

NASA@ My Library 2.0

2024 Evaluation Report



GINGER FITZHUGH

JENNIFER JOCZ

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Executive Summary

With funding from the NASA Science Mission Directorate's (NASA SMD) Science Activation program, the Space Science Institute (SSI) launched *NASA@ My Library* in 2016. *NASA@ My Library* aims to help public libraries increase NASA and STEM learning opportunities for library patrons throughout the U.S., including those in geographic areas and from populations currently underserved in STEM education.

In 2022, the *NASA@ My Library* project team received an augmentation from NASA SMD to engage Latinx audiences in learning opportunities related to the annular solar eclipse in October 2023 and the total solar eclipse in April 2024. SSI partnered with three public libraries (referred to in this report as “advisor libraries/librarians”) in Texas to co-develop eclipse kits that were then distributed to an additional 49 libraries in communities with a high percentage of Spanish-speaking and Latinx patrons.

Key findings from the Education Development Center (EDC) evaluation are described below:



The Co-development Process

The co-development process allowed for a diversity of perspectives to inform the project.

Project team members from SSI brought subject matter expertise, while advisor libraries were able to provide input on what worked well in a library context. Advisor libraries helped to ensure that materials were accessible and relevant to library settings in general as well as specifically to Spanish-speaking and Latinx communities.

Advisor librarians gained confidence, made connections, and shared their experiences with others.

Libraries appreciated the resources they received and felt more confident implementing activities themselves because of the support they received and because they had a chance to try out the activities. Advisors, in turn, shared the knowledge they gained with colleagues.

Advisor librarians would have appreciated more clarity in their role and the goals of the co-development process.

The main challenge noted by advisor librarians was that they would have liked to have greater understanding about the expectations for their role and clear goals to work towards.

Co-development takes time and benefits from multiple modes of engagement.

Project team members indicated that the co-development process took longer than expected. It also involved multiple modes of communication and engagement, including virtual biweekly meetings for the advisors and project team, in-person meetings with the advisor libraries and representatives from their communities, and a platform for soliciting asynchronous feedback and ideas from advisor libraries.



Reaching Libraries with *NASA@ My Library* Eclipse Kits

Libraries implemented over 640 eclipse-related programs and reached over 36,000 patrons with *NASA@ My Library* activities and programs.

The vast majority of libraries used the kits both on the days of the annular and total solar eclipses as well as during the weeks and months leading up to the eclipses.

The project reached libraries that had limited or no experience hosting STEM activities or programs featuring NASA resources.

Nearly half of kit libraries reported that, prior to *NASA@ My Library*, they were “somewhat” or “not at all” experienced with STEM programming and had not hosted activities or programs specifically featuring NASA resources.

Libraries had positive experiences with the eclipse kits.

Most libraries said the kits met their needs and were easy to use. All libraries reported that they were at least “somewhat likely” to use kit materials again in the future, and most (74%) indicated that it was “very likely.”

Libraries reported their patrons had positive experiences with the eclipse kits.

Most libraries perceived that their patrons were engaged; learned about Earth and space science, including the science of eclipses; and seemed interested in learning more about Earth and space science.



Reaching Latinx Audiences

Many kit libraries had success engaging Latinx audiences.

Nearly two-thirds (63%) of kit libraries reported they were “moderately” or “very” successful in their efforts to reach Latinx and Spanish-speaking audiences using *NASA@ My Library* resources.

Kit libraries indicated that having accessible materials was key to engaging Latinx and Spanish-speaking audiences.

Libraries described how having Spanish language materials helped them engage with Spanish-speaking patrons, including new patrons.

Kit libraries utilized relationships with community partners to host activities and reach Latinx and Spanish-speaking audiences.

About half of the kit libraries hosted programs or activities in the community and many of these community events were specifically trying to engage Latinx and Spanish-speaking audiences. About one-third of libraries partnered with organizations that serve Latinx and Spanish-speaking audiences; a few libraries hosted guest presenters or facilitators from these communities.

Libraries also reported challenges to engaging Latinx and Spanish-speaking audiences.

Some kit libraries faced challenges or wanted additional guidance about how to engage Latinx audiences. Some were unsure about how to begin this outreach or to utilize community connections.

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Introduction and Project Overview

With funding from the NASA Science Mission Directorate's (NASA SMD) Science Activation program, the Space Science Institute (SSI) launched *NASA@ My Library* in 2016. The vision of *NASA@ My Library* is to help public libraries increase NASA and STEM learning opportunities for library patrons throughout the U.S., including those in geographic areas and those from populations currently underserved in STEM education.

In 2022, the *NASA@ My Library* project team received an augmentation from NASA SMD to engage Latinx audiences in learning opportunities associated with the annular solar eclipse in October 2023 and the total solar eclipse in April 2024. SSI partnered with three public libraries in Texas (referred to in this report as “advisor libraries/librarians”) to co-develop eclipse kits that were subsequently distributed to an additional 49 libraries around the U.S. located in communities with a high percentage of Spanish-speaking and Latinx patrons.

Evaluation Overview

Education Development Center (EDC) is conducting the external evaluation of *NASA@ My Library*. For the augmentation period of 2022-2024, the evaluation focused on: (1) documenting and understanding the co-development partnerships SSI established with the three advisor libraries; (2) providing formative feedback to the project team to inform their development of the eclipse kits and associated training support for libraries receiving the kits; and (3) evaluating the effectiveness of the project in reaching Latinx audiences with NASA materials.

The evaluation utilized mixed methods to investigate the implementation of the project and its outcomes. To understand the co-development process, the evaluation team conducted interviews with library staff from each of the three advisor libraries; interviewed the *NASA@ My Library* PI and co-lead from SSI; observed an in-person workshop for the co-development library staff and their potential community partners; and attended bi-weekly planning meetings with the co-development library staff and SSI project team. To evaluate the project's impact, the evaluation team conducted a focus group with a sample of library staff from five of the 49 libraries that received eclipse kits, and administered post-surveys to library staff from all the libraries that received eclipse kits (including the three co-development advisor libraries). Appendix A describes the methodology in more detail, including when the data collection instruments were administered and participation rates. Institutional Review Board approval was received for the evaluation plan and instruments before data collection began.

Findings

The findings are organized into three major sections: (1) the kit co-development process; (2) expanding NASA's reach through libraries; and (3) reaching Latinx audiences.

Co-Development Process

Implementation of the Co-development Process

The *NASA@ My Library* team engaged librarians from three Texas public libraries (San Antonio, Comfort, and Hondo) to serve as advisors and co-developers. These libraries were chosen because they were in an area of the country that would experience both the annular solar eclipse (on October 14, 2023) and the total solar eclipse (on April 8, 2024).¹ These libraries also had past experience providing space-science and NASA-related programming to patrons and had worked with the project team on similar projects. Finally, these libraries also had existing community connections that would help inform efforts to engage Latinx and Spanish-speaking audiences.

The goal of the co-development process was for project staff to work with advisor libraries to identify activities that could be developed or adapted to better engage a Spanish-speaking audience. From October 2022 to July 2023, the *NASA@ My Library* team met regularly via Zoom with representatives from the three advisor libraries. Between these meetings, advisor libraries asynchronously reviewed, tested, and provided feedback on resources and materials. The *NASA@ My Library* team also had two in-person meetings with the advisor libraries together with their community partners to further discuss how libraries and their partners could support one another to provide eclipse programming.

In interviews with the evaluation team, all advisor librarians described how they saw their role as mainly to offer feedback. They reviewed resources SSI suggested, tested activities with their own patrons, and made suggestions for improvements. For example, one librarian suggested translating the instructions for the sun spotters into Spanish. All advisor libraries also contributed to a book list associated with the kit.

Benefits of the Co-development Process

The co-development process allowed for a diversity of perspectives to inform the project

Advisor libraries felt that one of the main ways they contributed was by ensuring that materials were accessible and relevant to a library setting in general as well as to Spanish-speaking communities specifically. For example, advisor libraries encouraged the team to translate instructions and activities (e.g., sun spotter instructions, sorting game) into Spanish and suggested including materials that represented a variety of Hispanic and indigenous cultures (e.g., incorporating a postcard representing Mayan representations of constellations in Guatemala). The project team also appreciated these contributions, describing to the evaluation team how the feedback from advisor libraries helped them focus “outside of the main Western way of viewing the sky, constellations, and what stories are told about eclipses.” In response to this feedback, the

¹ The project team referred to this area as the “Square of Awesomeness.”

team included new books, developed new activities, and translated additional materials and resources into Spanish.

Advisor libraries also mentioned the importance of having flexible activities that are easy to facilitate with a variety of audiences. One way they felt they contributed to this goal was by advising the team to include two sun spotters instead of two telescopes in the library kits (a question that the project team specifically posed to the advisor libraries). One librarian reported that although she felt the project team was initially leaning towards providing two telescopes, they ultimately settled on two sun spotters because they are easier for library staff and patrons to use and more cost effective.

Advisor libraries shared that they appreciated having a diversity of perspectives involved in the co-development process. They described how project team members from SSI brought subject matter expertise, while advisor libraries were able to provide input on what worked well in a library context. One library noted the value of also including community partners who provided input. Advisor libraries noted the benefits of having other libraries involved so that they could share the work and bounce ideas off of one another.

Advisor librarians gained confidence, made connections, and shared their experiences with others

Libraries appreciated the resources they received and felt more confident implementing activities themselves because of the support they received and because they had a chance to try out the activities. One advisor librarian also noted that they have learned a lot about solar science through their work with the project team, saying, “I’ve learned so much. I’ve learned how to set up equipment...and had the opportunity to share with our teammates.”

Advisor librarians also shared their experiences with colleagues. They presented at the American Library Association conference; shared their perspectives during a training for libraries receiving the *NASA@ My Library* kit; and shared resources with staff at their library, members of their community, and other libraries around the country (e.g., by posting on social media). One advisor mentioned that they had conversations with the other advisor librarians outside of project meetings and appreciated that this allowed them to develop their network and build relationships.

Through sharing about their experience, advisor librarians served as mentors for other libraries. The project team described that advisor librarians were contributing to conversations on the project community page and in webinars which positioned the advisor librarians as mentors and leaders.

Co-development Challenges and Considerations

Advisor librarians would have appreciated more clarity in their role and the goals of the co-development process

The main challenge noted by advisor libraries was that they would have liked more clarity about their role and clear goals to work towards. They felt that communicating clearer expectations for

advisor libraries, including providing more advanced notice about what types of input they would be expected to provide during meetings, would have helped them feel prepared and comfortable with the process. Although they noted that having some uncertainty and flexibility can be beneficial, they overall would have liked a clearer picture of what specifically they were working towards and how they were expected to contribute.

Co-development takes time and benefits from multiple modes of engagement

Project team members shared that the co-development process took longer than expected and required multiple modes of communication and engagement. They utilized biweekly virtual meetings, in-person meetings, and asynchronous feedback and ideas from advisor libraries. The project team felt each engagement strategy used in the co-development process was valuable for building relationships and understanding the libraries and their communities. However, in the future, they would include more time in the project timeline for the co-development process.

Expanding NASA Reach Through Libraries

Public libraries were selected to receive the Bilingual (Spanish/English) Solar Science Kits through an application process. For the purpose of this report, these libraries will be referred to as “kit libraries.” A total of 79 applications were received and 49 libraries were chosen.² The evaluation team conducted interviews and focus groups with a total of five kit libraries following the annular solar eclipse and administered a survey to all kit libraries following the total solar eclipse. Completed surveys were submitted by 35 of the 52 libraries that received kits (the 49 kit libraries plus the three advisor libraries; a 67% response rate). This section summarizes the findings from the library survey and focus groups/interviews.

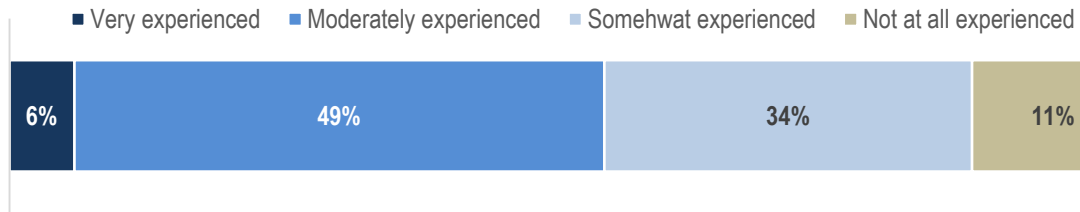
Engaging Public Libraries with *NASA@ My Library* Kits

The project engaged a number of libraries with limited or no experience hosting STEM activities or programs featuring NASA resources (Figure 1 and Figure 2). Based on survey results, nearly half of kit libraries reported that, prior to *NASA@ My Library*, they were “somewhat” or “not at all” experienced with STEM programming (45%) and had not hosted activities or programs specifically featuring NASA resources (43%).

² The three advisor libraries also received eclipse kits as part of the co-development process.

Figure 1. Nearly half of libraries had limited experience with STEM programming.

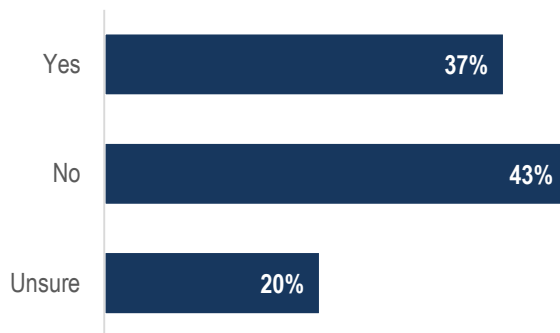
Question: How would you rate your library's overall experience hosting STEM programming prior to participating in NASA@ My Library and receiving the Bilingual Solar Science kit?



Source: 2024 Kit Library Survey (n = 35)

Figure 2. Many libraries had not previously featured NASA resources activities or programs.

Question: Prior to joining NASA@ My Library and receiving the Bilingual Solar Science kit, had your library hosted activities or programs specifically featuring NASA resources?



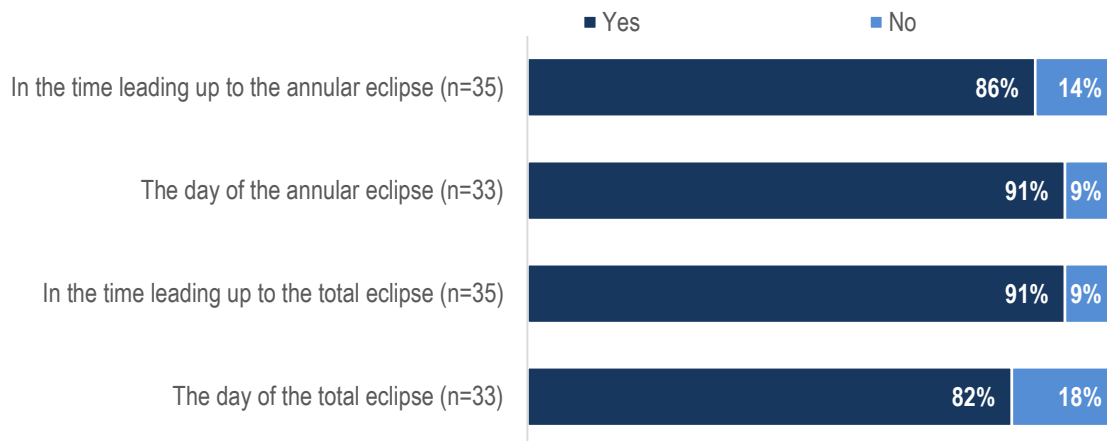
Source: 2024 Kit Library Survey (n = 35)

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The vast majority of libraries used the kits both on the days of the annular and total solar eclipses as well as during the time leading up to the eclipses (Figure 3). The main reasons libraries offered for not using the kits were that they were not open the day of the eclipse, they had time or staffing limitations, or there was limited visibility of the eclipse(s) due to weather or not being on the path of totality.

Figure 3. Most libraries used kits both on eclipse days and in the time leading up to eclipses.

Question: Did your library use materials specifically from the Bilingual Solar Science Kit for programming during these timeframes?



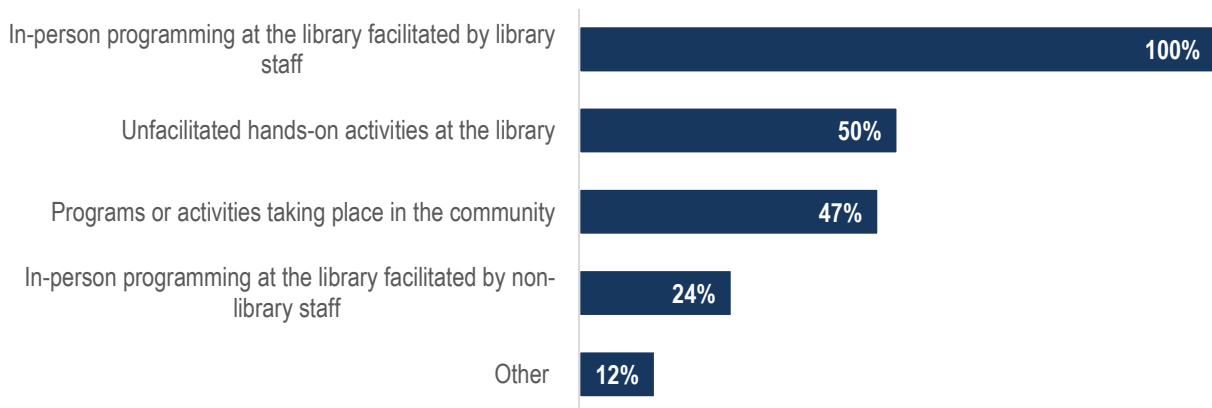
Source: 2024 Kit Library Survey

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Based on survey responses, kit libraries offered over 640 programs and reached over 36,000 patrons with *NASA@ My Library* activities and programs. All libraries used kit materials for in-person programming at the library that were facilitated by library staff (Figure 4). About half also offered unfacilitated activities at the library (e.g., an activity station) and/or provided programs in the community (e.g., at a community organization or event). Libraries were less likely to offer programs at the library facilitated by non-library staff (e.g., guest speakers).

Figure 4. All libraries used kit materials for in-person programming at the library.

Question: In what ways did you use materials from the Bilingual Solar Science Kit?



Source: 2024 Kit Library Survey (n = 34)



NASA@ My Library libraries that received
bilingual eclipse kits offered

640 programs

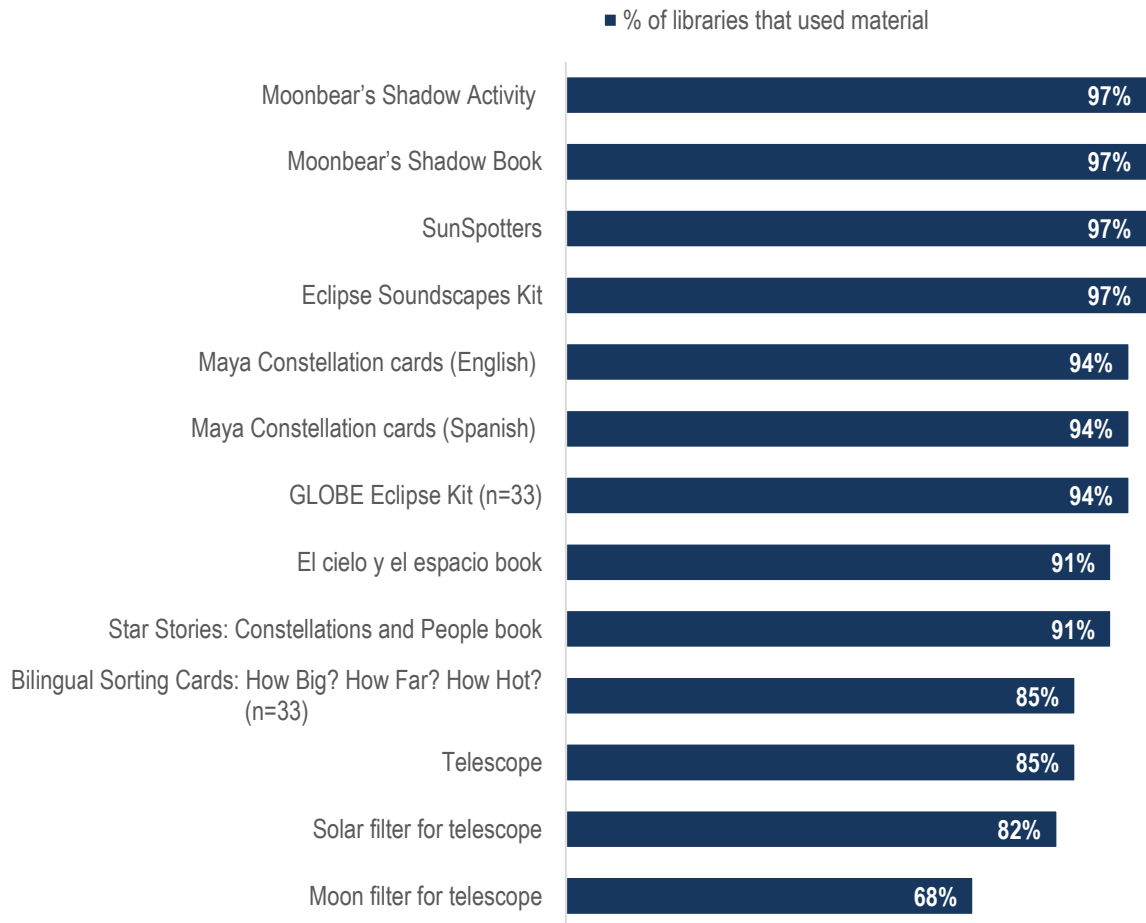
and reached

36,000 patrons

The majority of libraries used almost all of the resources and materials in the kit (Figure 5). The material that was used least was the moon filter for the telescope (used by 68% of libraries).

Figure 5. **Libraries utilized most of the materials and resources in the kit.**

Use of Bilingual Solar Science Kit materials

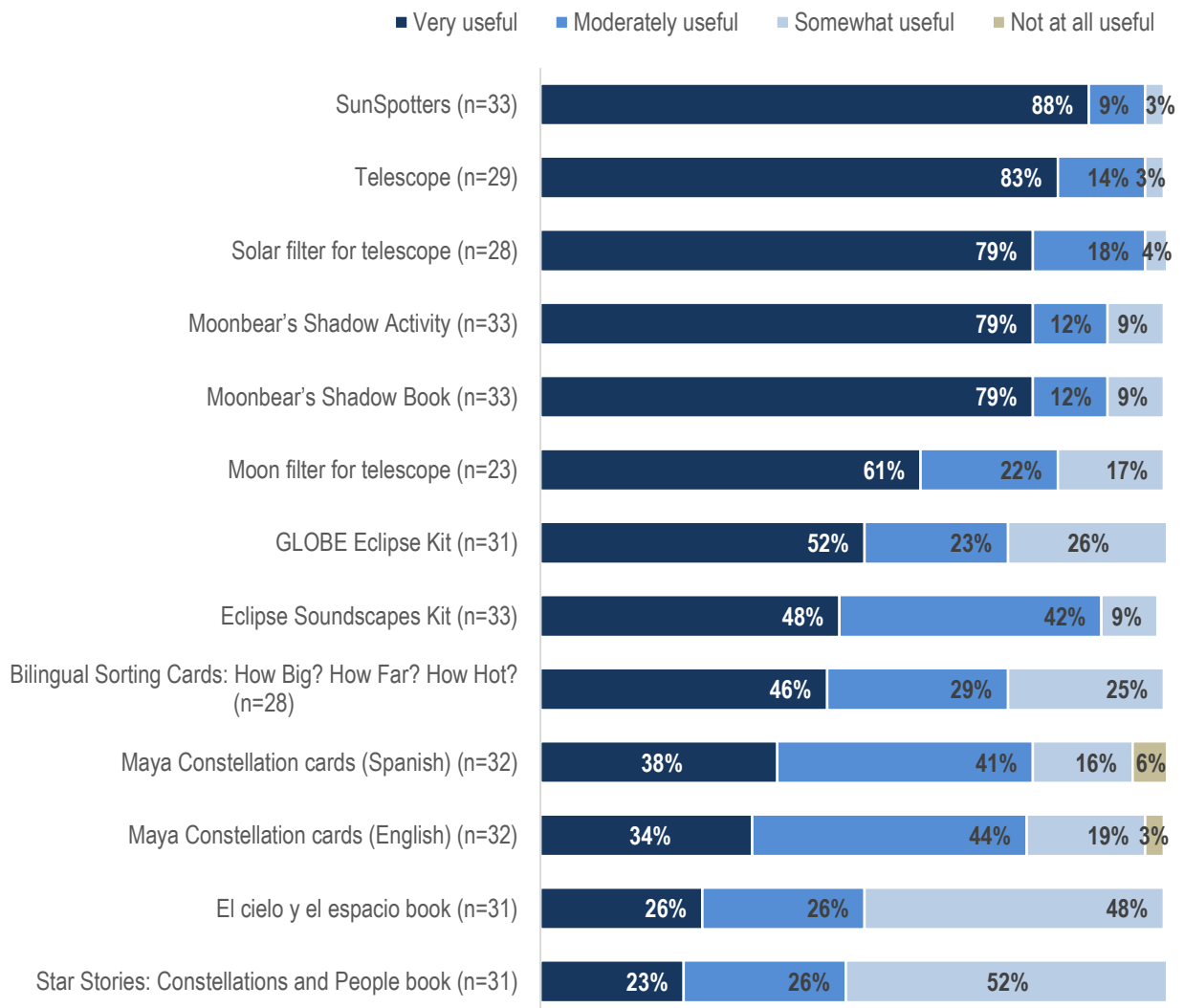


Source: 2024 Kit Library Survey (n=34 unless otherwise indicated)

In general, tools and activities were viewed as most useful (Figure 6). The two books not associated with an activity were viewed as least useful, while the book associated with Moonbear's Shadow activity was viewed as useful.

Figure 6. Tools and activities were viewed as especially useful.

Question: How useful did you find the following materials from the kit?



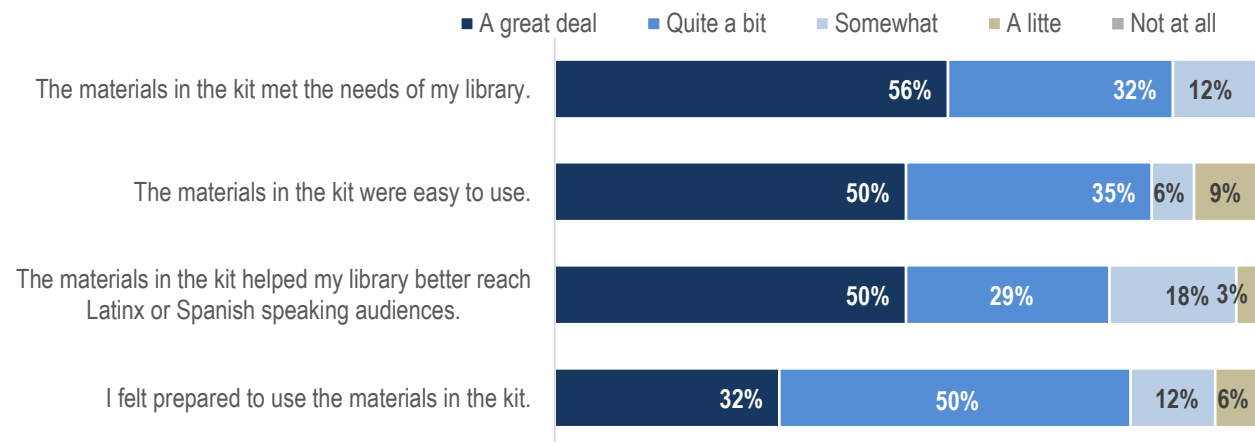
Source: 2024 Kit Library Survey

Experience with *NASA@ My Library Kits*

In general, libraries had a positive experience with the project and the kits. Most libraries said the kits met their needs and were easy to use (Figure 7). Libraries were relatively less likely to indicate that they felt prepared to use the materials in the kit, although the majority of respondents still indicated that they were at least “quite a bit” prepared.

Figure 7. Kits met the needs of libraries and were easy to use.

Question: Please select how much the statements below are true for you.

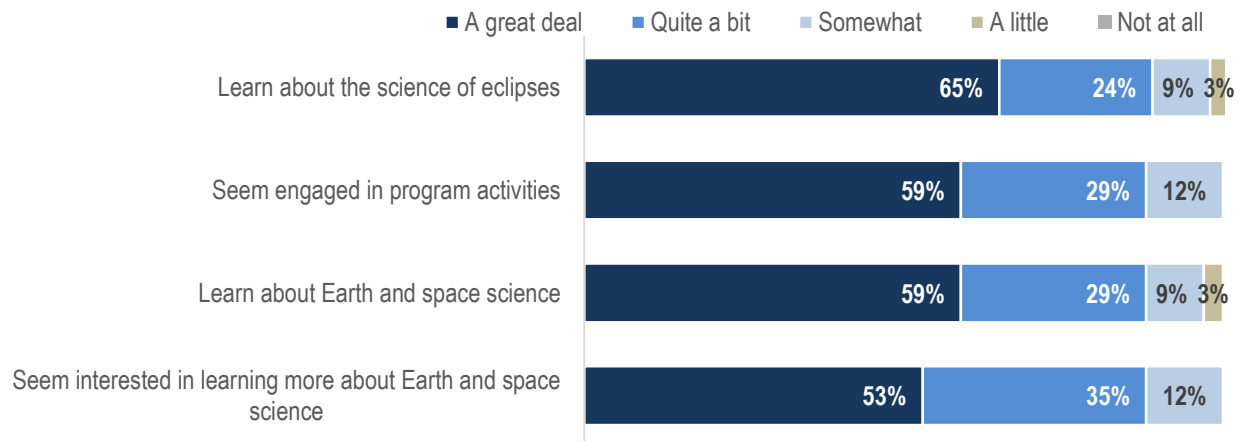


Source: 2024 Kit Library Survey (n = 34)

Most libraries also perceived that their patrons were engaged; learned about Earth and space science, including the science of eclipses; and seemed interested in more about Earth and space science (Figure 8).

Figure 8. Libraries felt the kits helped patrons engage with and learn about Earth and space science.

Question: In your opinion, to what extent did patrons at your library's NASA@ My Library programs...

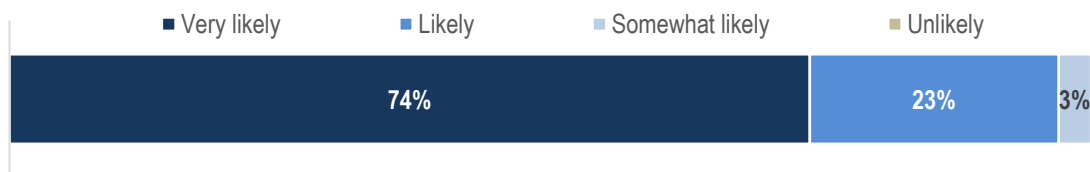


Source: 2024 Kit Library Survey (n = 34)

All libraries reported that they were at least somewhat likely to use kit materials again in the future, and most (74%) indicated that it was very likely (Figure 9).

Figure 9. Libraries are very likely to continue using kit materials.

Question: How likely is it that your library will use materials from the kit again in the future?



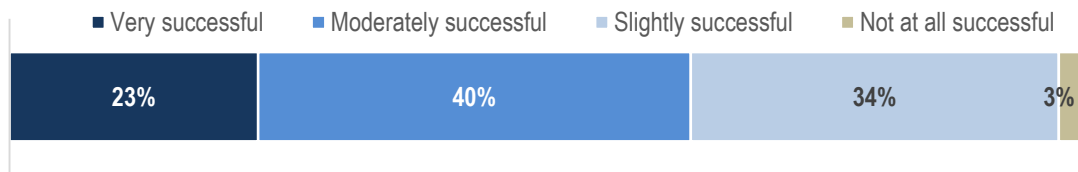
Source: 2024 Kit Library Survey (n = 35)

Reaching Latinx Audiences

Overall, kit libraries had success engaging Latinx audiences. On the survey, nearly two-thirds (63%) of kit libraries reported that they felt they were “moderately” or “very” successful in their efforts to reach Latinx and Spanish-speaking audiences using *NASA@ My Library* resources (Figure 11).

Figure 11. Nearly two-thirds of libraries felt they were at least moderately successful at engaging Latinx and Spanish-speaking audiences.

Question: Overall, how successful do you feel your library was in reaching Latinx and Spanish-speaking audiences?



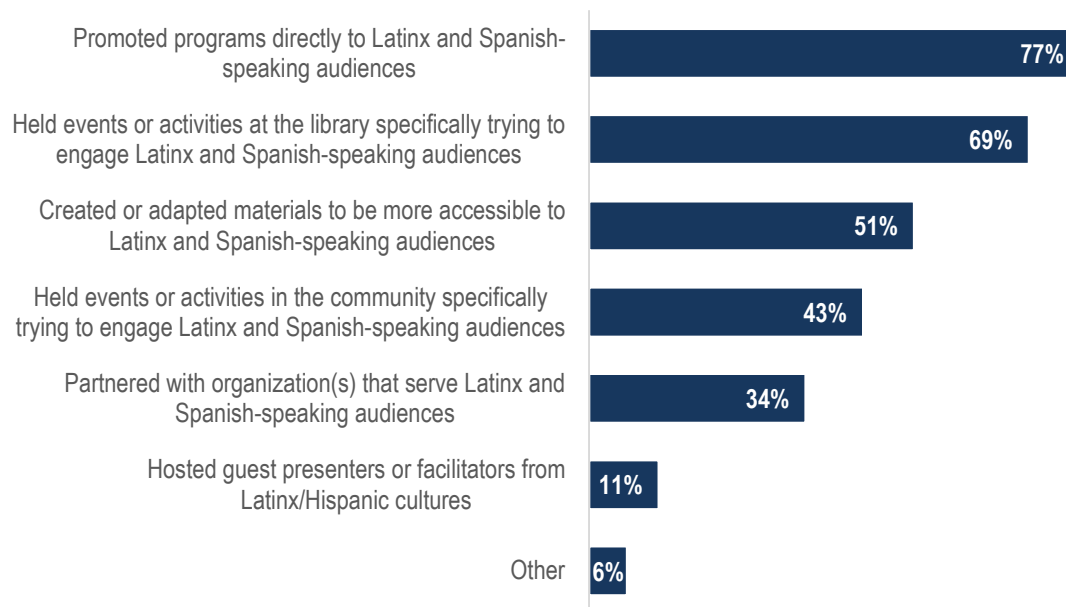
Source: 2024 Kit Library Survey (n = 35)

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The most common engagement strategies libraries used were to promote programs directly to Latinx and Spanish-speaking audiences and to hold activities at the library that were specifically trying to engage these audiences (Figure 12). One library described holding a program for their Spanish-speaking community which engaged 75 individuals. Another library described how they were able to reach Spanish-speaking families that had not participated in their programming before. Relatively fewer libraries partnered with organizations that serve Latinx and Spanish-speaking audiences (34%) or hosted guest facilitators from Latinx/Hispanic cultures (11%).

Figure 12. Promoting and hosting activities specifically to Latinx and Spanish-speaking audiences were the most used engagement strategies.

Question: In what ways has your library been able to use NASA@ My Library resources to reach these audience?



Source: 2024 Kit Library Survey (n = 35)

Having materials in Spanish and English supported engagement of Latinx and Spanish-speaking audiences

Kit libraries shared that having accessible materials was a main factor that aided their ability to engage Latinx and Spanish-speaking audiences. Libraries said having Spanish language materials helped them engage with Spanish-speaking patrons, including new patrons. One library described how they were the only organization in their community to have Spanish-language eclipse resources. Two other libraries shared:

“Due to the additional eclipse material provided by the grant, the library was successful in reaching Spanish-speaking audiences. The instructions and Spanish literature allowed for the library to provide dedicated bilingual eclipse programs for patrons, resulting in higher attendance and informative outreaches.” (Kit library survey)

“By promoting our events in Spanish, we were able to bring in some Spanish-speaking families that had not participated in our programs before.” (Kit library survey)

In focus groups, librarians also described ways they used kit materials to specifically engage Spanish-speaking audiences. For example, one Spanish-speaking librarian translated *Moonbear’s Shadow* into Spanish and read it on the library’s dial-a-story line. The same librarian presented a program in Spanish at a school that has a large proportion of Spanish-speaking students, and used the event to promote the library’s day-of eclipse event that would be held at a location that was more accessible to Spanish-speaking families. The librarian mentioned that Spanish-speaking patrons told her that the program “felt like it was aimed for me” and that they wouldn’t otherwise have had access to these materials.

Another librarian described how the bilingual kit materials helped serve as a bridge between individuals who speak only English and those who speak only Spanish. Specifically, they mentioned that the bilingual materials were useful when they were unable to have Spanish-speaking staff members at a program or activity. They also noted that they observed English-speaking patrons using the bilingual constellation cards to learn the Spanish translations.

“The viewing party held at the library was such a well-attended event and it was more than just our “regulars,” so we were able to reach members of the community that don’t always come to the library. Having the bilingual materials available to them made it that much better, too, because we were able to send them home with materials that they could use. There were so many people here to view the eclipse and it was such a memorable event! I definitely felt more prepared for [the eclipse] after all of the training/materials provided.”

~Librarian

Some kit libraries utilized community partners to engage Latinx and Spanish-speaking audiences

Some libraries also worked with community partners, including schools, local businesses, and other community-based organizations. Libraries worked with community partners in a variety of ways including offering kits and programming to the organizations, working together for promotion, and networking and resource sharing. For example, some libraries provided kits and conducted programming with schools or took activities to other community organizations and events. These partnerships allowed libraries to promote programs and bring activities out into the community. For example, one kit library took materials to a Boys & Girls Club which serves a large portion of Hispanic youth in their community. Another library shared:

“We had a captive audience of Spanish speakers at the school we presented. We feel like presenting at the school opened up future opportunities to bring other space/STEM programs to the school as well as marketing the library for their use.” (Kit library survey)

Some libraries found that the success they had with annular eclipse events helped build interest from community members and organizations. As one librarian shared that their annular eclipse programming helped attract a large swath of community partners:

"We got the new city manager, the police department came out, and people from Parks & Rec came. Now they're all excited about participating in the [eclipse] in April. Getting them to that first event, if you can get that done, then you can build on that. [You can show], 'this is success,' how it's benefiting students and the community, and then they buy in better." (Library staff interview)

There are some data to suggest that kit libraries utilized relationships with community partners to both host activities as well as engage with Latinx and Spanish-speaking audiences. About half the kit libraries hosted programs or activities in the community (Figure 4, on page 7) and many of these community events were specifically trying to engage Latinx and Spanish-speaking audiences (Figure 12, on page 13).

Challenges to engaging Latinx and Spanish-speaking audiences

Libraries also reported some challenges to engaging Latinx and Spanish-speaking audiences, and requested supports that they thought would help them better engage these audiences. The main resource that was requested was more translated materials, including promotional materials. Although many materials were already provided in both English and Spanish, kit libraries would have liked if all materials had been translated, including promotional materials and posters.

Some kit libraries faced challenges or were seeking additional guidance about how to engage Latinx audiences. Some were unsure about how to begin this outreach, including how to make connections and utilize community connections. As previously noted, a relatively smaller proportion of libraries partnered with organizations that serve Latinx and Spanish-speaking

audiences (34%) or hosted guest presenters or facilitators from these cultures (11%) (Figure 12, on page 13).

One librarian noted that she learned during a community event that the majority of Hispanic individuals in her community do not speak Spanish and do not view themselves as different from others in the community, which made it difficult for her to identify ways to specifically engage this group. Others had made attempts to engage Latinx audiences with limited success and were seeking support with next steps.

Considerations

Involving librarians as advisors and co-developers appears to have been mutually beneficial for the project team and the librarians, and could be considered for future projects. Advisor librarians grew their capacity to organize and facilitate STEM programming. Reviewing and testing activities gave them experience and increased their confidence, which then led them to share and connect with others (e.g., at conferences, on social media, in their community). The project benefited from having librarians' perspectives in that they were able to remind the project team of what would work practically in library settings and how to make materials more accessible to Spanish-speaking audiences. A similar model could be used in future projects to support the capacity building of librarians and strengthen the overall project.

More clarity around the role of co-developer librarians is needed. Although advisor librarians did not face major issues, they did note some confusion around their overall role in the project. Outlining and communicating clear expectations to advisor libraries and how these connect to the project's goals could help reduce this confusion in future efforts.

Reaching Spanish-speaking populations was a challenge and librarians could benefit from more support in this area. About one third of the kit libraries indicated that they were slightly or not at all successful in reaching Latinx and Spanish-speaking audiences. Similarly, although advisor libraries made some connections with individuals and organizations in their community, they were less successful at utilizing these partnerships to specifically reach the Spanish-speaking population in their community. The project team could consider how to support library staff in thinking through different ways they can strengthen their outreach to and connections with Spanish-speaking audiences. For example, providing a range of real-life examples from a variety of different libraries (e.g., during a webinar) could be helpful in providing partner libraries with ideas for engaging this audience.

Appendix A: Evaluation Instruments

Table 1. NASA@ My Library Instruments and Timeline for Administration

Instrument	Purpose	Administration Details	Responses Received
Interview NASA@ My Library PI and co-project lead	Document co-development process	December 2023 (after annular eclipse and before total solar eclipse)	One interview with 2 staff
Interview each of the advisor co-development librarians	Ask about libraries' involvement in developing eclipse materials and activities, coordination with their communities, implementation during annular eclipse, and lessons learned for total eclipse regarding programming and community partnerships	January 2024 (after annular eclipse and before total solar eclipse)	3 interviews with 1 library staff member each
Focus group and interviews with sample of library staff from libraries receiving kits	Ask about libraries' implementation during annular eclipse, use of kits, and lessons learned for total eclipse regarding programming and community partnerships	January 2024 (after annular eclipse and before total solar eclipse)	5 libraries represented: focus group with 3 library staff and individual interviews with 2 library staff
Administer survey to all libraries receiving eclipse kits	Ask about libraries' implementation leading up to and during the annual and total eclipses, use of kits, and lessons learned	April 2024 (after both annular and total solar eclipses)	35 of the 52 kit libraries, including the 3 advisor libraries (67% response rate)
Observe advisor meetings and training webinars for kit libraries	Document co-development process and professional development	November 2022 – May 2024	N/A