

LOS ANGELES COUNTY OFFICE OF EDUCATION  
AFTER SCHOOL TECHNICAL ASSISTANCE UNIT

**Examining STEM Education in Publically Funded  
Expanded Learning Programs in LA County:  
Current Status, Challenges, and Next Steps**

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## EXECUTIVE SUMMARY

The current study was commissioned by the ASTAU in order to establish a baseline of how STEM learning opportunities are being implemented in publically funded expanded learning programs across LA County. This study was also designed to provide important information regarding the types of existing partnerships supporting STEM learning in these programs and the types of challenges and supports/resources needed for improving and expanding the STEM learning opportunities available to students.

A total of 120 respondents, representing program and site level leadership, provided data for this study. These respondents represented 43 of the 156 grantees served by the ASTAU. The sample represented three program levels (elementary, middle, and high school).

In general, findings were very positive. 89% of respondents reported feeling that it is VERY important to integrate STEM into regular program activities. The results are summarized thematically below.

### **Dosage:**

- ✓ STEM learning appears to be a regular, weekly experience for the programs represented in this sample.
- ✓ Between 51-100 students are participating in STEM learning opportunities on a weekly basis at the program sites represented in this study.

### **Types of STEM Learning Opportunities:**

- ✓ The findings revealed that there is a diverse array of STEM learning opportunities currently being offered at the program sites represented in this sample.
- ✓ The most commonly reported types of STEM learning opportunities were hands-on projects/activities, collaborative group work, and project-based learning.
- ✓ 72 % of respondents reported that STEM learning is integrated into existing activities/projects
- ✓ 63% of respondents reported that STEM learning is implemented as a stand alone learning experience
- ✓ 42% of respondents reported that their program has adopted a particular STEM curriculum

### **Assessing STEM Learning:**

- ✓ The most commonly reported student outcome for STEM learning opportunities was improved 21<sup>st</sup> century skills including problem-solving and critical thinking.

- ✓ Student surveys emerged as the most commonly reported type of assessment measure and was closely followed by student work.
- ✓ 20% of respondents reported administering parent surveys and 12% reported using teacher surveys.
- ✓ Site Coordinators emerged as the most commonly reported stakeholder responsible for data collection.
- ✓ The largest group of respondents (81%) reported that it is being used to improve program design.
- ✓ Close to 40% of respondents reported sharing the data with principals and funders.

#### **Staff Implementing STEM Learning:**

- ✓ The largest groups of respondents reported that line staff are primarily responsible for implementing STEM learning opportunities all of the time.
- ✓ With regard to qualifications for the stakeholders implementing STEM learning, the majority (71%) of respondents reported that there were not any requirements.

#### **Technology and Internet Access:**

- ✓ Respondents provided information about access and the findings indicate that Internet access is available all of the time for 62% of respondents and that computers are available all of the time for 45% of respondents.
- ✓ The school computer lab (64%) emerged as the most commonly reported access point for the programs represented in

#### **Collaborative Partnerships:**

- ✓ The two most salient types of partnerships were with school day staff (teachers and principals) and with community organizations.
- ✓ Less than 30% of respondents reported having partnerships with local science centers/museums, colleges/universities, and/or industry.
- ✓ The most commonly reported type of support was curriculum followed by access to resources such as technology or learning materials.
- ✓ Close to 30% of respondents reported that partners provided guest speakers, field trips, and/or support with lesson planning.

**Professional Development:**

- ✓ Findings reveal that the respondents engaged in a variety of professional development opportunities to varying degrees.
- ✓ The most commonly reported support services were trainings related to integrating STEM into existing program activities and on specific STEM curricula

**Challenges:**

- ✓ The findings revealed that the availability of qualified staff and access to resources, curricula, and materials were the most prevalent challenges for most respondents.
- ✓ For each challenge, respondents differed in their rating of the extent to which is a barrier.

**Needs:**

- ✓ Training emerged as the most commonly cited need and was closely followed by the need for more information and resources.
- ✓ Close to 50% of respondents reported needing coaching and/or site visits to model sites in order to improve and/or expand the STEM learning opportunities at their site.

## INTRODUCTION

In 2016, STEM education continues to be an integral component in both formal and informal learning contexts. Research has established the value of expanded learning contexts (after school programs) as critical partners in providing quality STEM learning experiences for students. Given their informal design, expanded learning programs are uniquely suited to create relevant, hands-on STEM learning opportunities for students that build important background and experiential knowledge while also igniting student interest in STEM careers.

A 2012 study marked the first ASTAU effort to systematically examine the status of STEM education in those expanded learning programs served by the Unit. Now, four years later, it is important to obtain new information about the state of STEM learning in these programs. In 2016, the LACOE ASTAU team provides technical assistance for 156 grantees (for a total of 1800 program sites). This is a dramatic increase since the 2012 study, which merits the collection of current data that will then inform the development of a new STEM strategic plan. This plan will guide the work of the ASTAU moving into 16-17 and beyond.

In order to gather this important information, the current study was to address the following research questions:

1. How are STEM-related learning opportunities currently being offered in LA County expanded learning programs?
  - a. What is the frequency?
  - b. What is the format?
  - c. What is the model (integrated vs. stand alone)
  - d. What are the outcomes?
  - e. Who is implementing these learning opportunities?
    - i. What (if any) credentials are required (e.g., degree, STEM-related work experience) for staff implementing these learning opportunities?
2. How accessible is technology and the Internet at LA County expanded learning program sites?
  - a. How are computers accessed?
  - b. How prevalent is reliable Internet access?
  - c. What other forms of technology (e.g., iPads, chrome books) are available and to what extent?
  - d. Where is technology accessed (e.g., labs, classrooms, mobile carts)?
3. What kinds of partnerships currently exist to support STEM-related learning opportunities in LA County expanded learning programs?
4. What kinds of professional development are being offered to those implementing STEM-related learning opportunities at LA County expanded learning programs?

5. How are STEM-related learning opportunities being evaluated?
  - a. What tools are being used?
  - b. Who conducts the evaluation?
  - c. How is the data utilized?
6. What are the current challenges impacting the implementation of STEM-related activities within LA County expanded learning programs?
7. What types of support and/or resources do LA County expanded learning programs need in order to move forward with implementing STEM-related activities?
8. How important do LA County expanded learning program staff feel it is to integrate STEM-related learning opportunities into regular program activities?

The content of this report was provided by after school program and administrative staff from ASES and 21<sup>st</sup> CCLC funded after school programs throughout Los Angeles County. The information shared by these participants has been synthesized in this report and is presented in sections organized by research question and thematic category. More specifically, this report provides information about the current status of STEM-related learning opportunities in after school program activities, suggestions for how to support the continued expansion of such educational efforts, as well as information about other emergent issues meriting further consideration. Study methodology is described in the following sections.

## STUDY DESIGN: METHODS AND SAMPLE

### Methodology

This study was designed to serve as an efficient mechanism for obtaining baseline information about the current status of STEM learning in LA County expanded learning programs. In collaboration with a ASTAU Manager, an independent consultant developed one survey to be administered to program and site level leaders. The instrument consisted of 22 questions all of which were multiple choice except one (which asked for the name of the respondent's district/organization/city). The survey was predominantly administered online between January-February 2016. The ASTAU sent the online survey link to all grantees via email. Multiple email blasts were sent to this grantee group in January and February. Additionally, the survey was administered in hard copy at the ASTAU Advisory Committee Meeting on January 29, 2016 and ASTAU staff manually entered the data into Survey Monkey.

All survey data was exported from Survey Monkey for analysis and reporting.

### Participant Data: Examining the Sample

A total of 120 respondents, representing both program and site level leadership, provided data for this study (see Table 1). These respondents represented 43 of the 156 grantees served by the ASTAU. As such, this sample is not entirely representative of the entire population of LA County expanded learning grantees; however, the data can still be interpreted as a useful snapshot of STEM learning.

The largest group of respondents self-identified as Site Coordinators (59%). Program Directors represented the second largest respondent group. Grant Managers comprised the smallest group of respondents.

*Table 1. Number of Respondents by Position Title*

Position Title	Response Count
Grant Manager	11
Program Director	38
Site Coordinator	71

Respondents were also asked to identify the type of program they worked for (i.e., city, district, CBO, charter). Figure 1 presents the breakdown of respondents by program type and clearly depicts that the largest group of respondents are from district-operated programs. The second largest group of respondents is from CBO-operated programs and the smallest group of respondents reported working for city-operated programs.

Additionally, respondents were asked to identify which students (by grade level) are served at their respective sites (see Figure 2). In terms of program level, the sample reflects the general proportionality of funds allotted in LA County (837 Elementary schools, 321 middle schools, and 106

high schools). That is, elementary school grantees are the largest funded program level and this is reflected in the study sample. 67% of respondents reported working at an elementary school site whereas only 33% reported working at a middle school site and 25% reported working at a K-8 site. Only 8% of respondents reported working at a high school site.

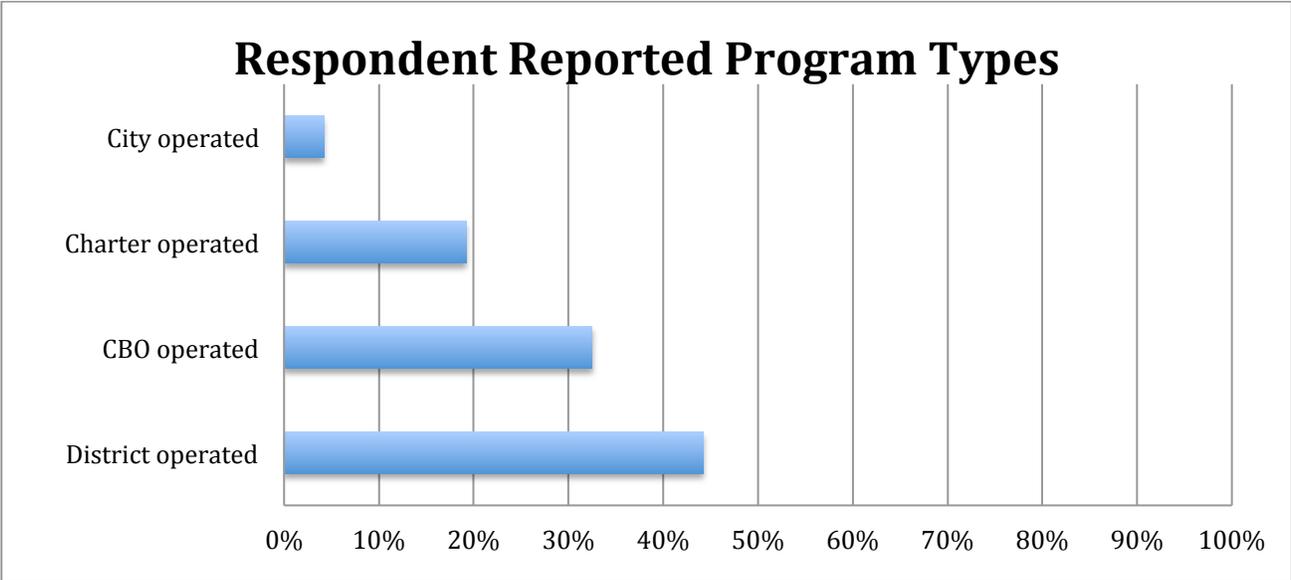


Figure 1. Percentage of respondents selecting each of the program types (N=120).

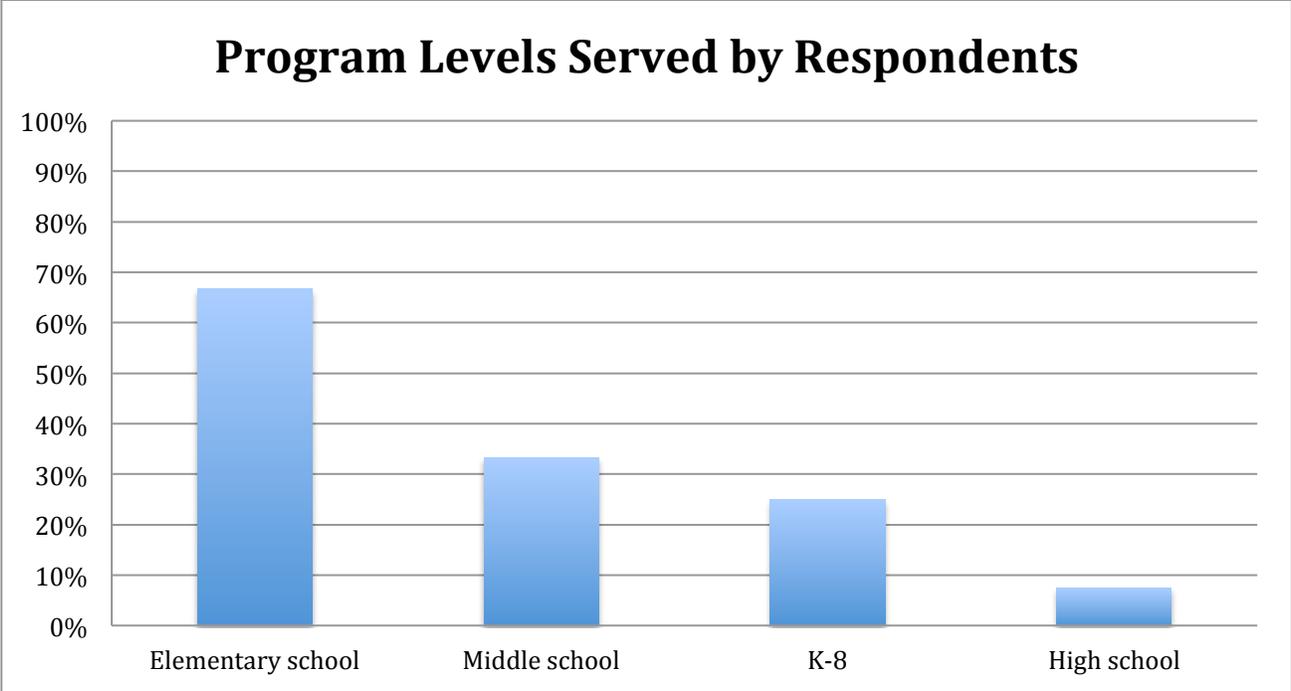


Figure 2. Percentage of respondents identifying each of the program levels served at their sites (N=120).

In order to get a sense of which grantees participated in this study, respondents were asked to provide the name of their district, city, or organization. 92 out of 120 did so. In many cases, multiple entries were made for the same district/city/organization. The following lists contains the names of the districts, cities, and organizations represented in the study sample (names are transcribed verbatim as entered by respondents):

1. ARC
2. Bellflower Unified School District
3. Big Up Kids
4. Boys and Girls Club- Long Beach
5. Celerity Educational Group
6. Celerity Sirius
7. Century Academy for Excellence
8. City of Paramount
9. City of Santa Monica
10. Compton Celerity Dyad
11. Compton Unified School District
  - a. East Whittier School District
12. EduCare Foundation
  - a. El Rancho School District
13. Glendale Unified School District
14. Global Education Academy
15. Green Dot Public Schools
16. ICES
17. Ingenium Schools
18. Inglewood Unified School District
19. Institute for Student Success
20. LA Corps
21. Lancaster School District
22. Lawndale Elementary School District
  - a. Little Lake School District
  - b. Long Beach
23. Long Beach Unified School District
24. Los Angeles Academy of the Arts and Enterprise
25. Los Angeles Apple Academy Charters Public School
26. Los Angeles Celerity Cardinal
27. Los Angeles Celerity Nascent
28. Los Angeles Celerity Octavia
29. Los Angeles Celerity Troika
30. Los Angeles Unified School District
  - a. Los Nietos School District
31. Lynwood Unified School District
32. Pasadena LEARNS
33. Prepa Tec- Huntington Park
34. PUC schools
35. RISE

36. Rosemead School District
  - a. South Whittier School District
37. SSI
38. Sun Valley Celerity Palmati
39. Think Together
40. Whittier City School District
41. Wilsona School District
42. Woodcraft Rangers
43. YPI

## FINDINGS

This section provides the survey results by research question. All data is presented under the research question it was designed to address. A synthesis of findings can be found in the subsequent section on recommendations and next steps.

### ***Research Question 1: How are STEM learning opportunities currently being offered in LA County Expanded Learning Programs?***

Respondents were asked a series of questions related to how often students engaged in STEM learning opportunities at the program site. Findings indicated that the largest group of respondents (41%) reported offering STEM learning opportunities to students 2-3 times/week. Relatively smaller groups of respondents reported that STEM learning opportunities are offered once/week and/or every day. Very few reported that it only occurred once a month or not at all. ***These findings are very positive in that they suggest in general that STEM learning appears to be a regular, weekly experience for the programs represented in this sample.***

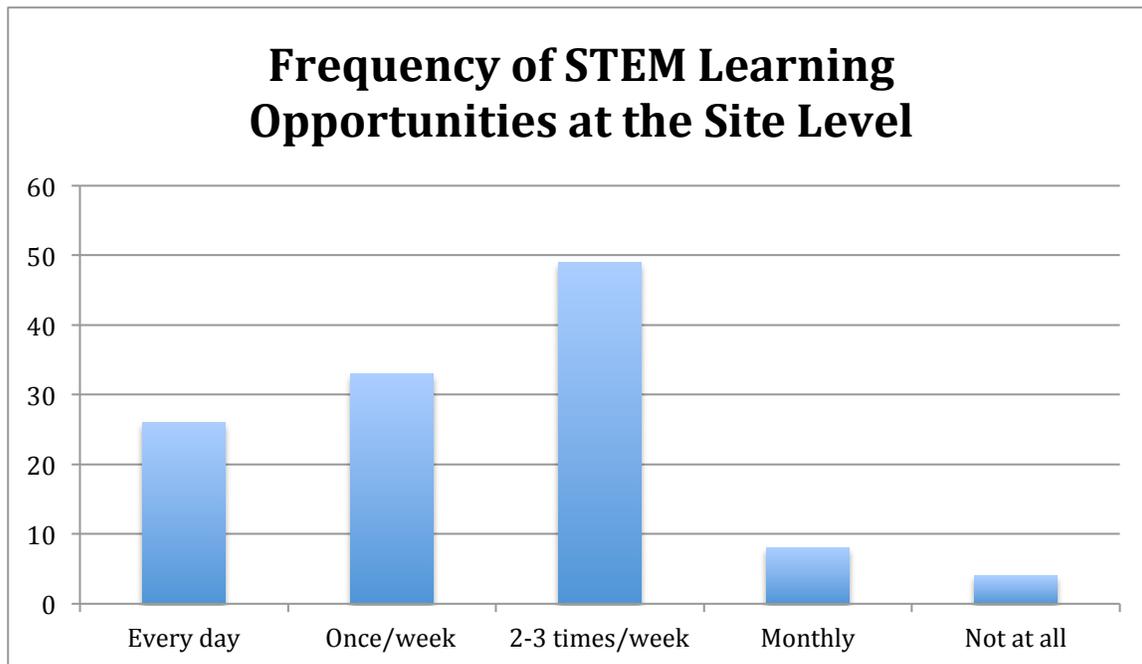


Figure 3. Number of respondents selecting each of the five response choices describing the frequency of STEM learning at the site level (N=120).

In order to get a sense of how many students were actually participating in STEM learning opportunities on a regular basis, respondents were asked to correlate the number of students with the frequency of participation in STEM learning (see Figure 4). More specifically, respondents provided information about not only how often STEM learning was offered, but how many students actually engaged in the offerings. ***The findings revealed that overall, between 51-100 students are participating in STEM learning opportunities on a weekly basis at the program sites represented in this study.***

## Number of Students Participating in STEM Learning on a Daily, Weekly, and Monthly Basis

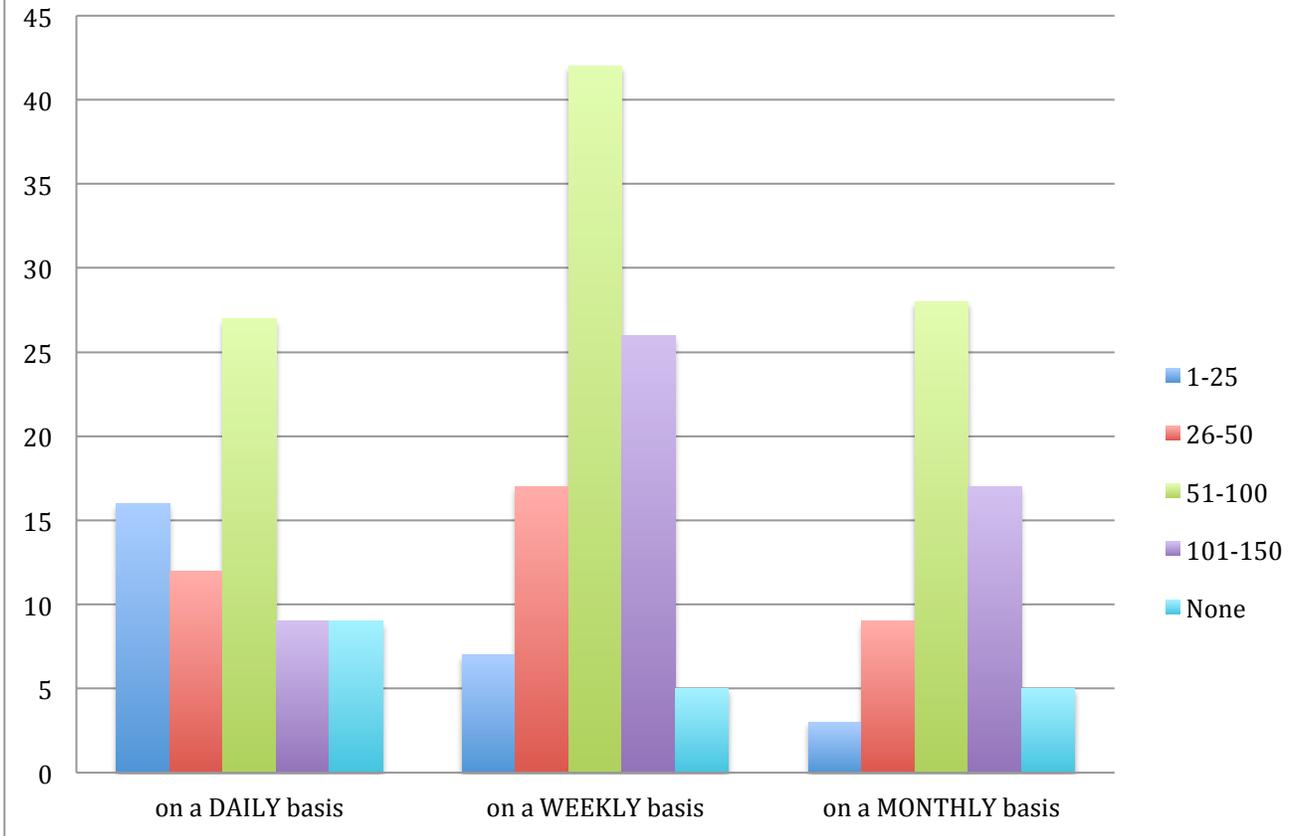


Figure 4. Number of respondents identifying the number of students participating at each time interval at the program site (N=120).

Respondents were asked to identify the types of STEM learning opportunities that are available for students at their sites (see Figure 5). The findings revealed that there is a diverse array of STEM learning opportunities currently being offered at the program sites represented in this sample. The most commonly reported types of STEM learning opportunities were hands-on projects/activities, collaborative group work, and project-based learning. Over 50% of respondents reported providing STEM learning opportunities that are connected to real world issues and that are connected to student's interests. Less than 20% of respondents reported incorporating visits from a STEM professional into program activities. Partnerships with local STEM industry partners represent one strategy for enhancing this relatively absent program component.

## Reported Types of STEM Learning Opportunities Available at the Site

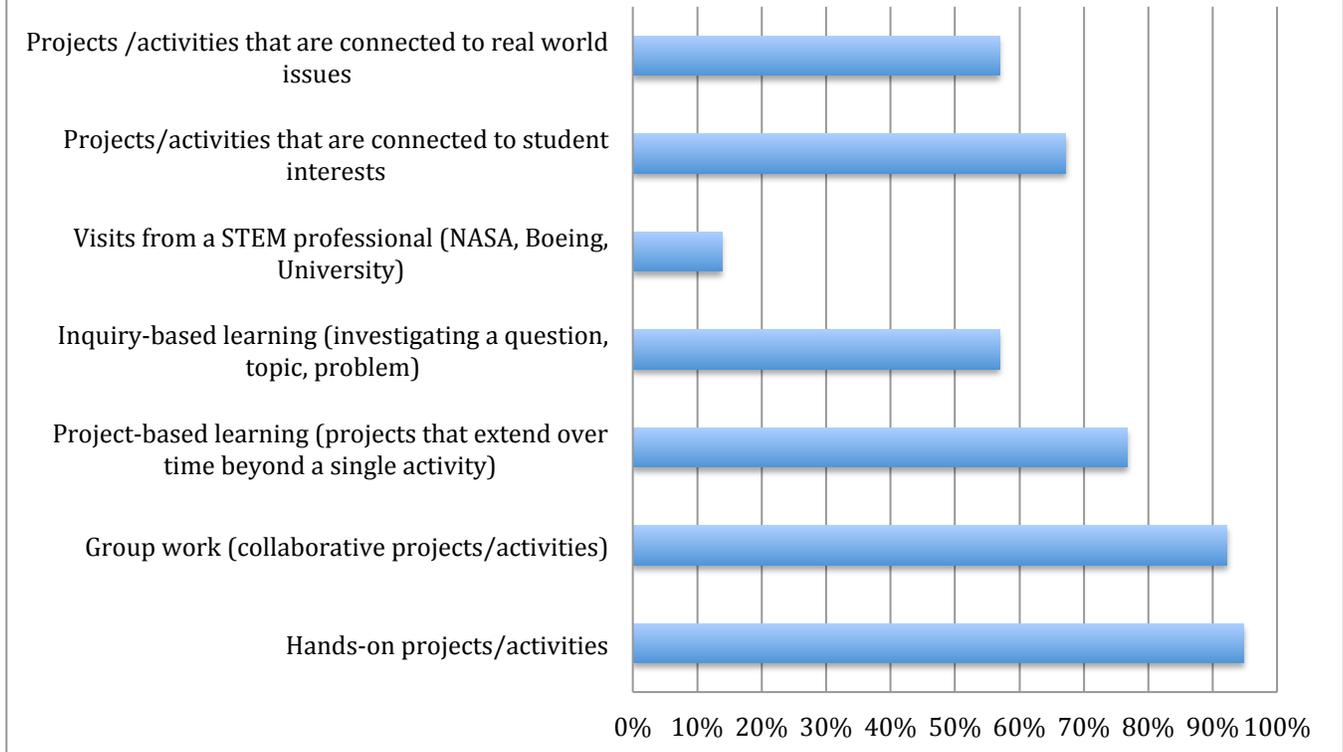


Figure 5. Percentage of respondents selecting each of the types of STEM learning opportunities available at their sites (N=116).

In addition to understanding how frequently students experience STEM learning at a program site and in what ways, it is also important to know how programs approach the integration of STEM content. As such, respondents were asked to identify whether STEM learning was integrated into regular program activities, was a stand-alone domain, and/or if there is a particular curriculum being used for STEM learning.

- **72 % of respondents** reported that STEM learning is **integrated** into existing activities/projects
- **63% of respondents** reported that STEM learning is implemented as a **stand alone** learning experience
- **42% of respondents** reported that their program has **adopted a particular STEM curriculum**

In order to learn more about why programs are implementing STEM learning (to what end), respondents were asked to provide information about the kinds of intended learning outcomes that are currently in place for STEM learning (see Figure 6). The most commonly reported student outcome for STEM learning opportunities was improved 21<sup>st</sup> century skills including problem-solving and critical thinking. The second most commonly reported student outcome was increased student interest in STEM content with the next most commonly reported outcome being increased student understanding

of the relevance of STEM to very day life. The least commonly reported student outcome was an increased student interest in STEM related careers. This could be related to the general absence of STEM professionals participating in program activities.

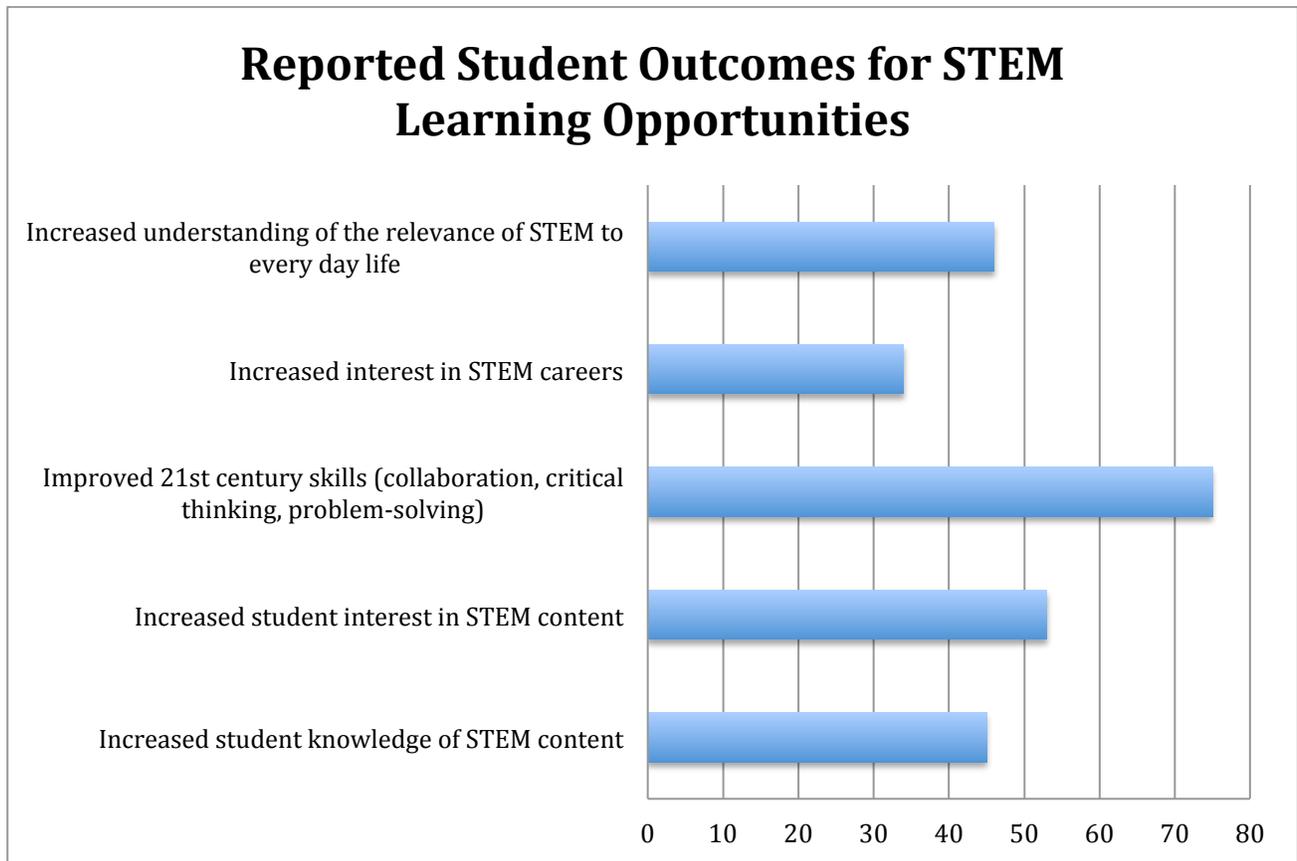


Figure 6. Number of respondents selecting each of the types of STEM outcomes for students (N=85).

Respondents provided information about which staff are implementing STEM learning opportunities at the site and what (if any) requirements (credentials) are necessary for these individuals (see Figure 7). The largest groups of respondents reported that line staff are primarily responsible for implementing STEM learning opportunities all of the time. The findings revealed that a smaller group of respondents reported that Site Coordinators implement STEM learning some of the time. External parties such as vendors, field experts, and credentialed teachers emerged as the least frequently reported stakeholders in implementing STEM learning opportunities.

## Reported Staff Responsible for Implementing STEM Learning Opportunities

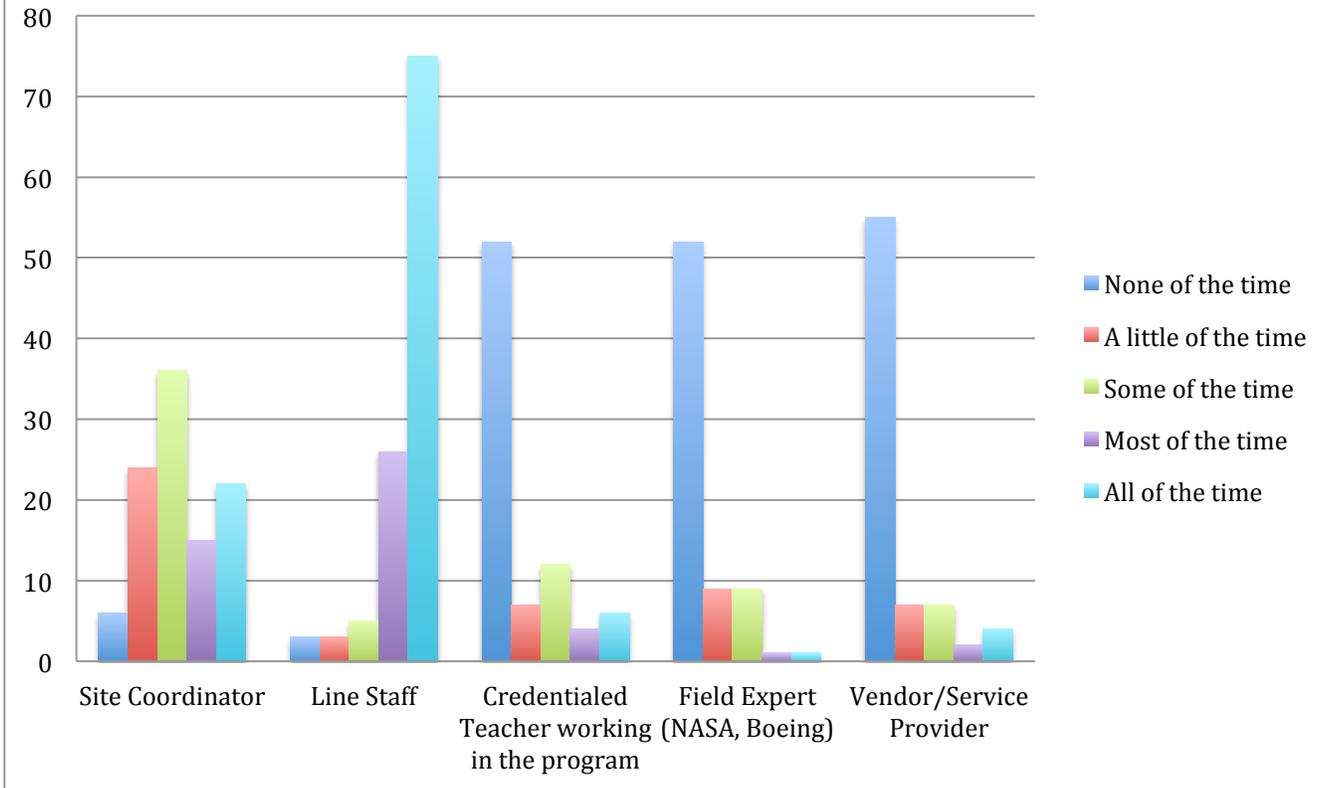


Figure 7. Number of respondents reporting the extent to which each stakeholder implemented STEM learning opportunities (N=117).

With regard to qualifications for the stakeholders implementing STEM learning, **the majority (71%) of respondents reported that there were not any requirements.**

**Less than 25% reported the need for the following credentials:**

- *A degree in a STEM related field (11%)*
- *STEM related work experience (23%)*
- *Some STEM related college course work (20%)*

It is worth noting that several respondents wrote in that their staff are required to participate in STEM-related training (on content and/or adopted curriculum) before implementing learning opportunities for students.

**Research Question 2: How accessible are technology and the Internet for LA County expanded learning program grantees?**

In order to contextualize the findings related to STEM learning opportunities, it is also important to consider the issue of access. That is, what technologies are accessible for expanded learning programs and to what extent? What is the status of Internet access for program sites? Respondents provided information about access (see Figure 8) and the findings indicate that Internet access is available all of the time for 62% of respondents and that computers are available all of the time for 45% of respondents. It is important to note that 45% is a fairly low number and that increasing access to computers might become a priority for programs. Findings suggest that iPads and Chromebooks are not widely available to the programs represented in this sample. Overall, technology access appears to be somewhat of an issue and more information is needed about why this is the case and what can be done to increase access.

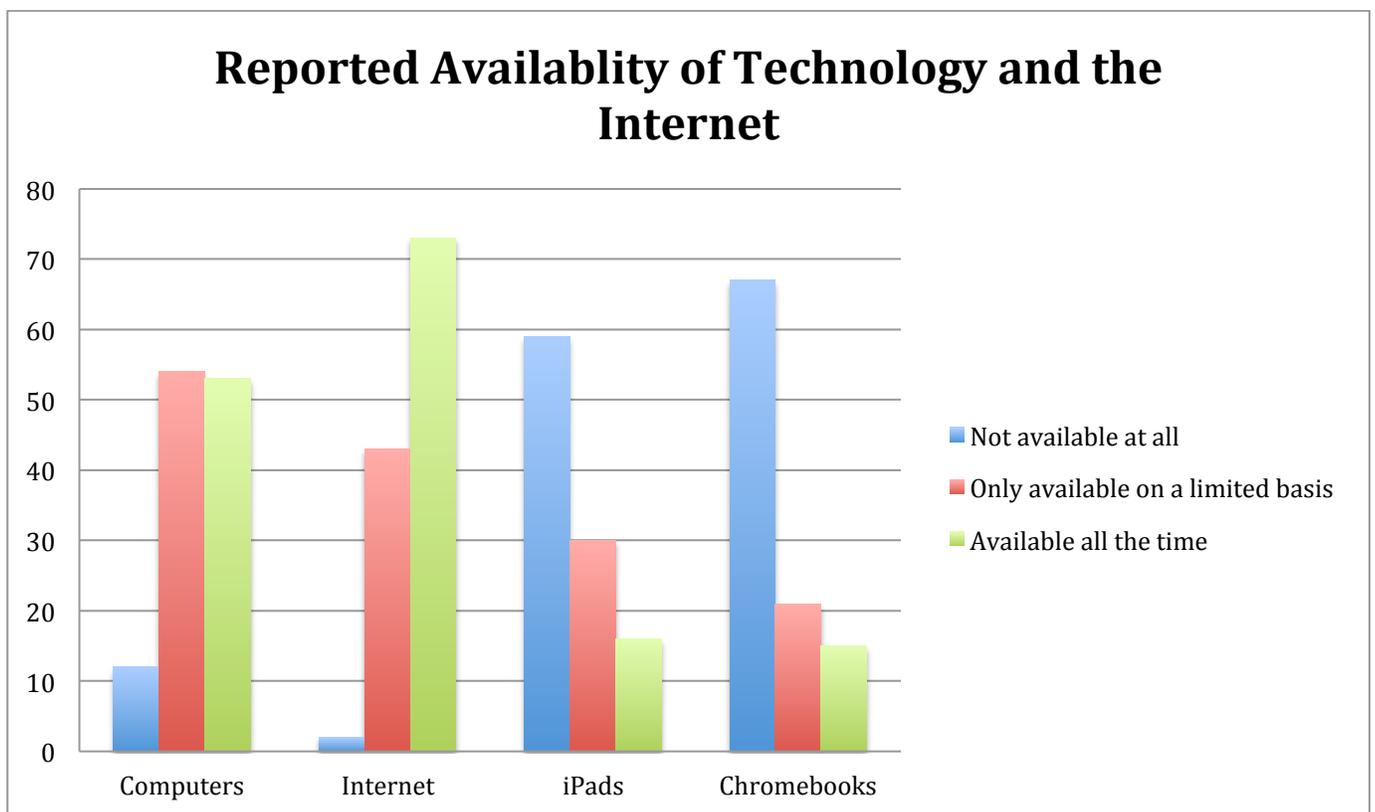


Figure 8. Number of respondents reporting the extent to which each technology is available (N=120).

In order to help contextualize the findings related to technology and Internet access, respondents were asked to identify where they had access (see Figure 9). The school computer lab (64%) emerged as the most commonly reported access point for the programs represented in this study. 50% of respondents also reported accessing technology and the Internet in the classroom and through a mobile cart. The school library was the least commonly reported access point.

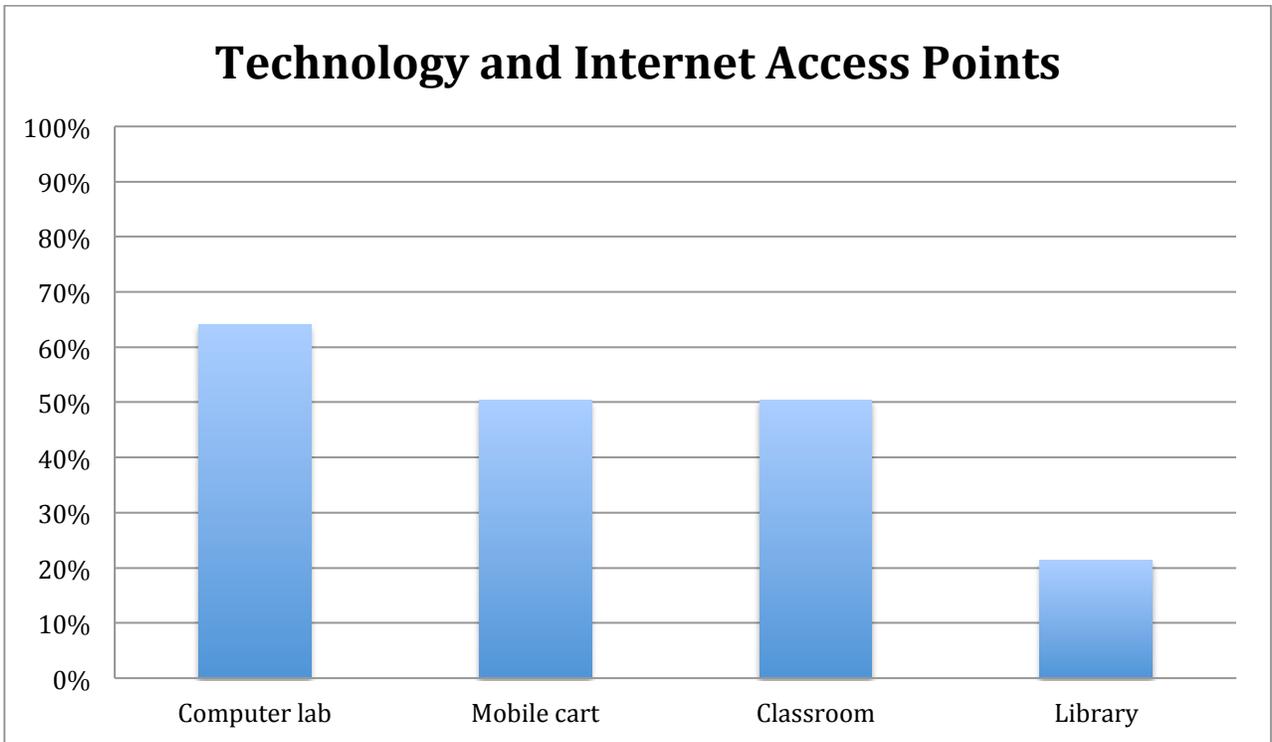


Figure 9. Percentage of respondents reporting where they access technology and the Internet (N=117).

***Research Question 3: What kinds of partnerships currently exist to support STEM-related learning opportunities in LA County expanded learning programs?***

In order to understand more about the kinds of resources that programs have access to with regard to supporting STEM learning opportunities, respondents were asked to identify the kinds of partners that they currently have to support their programs (see Figure 10). The two most salient types of partnerships were with school day staff (teachers and principals) and with community organizations. Less than 30% of respondents reported having partnerships with local science centers/museums, colleges/universities, and/or industry. These findings suggest the need to build the capacity of programs to strengthen existing partnerships and to forge new ones with science museums, institutions of higher education, and with industry.

In order to learn more about the nature of the existing partnerships, respondents were asked to identify they types of support they currently receive from partners (see Figure 11). The most commonly reported type of support was curriculum followed by access to resources such as technology or learning materials. Close to 30% of respondents reported that partners provided guest speakers, field trips, and/or support with lesson planning. The least frequently cited type of support was funding. These findings reveal that the programs represented in this study are receiving a broad range of support from partners and that there are particular areas where more support can be requested.

## Types of Existing Partnerships to Support STEM Learning Opportunities

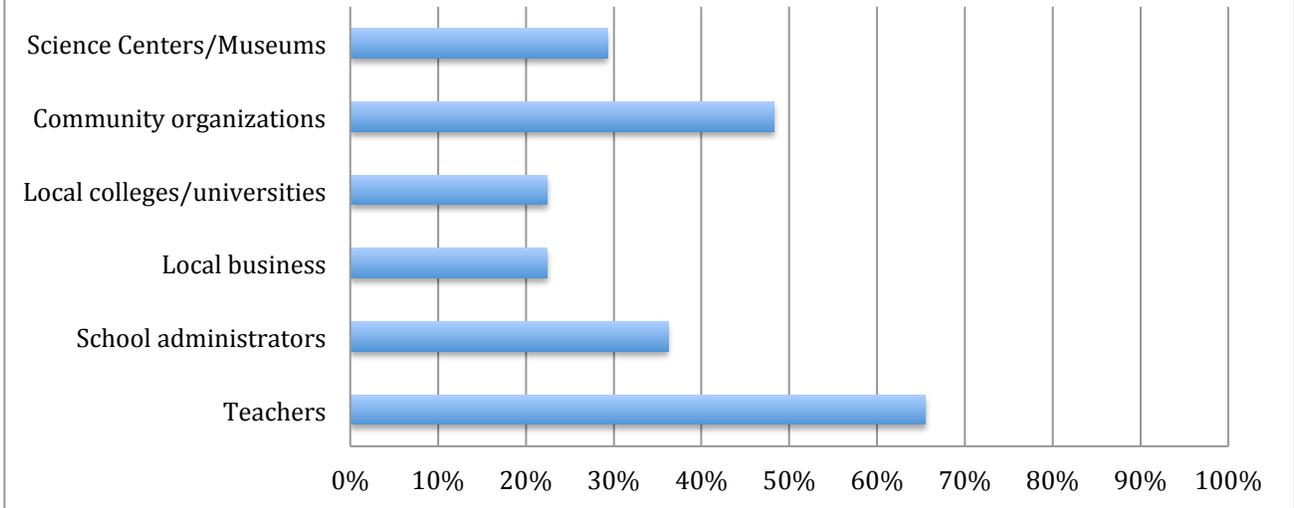


Figure 10. Percentage of respondents reporting that they currently have partnerships with each stakeholder type (N=58).

## Types of Support Provided by Existing Partners

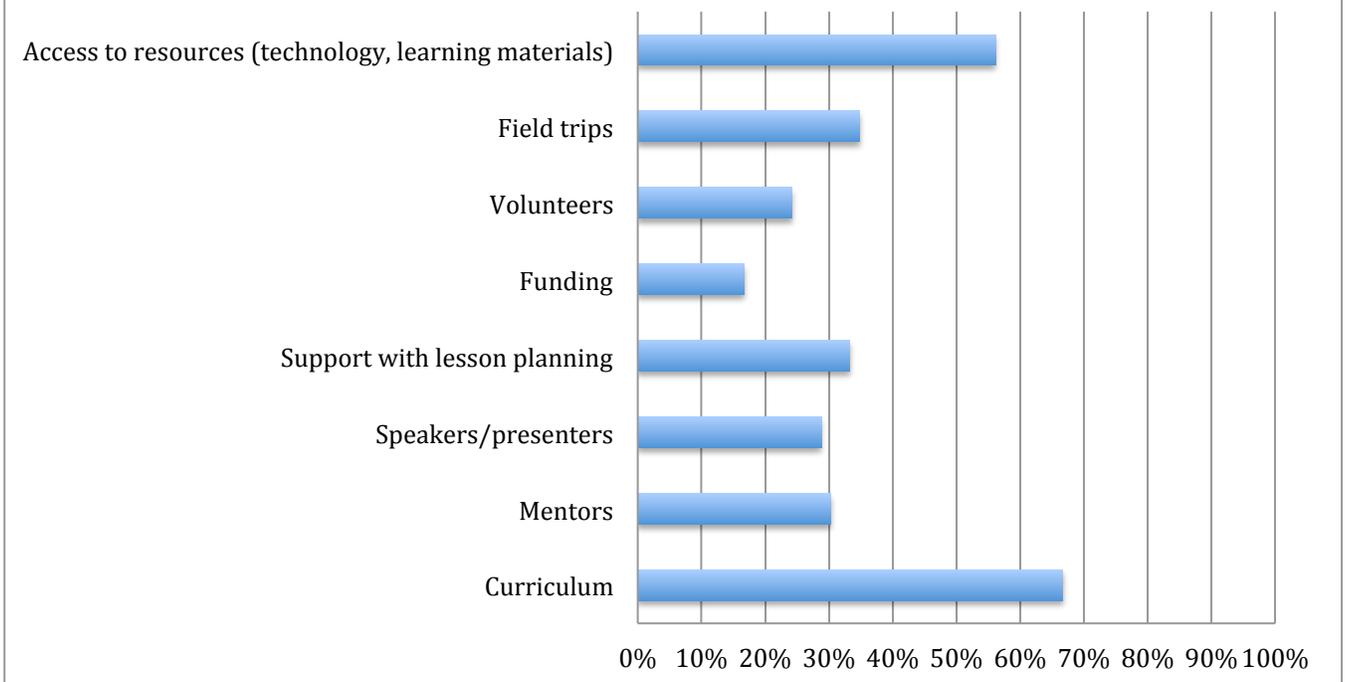


Figure 11. Percentage of respondents reporting the types of support they receive from existing partners (N=66).

**Research Question 4: What kinds of professional development are being offered to those implementing STEM-related learning opportunities at LA County expanded learning programs?**

In order to gain a more holistic picture of the kinds of STEM-related professional development received by the staff from the programs represented in this study, respondents were asked to identify all of the kinds of STEM-related support that they engaged in over the past year (see Figure 12). Findings reveal that the respondents engaged in a variety of professional development opportunities to varying degrees. The most commonly reported support services were trainings related to integrating STEM into existing program activities and on specific STEM curricula. Close to 40% of respondents reported receiving training SOME of the time on facilitation skills and accessing STEM-related resources and also coaching on how to implement STEM into existing program activities. These findings revealed that there are still a good number of support services being reported as not being received at all (between 19-25% of respondents are reporting that they did not engage in any of the identified professional development opportunities). Taken together, this suggests the need to provide a diverse array of support services and strategically recruit staff to participate so as to boost the numbers of people receiving these services more of the time.

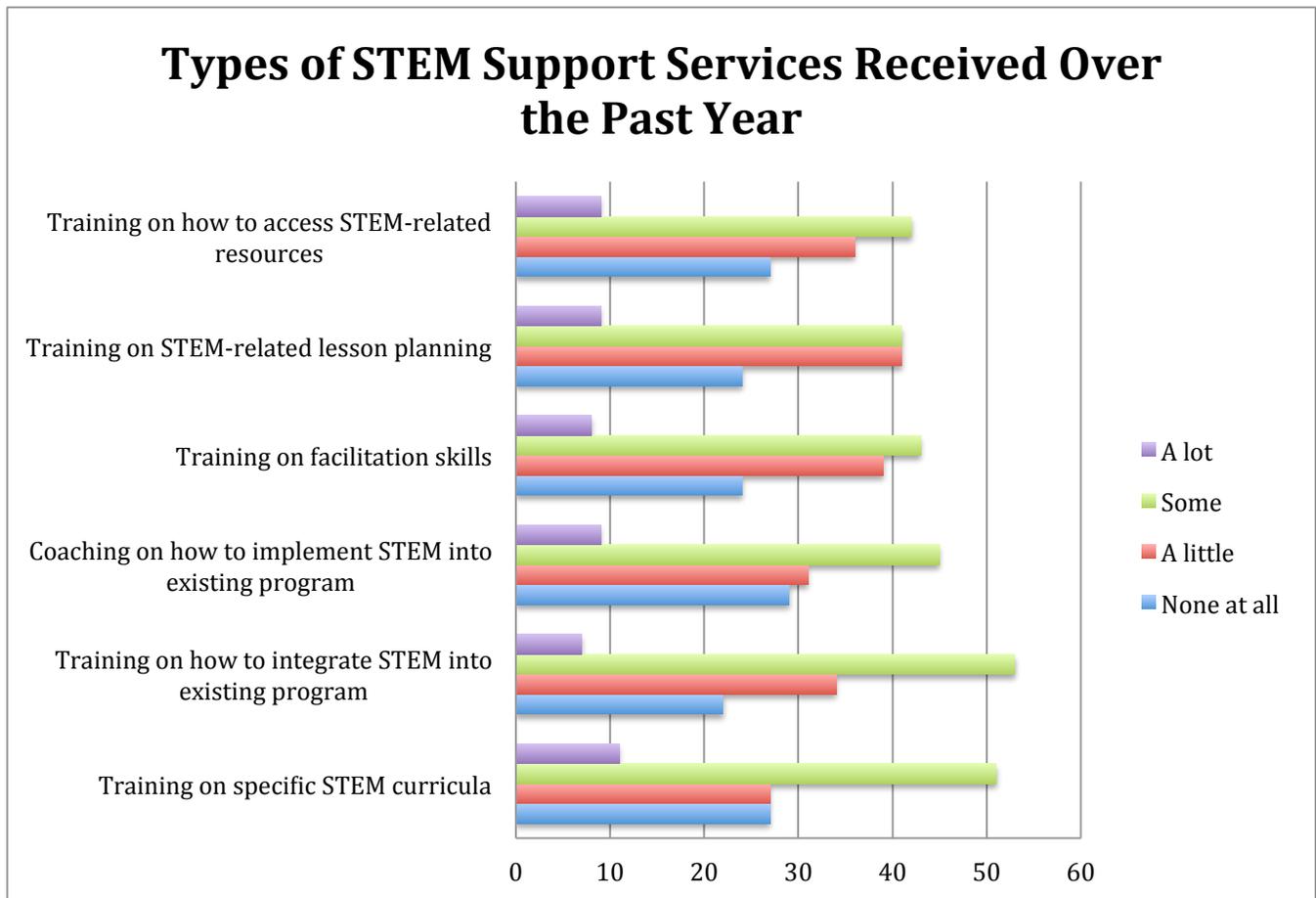


Figure 12. Number of respondents reporting the types of support they received in the last year (N=119).

**Research Question 5: How are STEM-related learning opportunities being evaluated?**

In light of the statewide emphasis on continuous quality improvement (CQI), it is important to understand more about how the programs represented in this study are assessing the impact of STEM learning opportunities (see Figure 13). Student surveys emerged as the most commonly reported type of assessment measure and was closely followed by student work. 20% of respondents reported administering parent surveys and 12% reported using teacher surveys. These findings suggest that the programs represented in this study are making efforts to assess the impact of the STEM learning opportunities being provided to students; however, it is worth considering how to support their efforts to solicit more feedback from parents and teachers so as to understand the transfer of any learning or skill gains or attitude changes.

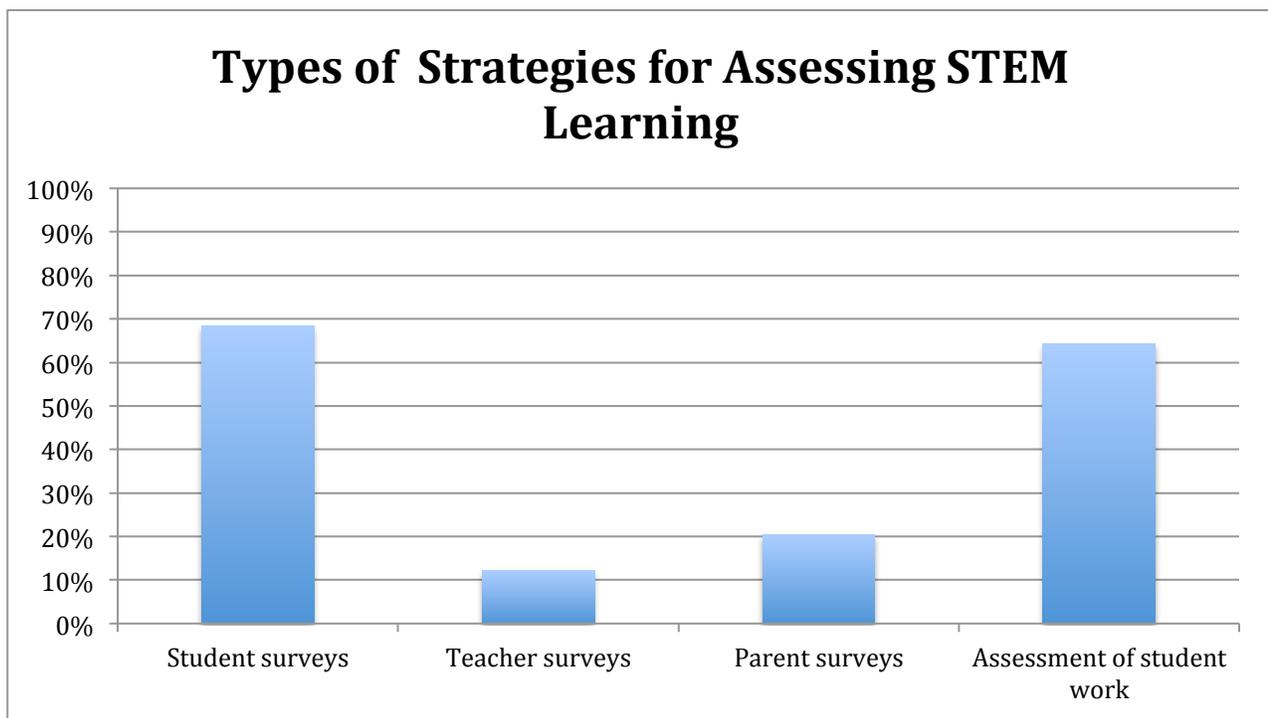


Figure 13. Percentage of respondents reporting the types of assessment strategies used (N=98).

Respondents were also asked to identify who is responsible for conducting these assessments. Findings revealed that a range of stakeholders are involved to varying degrees in data collection (see Figure 14). Site Coordinators emerged as the most commonly reported stakeholder responsible for data collection. 40% of respondents reported that Program Directors also conducted assessments. Teachers and external evaluators were the least commonly reported stakeholder types.

## Stakeholder Responsible for Conducting STEM Learning Assessments

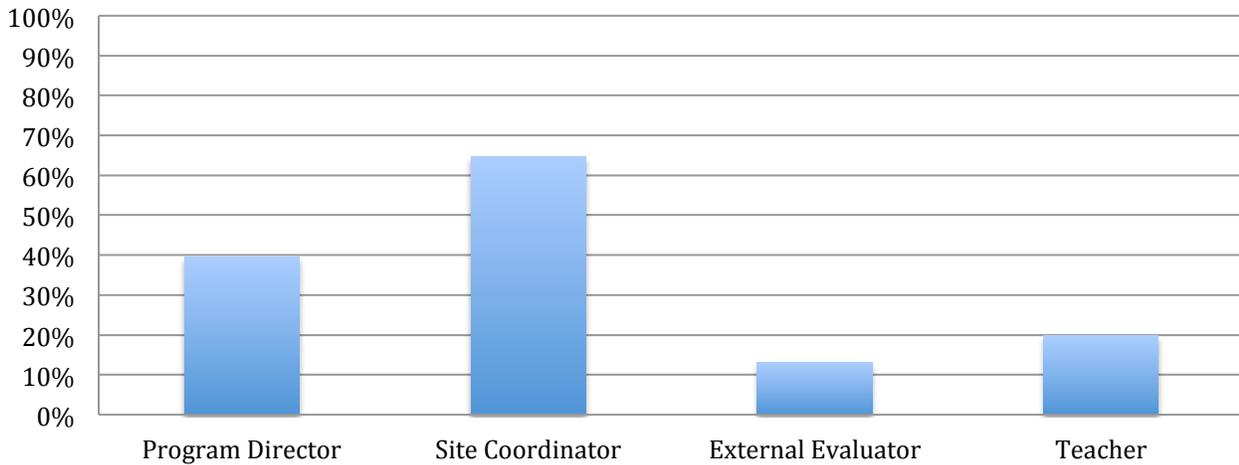


Figure 14. Percentage of respondents reporting which stakeholder conducts assessments (N=91).

Respondents were also asked to identify how the data being collected is being used (see Figure 15). The largest group of respondents (81%) reported that it is being used to improve program design. Close to 40% of respondents reported sharing the data with principals and funders. The smallest groups of respondents reported sharing the data with parents and teachers (less than 30%). These findings suggest that the data is being used productively to inform program improvement and to inform other stakeholders; however, it is worth considering how programs can be encouraged/supported in providing more of this information to parents and teachers.

## Usage of Data Collected Regarding STEM Learning

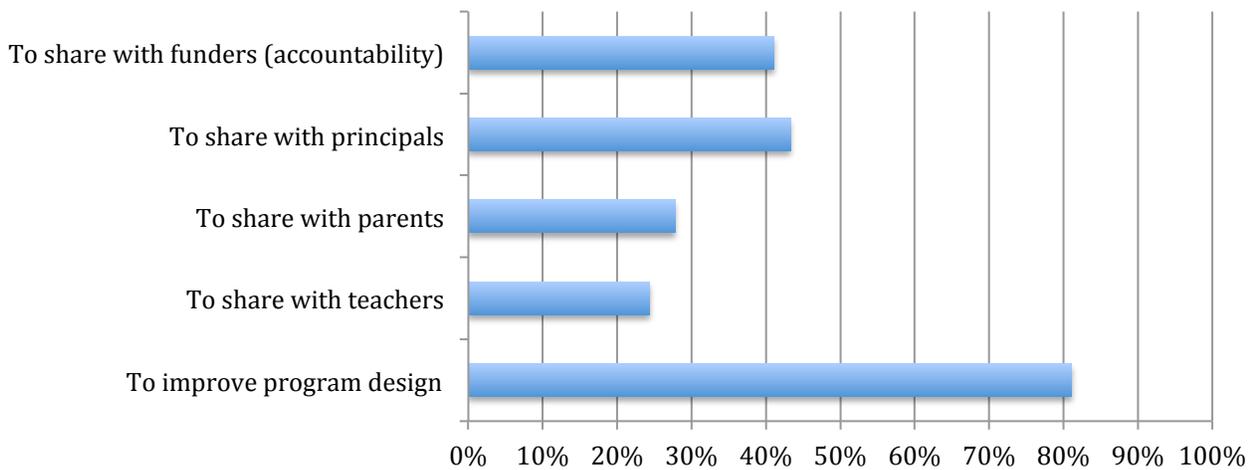


Figure 15. Percentage of respondents reporting how data collected is used (N=90).

**Research Question 6: What are the current challenges impacting the implementation of STEM-related activities within LA County expanded learning programs?**

Respondents were also asked to rate the extent to which particular known challenges were obstacles in offering STEM learning opportunities at their program sites (see Figure 16). The findings revealed that the availability of qualified staff and access to resources, curricula, and materials were the most prevalent challenges for most respondents. For each challenge, respondents differed in their rating of the extent to which is a barrier. This suggests a fairly pronounced diversity in program conditions across those represented in this sample.

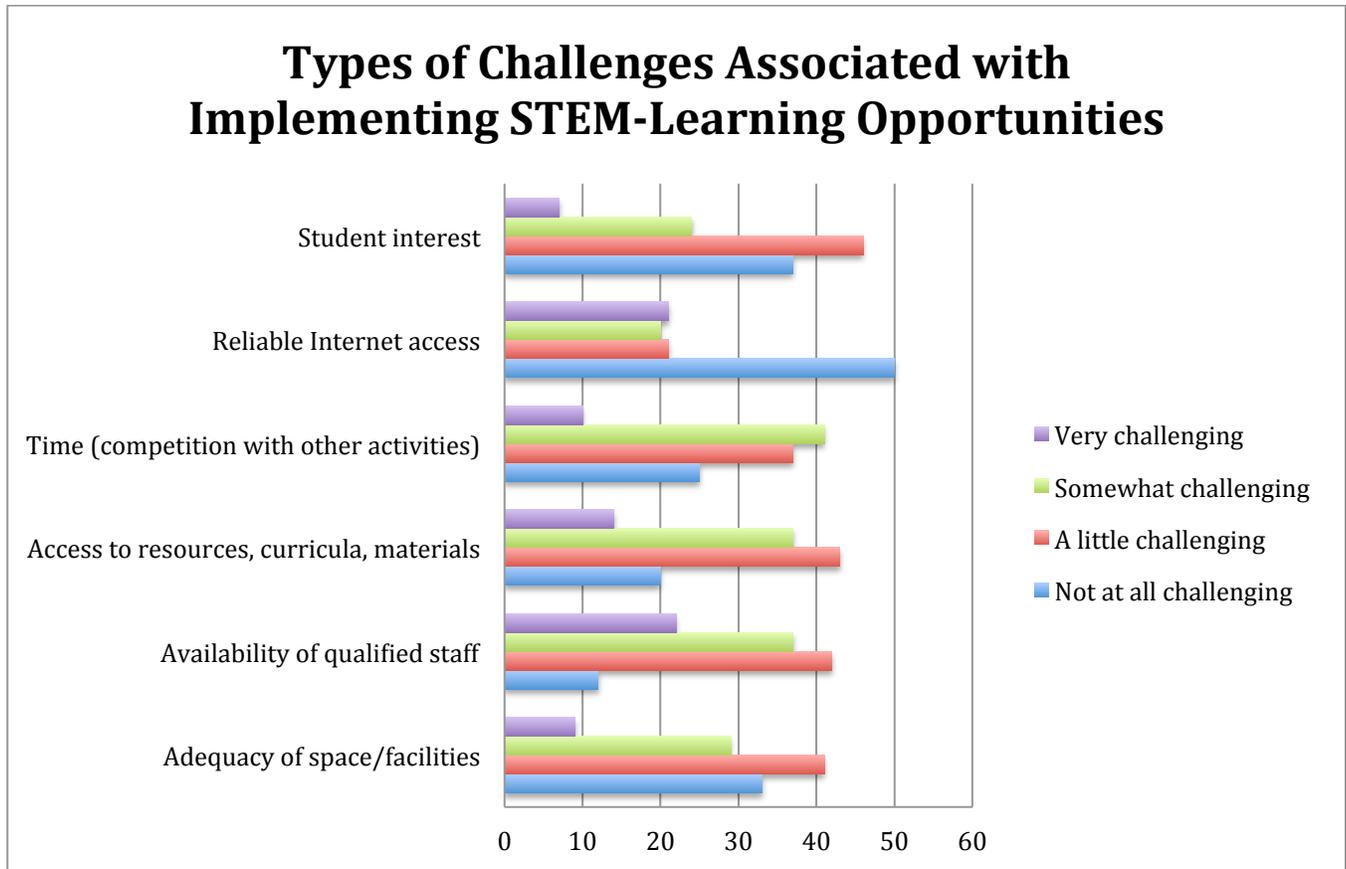


Figure 16. Number of respondents rating each of the challenges associated with implementing STEM learning opportunities (N=115).

**Research Question 7: What types of support and/or resources do LA County expanded learning programs need in order to move forward with implementing STEM-related learning opportunities?**

Respondents were asked to identify the types of support and resources necessary for improving and/or expanding the STEM learning opportunities at their program sites (see Figure 17). Training emerged as the most commonly cited need and was closely followed by the need for more information and resources. Close to 50% of respondents reported needing coaching and/or site visits to model sites in order to improve and/or expand the STEM learning opportunities at their site. Mentoring and consultation were the least commonly reported needs.

## Types of Support and Resources Needed to Improve/Expand STEM Learning Opportunities

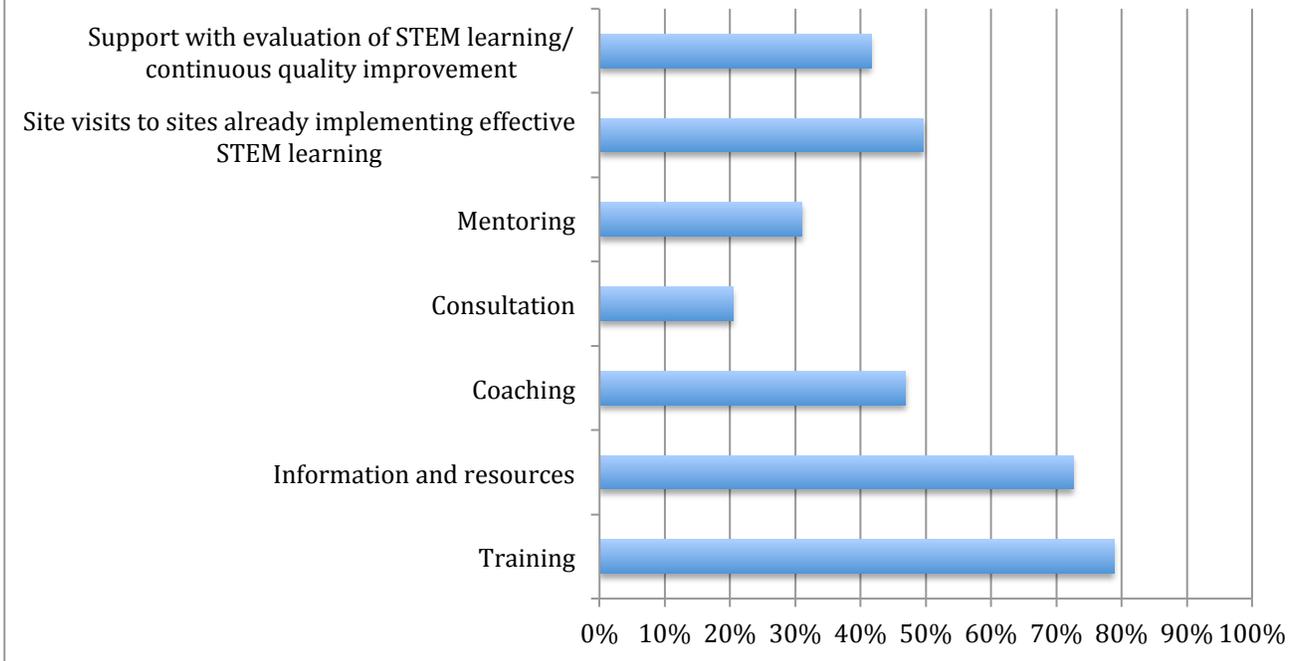


Figure 17. Percentage of respondents identifying each of the types of support or resources needed (N=113).

### ***Research Question 8: How important do LA County expanded learning program staff feel it is to integrate STEM-related learning opportunities into regular program activities?***

Respondents were asked to identify how important (or not) they believe it is for STEM-related learning opportunities to be integrated into regular program practice. 89% of respondents reported feeling that it is VERY important to integrate STEM into regular program activities. 11% reported feeling that it is somewhat important to do so. These findings suggest that overall, the staff from the programs represented in this study believe STEM to be an integral part of daily learning at their sites.

## RECOMMENDATIONS

The findings presented in this report suggest that in general, STEM learning opportunities are regularly integrated into existing program activities for those LA County expanded learning grantees represented in the study sample. The programs represented in this study appear to have identified student learning outcomes related to STEM, are currently engaging in some kind of assessment of this learning, have moderate access to technology and the Internet, have some partnerships to support STEM learning, and are providing some professional development to staff in order to build their capacity to implement STEM learning opportunities. Taken together, these findings highlight the solid foundation that exists for STEM learning in expanded learning programs while also surfacing some of the critical issues to consider with regard to bolstering and expanding this foundation. Based on the results from this study, there are two key recommendations for how the ASTAU can support LA County programs in building their own capacity to design and implement more, higher quality STEM learning opportunities:

1. ***Support programs in developing more collaborative partnerships with a wide range of stakeholders.*** The findings indicated that programs primarily have partnerships with the instructional day and some community organizations; however, partnerships with informal science, higher education, and industry partners were lacking. The types of support currently being received from partners are primarily in the form of curriculum and other resources. Forging relationships with business, museums, and higher education will allow expanded learning programs to incorporate more experts as guest speakers and facilitators of learning activities. Additionally, colleges and universities can be sources for mentors and volunteers capable of facilitating meaningful STEM learning opportunities. Industry partners might provide funding for field trips and/or technology (which is not as widely available as it could be- iPads are hardly available). As such, the ASTAU might consider providing trainings designed to introduce programs to strategies for building and maintaining these kinds of collaborative partnerships. Additionally, events that bring these partners together with program leaders might provide a forum for relationship building and direct networking. Leveraging the relationship with the LA Chamber of Commerce's emerging work group could serve as a possible source for accessing partners.
2. ***Continue to coordinate STEM-related professional development opportunities for program staff.*** Findings indicated that trainings were the most commonly reported kind of professional development opportunity for staff over the past year. Respondents less frequently reported participating in other capacity building efforts such as coaching, mentoring, and site visits. When asked to identify what they needed in order to improve and expand STEM learning in their program, respondents requested more training, coaching, and site visits. Taken together, these results highlight the need for the ASTAU to continue coordinating a diverse array of professional development opportunities for program staff to participate in throughout the coming year. If it is not already occurring, the intentional integration of STEM content into local learning community meetings and events would also help to provide a forum for program staff to share promising practices, pose questions, and collectively build their knowledge about how to design and implement high quality STEM learning opportunities. Another possibility would be the convening of a STEM-focused community of practice (similar to those already in existence across California as part of the Power of Discovery Initiative).

Implementing these two recommendations will only serve to improve the region's ability to provide students with more frequent, higher quality STEM learning opportunities.