I. Introduction

Building Equity: Amplify Summer Learning (2021-2023) is an IMLS-funded initiative that supports public libraries providing engaging learning opportunities for middle school youth in the summertime who have historically been excluded from STEM opportunities (e.g., based on race, income, gender, ability). The work builds on previous success and findings of the Partners for Middle School STEM Initiative (2018-2020). This document analyzes the results of a final survey of participating library systems and serves as a limited program evaluation.

“This cohort allowed me to push the boundaries of our system’s core values in a way that benefited those who always needed it the most.”

- Harris County Public Library

Participating Libraries and Organizations

- Algona Public Library, Algona, Iowa
- Boise Public Library, Boise, Idaho
- Boston Public Library, Boston, Massachusetts
- Cedar Rapids Public Library, Cedar Rapids, Iowa
- Central Arkansas Library System, Little Rock, Arkansas
- Cincinnati & Hamilton Public Library, Cincinnati, Ohio
- Edmonton Public Library, Edmonton, Alberta
- Enoch Pratt Free Library, Baltimore, Maryland
- Evansville Vanderburgh Public Library, Evansville, Indiana
- Halifax Public Libraries, Dartmouth, Nova Scotia
- Harris County Public Library, Houston, Texas
- Jersey City Free Public Library, Jersey City, New Jersey
- La Porte County Public Library, La Porte, Indiana
- Lexington Public Library, Lexington, Kentucky
- Milton Public Library, Milton, Ontario
- Orange County Library System, Orlando, Florida
- Pima County Public Library, Tucson, Arizona
- Portland Public Library, Portland, Maine
- Public Library of Youngstown and Mahoning County, Youngstown, Ohio
- San Mateo County Libraries, San Mateo, California
- Schaumburg Township District Library, Schaumburg, Illinois
- Scottsdale Public Library, Scottsdale, Arizona

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1 The analysis in this document is based on 17 survey responses from 16 participating cohort library systems.
II. Key Findings from the Final Cohort Survey

- 93% of cohort libraries piloted STEM learning opportunities designed specifically for youth.

- When asked if their library system established a new or expanded an existing partnership with a park or school to reach targeted youth (Figure 1):
  - 13% indicated they established a new partnership
  - 27% indicated they expanded an existing partnership
  - 33% indicated they both established a new partnership and expanded an existing partnership
  - 27% indicated they did neither

- 100% of cohort libraries indicated their program staff increased their knowledge and comfort with STEM programs.

- A total of 79% of cohort libraries met or exceeded their program’s goals. When asked to measure their program’s success based on goals (Figure 2):
  - 66% indicated they met their program’s goals
  - 13% indicated they exceeded their program’s goals
  - 13% indicated they did not meet their program’s goals
  - 8% indicated they were unsure

- 83% of cohort libraries reported that they will continue this work after the conclusion of this grant.

- A total of 87% of cohort libraries believe their program at least somewhat successfully reached its target population.
  - 47% indicated they successfully reached the target population
  - 40% indicated they somewhat reached the target population
  - 13% indicated they did not reach the target population
III. Number of Youth Reached

The graphs below show the estimated participation of youth in the overall summer programming and in STEM-focused programming for each cohort library for the first year and the second year of the program.

**Figure 3. Year One Participation**

<table>
<thead>
<tr>
<th>Library</th>
<th>STEM-Focused</th>
<th>Overall Summer Programming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algona Public Library</td>
<td>397</td>
<td>65</td>
</tr>
<tr>
<td>Boise Public Library</td>
<td>3,500</td>
<td>45</td>
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<tr>
<td>Boston Public Library</td>
<td>3,117</td>
<td>45</td>
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<tr>
<td>Cedar Rapids Public Library</td>
<td>7,163</td>
<td>60</td>
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<tr>
<td>Central Arkansas Library System</td>
<td>5,400</td>
<td>60</td>
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<tr>
<td>Cincinnati &amp; Hamilton County Public Library</td>
<td>2,025</td>
<td>2,025</td>
</tr>
<tr>
<td>Edmonton Public Library</td>
<td>888</td>
<td>888</td>
</tr>
<tr>
<td>Evansville Vanderburgh Public Library</td>
<td>5,389</td>
<td>49</td>
</tr>
<tr>
<td>Harris County Public Library (North Channel Branch)</td>
<td>1,500</td>
<td>750</td>
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<tr>
<td>Orange County Library System</td>
<td>4,648</td>
<td>4,648</td>
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<tr>
<td>Pima County Public Library</td>
<td>11,158</td>
<td>50</td>
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<td>San Mateo County Libraries</td>
<td>11,158</td>
<td>680</td>
</tr>
<tr>
<td>The Public Library of Youngstown and Mahoning County</td>
<td>1,600</td>
<td>200</td>
</tr>
</tbody>
</table>

Year One: For summer 2022, **12,633 participants (9%)** were involved in STEM-focused programming.
- STEM Focused: 12,633 participants
- Non-STEM focused: 134,064 participants
- Overall Summer Programming: 146,697 participants
Figure 4. Year Two Participation

Year Two: For summer 2023, **18,968 participants (10%)** were involved in STEM-focused programming.
- STEM Focused: 18,968 participants
- Non-STEM focused: 165,096 participants
- Overall Summer Programming: 184,064 participants

Entire Program Engagement: It was found that for the entire program, **31,601 participants (10%)** were involved in STEM-focused programming (Figure 5).
- STEM-Focused: 31,601 participants
- Non-STEM Focused: 300,454 participants
- Overall Summer Programming: 332,055 participants
IV. Program Successes

Cohort libraries identified several similar successes in their work. These themes help to illuminate clear opportunities for libraries in this work.

Success Theme #1: Building partnerships with community partners has proven to expand and deepen engagement in summer STEM programs and participants’ learning.

“Young people were exposed to a variety of STEM activities through resources available at the library, but then the experience was taken further by tying the activity to community members involved in various related careers and interests... Finding those partners in the community expands the depth of what we can offer to our participants.”

- Algona Public Library

“We were able to connect with one of the local community centers we hadn’t worked with before. Now that we have that relationship with them, not only were they able to host one of our Amplify programs this summer, but they are bringing their students to library programs and our staff is visiting them regularly to do programs with their students. We made the connection due to this grant but the partnership has grown and we are excited to continue working with them.”

- Lexington Public Library

Success Theme #2: Opportunities arose to train library staff and expand their interest and involvement with STEM programs for the future, increasing the chances of engaged and excited participants.

“Talking with a community of peers about how to engage with trusted messengers and build credibility with youth in lower-resource neighborhoods has been an incredible learning experience...I found it very rewarding to shift the lens a little bit and think of our branch staff as Discover Summer’s trusted messengers. Heading into 2023, we spent more time engaging with staff, training them in STEM & SEL principles, and building alignment with Summer’s overall goals, and we invested in tools that would help our staff build deeper relationships with youth, in order to create stronger outcomes. The results have been phenomenal. We have seen huge growth in our program participation, especially in the teen program from 2022 to 2023. We have also seen huge growth in fidelity of participation, with our completion rate tripling over last year--indicating that youth who do participate, are seeing stronger outcomes as they spend more time completing the program.”

- Cincinnati & Hamilton County Public Library
Success Theme #3: There was a noticeable improvement in engagement with programs, relationships formed between participants, and self-improvement in middle schoolers (i.e., more confidence).

“One of the things we did this year was study Madagascar Hissing Cockroaches. When we first told the students what we were doing most of them were not excited about the bugs and said that they didn’t want to touch them. After about a week, (or less for some students) the students were really looking forward to seeing their cockroaches every day and really wanted to see them, feed them, hold them, and take care of them. **It was great to see the students take an interest in something they thought they would not be interested in.**

“We also had several students come back this year who attended last year. It was great they enjoyed it last year and wanted to attend again. **It was also inspiring to see how they all had grown and become more confident since last year.** We had one student this year who was very shy and one of the more outgoing students really took the time to talk to her and make sure she was included. It was great to see her initiative. We really try to foster an open and inclusive environment.”

- Lexington Public Library

V. Program Challenges

Throughout the planning and implementation process of their summer learning programs, many of the cohort libraries faced similar challenges in their work. Identifying these themes can create opportunities to better address common challenges when planning for future and stronger programs.

Challenge Theme #1: Middle school continues to be a notoriously difficult age to encourage participation and engagement in library programs.

“Middle School is a difficult age group. They are expanding their interests and summer learning is seldom at the top of their lists. We can keep planning amazing programming, but they still make a choice whether or not to participate. **Learning has to be in the form of fun and discovery and they have to decide to want to be here.**”

- Algona Public Library

“Engaging middle school youth in STEM programming can be challenging. Attendance at library programs is high for children, but it is difficult to get tweens and teens to come to the library for specific programs. **We found more success in going out to summer school programs or summer camps where youth already were.** However, that is still only reaching a certain segment of the population.”

- Evansville Vanderburgh Public Library
Challenge Theme #2: It can be difficult to partner with outside community groups and build strong, lasting and reliable relationships that will benefit the programs.

“In year one, we were trying to establish outreach programming with several partners and providers who expressed interest initially but ultimately weren’t able to come to fruition. Taking the time to establish and maintain partnerships with other organizations serving youth in summer is challenging.”

- Central Arkansas Library System

Challenge Theme #3: Scalability and expansion of projects were difficult for a number of libraries, particularly because of a lack of resources and libraries being either short on staff or staff members being overcommitted.

“The biggest challenge is scalability. These camps can only allow a finite number of children, and they take a lot of time and resources to plan and present. It was a major benefit to the kids who had a chance to come, but it didn’t feel balanced with what the rest of our programmatic needs were. We will be looking at ways to incorporate what we learned into different avenues of programming in the future so we can continue to offer the topics without it taking a disproportionate amount of staff time and monetary resources.”

- Central Arkansas Library System

“I found it difficult to organize a system-wide summer learning effort. Having a larger library system with eight locations and a large number of programming staff makes communication and staff investment difficult.”

- Evansville Vanderburgh Public Library

“Our staff who attended the spring bootcamp sessions really enjoyed them and found a ton of value in the learning, but library staff on the whole have struggled to connect with the mission of promoting STEM learning. Embedding social and emotional learning, as the foundation for how our staff interact with youth, has been a lot more successful. Staff appreciate having a deeper knowledge of SEL and how to leverage everyday interactions to increase young people’s own social and emotional skills. I think if we were to continue down a STEM learning path, focusing more on the mindset, and how to help youth flex those skills every day, would help us make more progress. That is the piece from the STEM training that resonated most with our staff who attended.”

- Cincinnati & Hamilton County Public Library

VI. Conclusion

Over the course of two years, the cohort libraries found numerous successes in their programs, many of which were common themes throughout. Overall, participating libraries found their programs were successful in addressing a need in their communities and 83% have decided to continue this work building their programs moving forward.