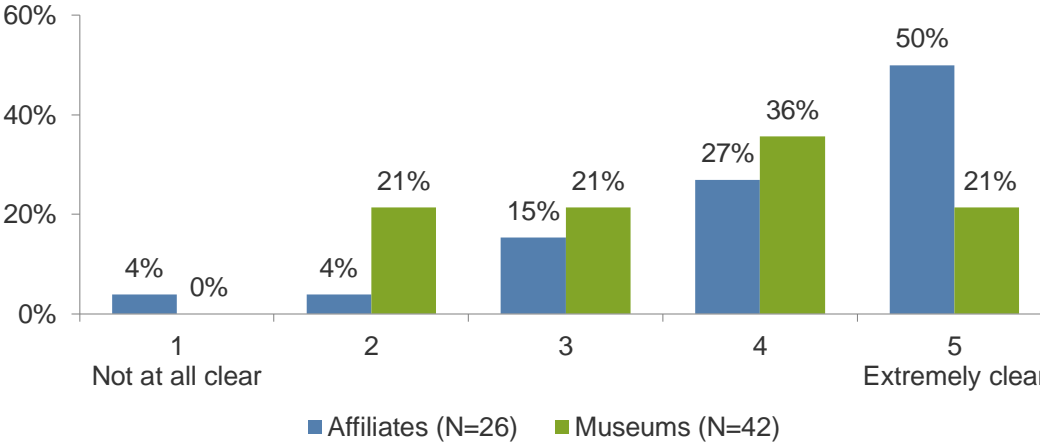


Figure 57. Affiliate and Museum Surveys: Openness of Communication



Satisfaction with Collaboration & Likelihood of Partnering Again

Figure 58. Affiliate and Museum Surveys: Overall Satisfaction with Collaboration

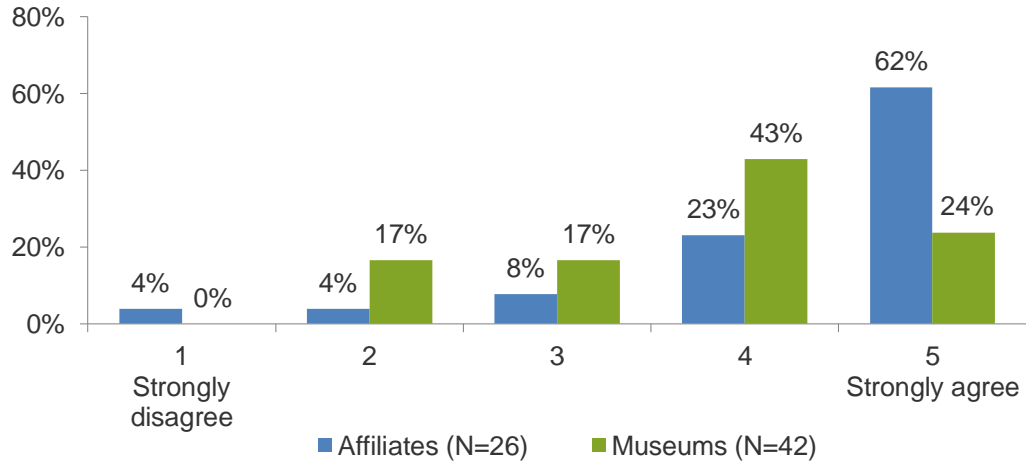


Figure 59. Affiliate and Museum Surveys: Likelihood to Partner Again in the Future

