Child Reading Literacy and the Role of Public Libraries: A Review of Secondary Sources

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Executive summary

Purpose of this review

The Institute of Museum and Library Services (IMLS) has established children's reading literacy as a priority area for evidence building. IMLS's goal is to build evidence-informed approaches to understanding the needs, opportunities, and solutions around improving children's reading engagement in the public library field. As part of this line of work, a review of the research literature on the effects of literacy and reading programs in public libraries (Guven & Haddad, 2023) found that successful programs are based on effective content, instructional methods, and motivational practices, and that programs that incorporate practices such as read-aloud, book discussions, social interaction, adult reading support, and community participation had promising results on children's motivation for reading and reading skills. This review builds on that 2023 literature review by conducting analyses of data from secondary sources to better understand the components of reading engagement, how public libraries foster that engagement, and the role that public libraries play in a greater literacy ecosystem.

Research questions

The review addresses seven research questions:

1. How is engagement in reading defined at different developmental ages? What are measurable outcomes of engaged reading in the public library context?

2. What activities and outreach do public libraries see as best practices to engage children in reading? How do public libraries invest in staff and infrastructure to improve the implementation of these practices?

3. How do children engage with public library resources supporting their reading engagement (individually or together with their caregivers)?

4. How has children's engagement in reading changed over time with the introduction of digital and online resources in public libraries?

5. What does existing research tell us about what a healthy literacy ecosystem is? Where is a public library's best fit as a contributor, and in what ways do public libraries contribute to the overall health of the system?

6. Are there different patterns of children's engagement in reading through public libraries by public library infrastructure or community characteristics?

7. What are considerations for future studies examining the effectiveness of ways public libraries engage children in reading?

How the review was conducted

The study team collected and analyzed data from three types of secondary sources: (1) relevant literature, (2) landscape research and interviews with IMLS staff, and (3) administrative records on grants awarded by IMLS that support public libraries in promoting children's early literacy and reading engagement.

What the review found

The analyses of these secondary data sources revealed important themes related to children's reading engagement and the role libraries play in fostering that engagement:

- **Reading engagement is a multidimensional construct that can be difficult for public libraries to measure directly (RQ1).** Research points to several indicators of children's reading engagement at different developmental ages, but public libraries face challenges to measuring these indicators. Instead, public libraries tend to rely on program participation as a proxy for reading engagement.

- **Public libraries prioritize investments in training for staff to deliver reading literacy programming (RQ2).** The literature and landscape reviews point to the importance of providing professional development to equip public library staff to deliver programming. This emphasis on training is echoed by an internal documentation review of literacy-focused grants, which commonly report providing such training to staff.

- **Public libraries recognize the importance of involving caregivers in children's reading engagement (RQ3).** Many grant activities reviewed either directly engaged caregivers as participants in public library programming, such as storytimes, or provided them with resources, including ideas for literacy activities to conduct at home to effectively engage children in reading outside of the library. Manuscripts from literature and landscape reviews also emphasized that caregivers are central to children's reading engagement.

- **Public libraries have expanded their digital offerings, but little evidence exists about how these tools have changed children's engagement in reading specifically within the library setting (RQ4).** Although some grant recipients invested in digital resources like audiobooks or e-books to engage more children in reading, there was little evidence on how the proliferation of these resources has influenced children's reading in the library setting. Also, there is mixed evidence about the efficacy of digital offerings and engagement in formal learning settings.

- **Public libraries play an important and multifaceted role in the literacy ecosystem (RQ5).** As institutions that children and caregivers can access free of charge, public libraries play a critical role in a healthy ecosystem that emphasizes the importance of early reading and provide caregivers with the resources they need to support children's engagement in reading. Public libraries fill a variety of roles in the literacy ecosystem, acting as resource hubs that offer reading literacy materials for children and caregivers, as direct service providers of programs like summer reading, and as conveners of other community organizations devoted to improving children's reading literacy.

- **Researchers and public libraries recognize the importance of engaging various populations (RQ6).** Research suggests that, to engage communities most effectively in reading, public libraries must pay attention to linguistic, cultural, and economic factors that could hinder children's reading development. Public libraries can act as important resource hubs, providing access to books with authors and characters that represent the communities they serve.

- **Opportunities exist to investigate the effectiveness of public library programming (RQ7).** The literature review and grant data analysis consistently point to the importance of public library initiatives like storytime programs in supporting children's reading engagement. These data sources also reveal that there is limited evidence about the effectiveness of these programs, suggesting opportunities to invest in research that assesses the impact of public libraries' efforts to engage children in reading.

I.   Introduction

The Institute of Museum and Library Services (IMLS) is a leader in efforts to understand the role and contributions of public libraries to enhance reading literacy within communities for more than a decade[1] and recognizes the importance of supporting early reading and literacy engagement. For this reason, the IMLS has articulated several foundational questions about building an evidence-informed approach to understanding needs, opportunities, and potential solutions in the library field. This program of research is needed because existing IMLS data collection (such as the annual Public Libraries Survey) does not provide the in-depth information needed to more fully understand what libraries do to support children's engagement in reading. A 2013 survey of patrons—the Public Needs for Library and Museum Services— may not provide a current picture of all the ways libraries support children's engagement in reading because it gathered information on children's activities during an in-person library visit, which may have changed in the past decade, and particularly after the COVID-19 pandemic.

This review aims to address IMLS's learning questions through secondary data collection and analysis of three sources of information — (1) a literature review; (2) a landscape review, including research on economic characteristics and literacy development supports and interviews with IMLS's staff; and (3) an examination of IMLS's grant documentation.

The review provides descriptive information that will help IMLS and interested audiences better understand the ecosystem of support for children's engagement in reading—focusing on, but not limited to, the role of libraries—and relevant outcomes, such as enabling children across the country to engage in reading. In the near term, the findings from this review can also help IMLS focus and improve its grant-making by revealing the types of activities that may support professional development, investments, and partnerships around children's engagement in reading. Ultimately, IMLS will use this information as it considers funding grant activities or conducting its own evaluations that rigorously test the effectiveness of approaches libraries can implement to improve individual and community outcomes around children's engagement in reading.

The next chapters of this review describe the research questions, the methods used to gather and examine secondary data, and the findings from the secondary data analysis.

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[1] These early efforts include partnership with the Campaign for Grade-Level Reading in 2013 and support of the Celano & Neuman, 2013 study of the Every Child Ready to Read program.

II. Research Questions

This review focuses on seven research questions aimed at learning about libraries' roles in supporting childhood engagement in reading (Exhibit II.1). These research questions specify a focus on *public* libraries' support of children's engagement in reading. The focus of this research is on public libraries because IMLS's leaders identified public library systems[2] as a key audience for receiving this information and focusing investments within professional development of its workforce, and programs and services around children's reading literacy as an area of need. Public library systems (with outlets via main libraries, branches, bookmobiles, and books by mail) also represent the intersection of services with caregivers, community organizations, and school systems, which are key topics in the learning questions. In understanding an ecosystem, public libraries' awareness of and interactions with school systems and other entities (such as hospitals and childcare providers) can provide targeted, actionable information for that library system.

Exhibit II.1 summarizes key and contributing data sources for each research question. Key data sources are expected to contribute substantial evidence to answer the question, and the review team queried these sources intentionally, such as with explicit search terms. Contributory data sources may provide evidence to answer the question.

Exhibit II.1. Research questions on children's reading literacy and data sources to address

	Secondary source		
Research questions	**Literature review**	**Landscape documents and interviews**	**Grant documents**
1. How is engagement in reading defined at different developmental ages? What are measurable outcomes of engaged reading in the public library context?	x	x	x
2. What activities and outreach do public libraries see as best practices to engage children in reading? How do public libraries invest in staff and infrastructure to improve the implementation of these practices?	x	x	x
3. How do children engage with public library resources supporting their reading engagement (individually and together with their caregivers)?	x	x	x
4. How has children's engagement in reading changed over time with the introduction of digital and online resources in public libraries?	x	x	x

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[2] Public library systems may also be referred to as public libraries—defined as administrative entities with main libraries and branch libraries that provide direct services to the public.

Research questions	Secondary source		
	Literature review	Landscape documents and interviews	Grant documents
5. What does existing research tell us about what a healthy literacy ecosystem is? Where is a public library's best fit as a contributor, and in what ways do public libraries contribute to the overall health of the system?	x	x	x
6. Are there different patterns of children's engagement in reading through public libraries by public library infrastructure or community characteristics?	x	x	
7. What are considerations for future studies examining the effectiveness of ways public libraries engage children in reading?	x[1]		x

[1] The literature review is a contributing data source for Research Question 7.

III. Data and Methods

To address each research question, the review team collected and analyzed data from three types of secondary sources: (1) relevant literature, (2) landscape research and IMLS staff interviews, and (3) administrative records on grants awarded by IMLS that support public libraries in promoting children's early literacy and reading engagement. The review team examined these data sources to answer the research questions and better understand how researchers, IMLS's staff, and public libraries define reading engagement and what they consider to be best practices in promoting children's early reading. The data sources also offered perspectives on the elements of a healthy literacy ecosystem and the various roles that libraries play in that ecosystem. The sections that follow offer details about each data source and describe the methods the review team used to analyze them.

A. Literature review

The review team included 84 manuscripts from the peer-reviewed and gray literature in the literature review to examine all seven research questions. To compile this final list (citations provided in Appendix A), the team conducted the literature review in three steps: (1) search for relevant literature, (2) prioritize literature, and (3) analyze and summarize key information from each relevant manuscript.

1. Search for literature

The review team used a two-pronged strategy to identify relevant literature for the review—(1) a scan of documentation from past literacy research projects, and (2) a search of electronic databases and websites.

IMLS's projects. First, the review team scanned the references from the documentation of IMLS's Empowering Citizens, Empowering Readers meeting held in March 2022 in Washington, DC. In this meeting, IMLS convened key IMLS staff and librarians, library directors, educators, researchers, grantmaking organizations, and community-based program directors from across the country to share knowledge and generate new ideas for engaging and strengthening readers. IMLS gathered an extensive list of references from this meeting on (1) literacy development and literacy programming for children, youth, and emergent readers, (2) social well-being and community development, and (3) investing in libraries and library staff. The team also consulted the references of a follow-up IMLS-sponsored literature review of the effects on children's reading outcomes of literacy and reading programs in public libraries (Guven & Haddad, 2023) and included key articles suggested by IMLS staff.

Electronic databases and websites. Second, the review team conducted a targeted search of electronic databases and websites. To focus this search on current knowledge, the search was limited to research published between 2013 and 2024. The search considered quantitative and qualitative research that used a variety of designs and analytic approaches, including descriptive and causal (impact) research. Appendix B includes details on the search and the electronic databases and websites consulted.

The review team then combined the references that resulted from this two-pronged strategy, removed duplicates, and moved on to the next step of prioritizing the literature.

2.   Prioritize literature

Next, the review team prioritized literature based on the following criteria:

- **Date of publication.** Published in 2013 and after, but considered research published before 2013 when relevant.

- **Language of publication.** Published in English, though the review also included studies from outside the United States.

- **Topical relevance.** Topics relevant to the research questions, including, for example, what caregivers and public libraries do to engage children in reading, the connections between public libraries and the ecosystem of entities supporting children's reading literacy and engagement in reading, and the factors that enable children to engage in reading.

- **Topical coverage.** Addressed more than one research question to maximize the potential for gathering enough information to cover each research question.

- **Country or region.** Conducted in the United States but did not automatically exclude research that was conducted elsewhere if it met several other prioritization criteria.

- **Design and methodology.** Qualitative and quantitative research based on any design and methodology.

To apply the prioritization criteria, the team conducted a scan of the titles and abstracts of 336 manuscripts obtained from the database and website searches, the references from IMLS's March 2022 meeting and its follow-up 2023 literature review (Guven & Haddad, 2023). Reviewers assigned points to each manuscript based on whether the information in the title and abstract addressed the criteria prioritized for relevance and coverage. For example, reviewers awarded more points to manuscripts on studies that addressed questions on the factors that define children's engagement in reading, and/or that focused on the role of public libraries in supporting children's engagement in reading. Also, reviewers awarded more points to manuscripts on studies that conducted some form of data analysis or evaluation of an intervention. Appendix B details how the review team assigned points in several categories (representing the prioritization criteria) to each manuscript. Reviewers added the points across those categories to create a total score (range 0–37 points) for each manuscript, and then ranked the manuscripts based on the total score. Reviewers briefly reviewed the content (not limited to the title and abstract) of the 98 manuscripts with the highest score, and the team eliminated from this prioritized list 14 manuscripts that did not include information directly relevant to the research questions. Based on this prioritization process, the research leads compiled a list of 84 citations, which IMLS's project team reviewed and approved.

3.   Analyze and summarize key information

Finally, the review team extracted, analyzed, and summarized the key information for each prioritized manuscript, using a detailed review template stored in a spreadsheet to facilitate sorting, tallying, and filtering of information (Appendix C). The goal of our analysis was to find evidence to help answer our research questions and not to assess the quality of the research designs or the effectiveness of the initiatives included in the review (as a systematic review of evidence would do).

4. Limitations of our approach

This document review has limitations that should be considered when interpreting the results. First, although the review team conducted a comprehensive search of the literature, the review is limited to the 84 prioritized manuscripts. It is possible that other manuscripts the team did not review could have provided relevant insights. Second, the reviewed manuscripts focused on children's reading literacy engagement in the context of the public library, so the findings do not address the broad range of factors that contribute to the development of early literacy and reading skills. Finally, the team carefully reviewed the findings reported in the literature and landscape manuscripts, but the team did not review the quality of the design, methods, and evidence of the studies that produced the findings.

B. Landscape review

The landscape review encompassed 14 research documents (listed in Appendix A) and three interviews with IMLS's staff relevant for answering Research Questions 1–6.

1. Research materials

The landscape research documents included IMLS's documents and research manuscripts suggested by IMLS's leaders on topics related to the ecosystem children are raised in, such as economic opportunity and support for literacy development. The review team extracted the information from each research document along the same dimensions that guided the literature review and recorded the information in the same spreadsheet template (Appendix C).

2. Interviews

Research leads interviewed three IMLS staff members to learn from their expertise about topics across Research Questions 1–6, but the interviews emphasized the areas that had information gaps after the literature and landscape reviews, including:

- The role of public libraries in the ecosystem supporting children's reading literacy and engagement in reading

- How IMLS-funded programs support children's engagement in reading, including identifying best practices for library staff interactions with caregivers to create and support relationships between caregivers and public libraries that improve children's engagement in reading

- Investments in public libraries (books, public library staff and training, and public library partnerships with other institutions in the community)

- Public library spaces or neighborhood features that are associated with children's engagement in reading

- How digital resources are being used in public libraries to support children's reading literacy

Interview notes provide additional context and support to the findings from the literature and landscape document review and to identify especially illuminating quotes that may help a reader understand the findings.

3. Limitations of our approach

There is one caveat that should be considered when interpreting the findings of the landscape review. The team did not conduct a systematic screening process, as they did for the literature review, to prioritize which materials to include in this review. Therefore, the team could have missed reviewing important material related to the children's reading literacy ecosystem.

C. Analyzing grant data

The authors reviewed documents and administrative data relating to grants awarded by IMLS through two programs: (1) discretionary grant programs and (2) Grants to States, Libraries. These documents and data provided valuable information on the kinds of activities that public libraries and organizations engage in to support children's reading development.

1. Process to identify relevant grant projects

Based on available data, the review team used a combination of administrative grant data, grant abstracts, and IMLS's recommendations to narrow down the thousands of state and discretionary grants awarded between 2020 and 2023 to a set of 50 grants reviewed for this report.[3] Reviewers analyzed various grant materials to summarize key information about each grant that was relevant to the research questions, using a template similar to the one used for the literature review analysis. Because the information available on discretionary grants and Grants to States differed in format and content, the process of identifying and reviewing grant materials was slightly different for each type of grant:

- *Discretionary grants.* The initial list of discretionary grants contained all grant applications submitted to IMLS between fiscal years 2020 and 2023 (inclusive), totaling just over 9,000 applications. The review team filtered this list to identify grant applications that were awarded and focused on activities or services benefiting children aged birth to 12 (roughly 1,000 grants). The team further reduced this subset to include only grant abstracts that mentioned the words "literacy" or "reading" (175 grants) and briefly reviewed those abstracts to identify 18 grants that (1) supported public libraries (as opposed to, for example, museums) and (2) were intended to support children's literacy or reading skills. Reviewers then analyzed grant application materials and performance reports submitted by grant recipients in detail to extract information relevant to the research questions.

- *Grants to States, Libraries.* The initial list of Grants to States, Libraries contained nearly 10,000 project activities from 5,000 projects supported by Grants to States between fiscal years 2020 and 2022 (inclusive). The review team filtered this list to identify projects that (1) were conducted by public libraries, (2) served children ages birth to 12, and (3) addressed literacy, early literacy, or reading programs. From this subset of 55 projects, the team briefly reviewed project narratives to find 32 unique projects that were intended to support children's literacy or reading development. Reviewers then analyzed project activity data provided by IMLS, and publicly available five-year evaluation reports from each State Library Administrative Agency (SLAA) to extract information relevant to the research

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[3] For grants awarded before 2020, key information needed to search for relevant awards is missing, such as abstracts describing the grant and other key variables such as the target population.

questions. For a small subset of six projects, the team was able to acquire and review artifacts from project programming (for example, flyers distributed as part of the program or program calendars).

More information on the grants, including a breakdown of which states (24 states in total) and specific grant projects (18 discretionary grant projects and 32 Grants to States projects) were included in the 50 grants reviewed by the review team, is set forth in Appendix D.

2. Limitations of our approach

The analysis of the grant data comes with important caveats that should be kept in mind when interpreting results. First, it is possible that the process to identify relevant grant projects described above may have led the review team to miss relevant projects that, for example, did not include the words "literacy" or "reading" in the application materials but nonetheless supported children's reading development. In addition, the review team only reviewed grants from a subset of years that might not be representative of grants awarded in other years that were not reviewed as part of this research. As such, the analyses reflect trends among these 50 specific grants and may not reflect the entire breadth of experiences of the population of grants funded by IMLS. Lastly, our analyses of grant data are limited to the specific details of grant programming that the materials as reported by the recipients, which may not reflect every aspect of grant programming.

IV. Findings

Findings for each research question are now discussed in turn. The section begins with high-level themes across the three sources of information (literature, landscape, and grant materials) that contribute to answering each research question, followed by findings specific to (1) the literature and landscape reviews[4] and (2) the grant data review. Finally, the section includes implications the findings have for future research more broadly. Text boxes highlight relevant findings and give examples.

Research Question 1: How is engagement in reading defined at different developmental ages? What are measurable outcomes of engaged reading in the public library context?

1. Key takeaways

Engagement in reading is a multidimensional construct based on childhood age of development. *Engagement* is the behavioral participation and psychological involvement in a task in a way that reflects enjoyment, interest, motivation, attention, or self-regulation.[5] Engagement *in reading* is a multidimensional construct because the way children participate and involve themselves psychologically in the activity varies by developmental age. When children have not begun to read themselves, direct measures of children's literacy skills and assessments of a child's home reading environment are important indicators of engagement in reading. After children enter school, other measures take

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[4] The report presents the findings from the analyses of these two sources of data together to provide a cohesive picture of the themes that emerged based on the review of all research manuscripts and interviews.

[5] Concept of engagement from Finn, J.D., & Zimmer, K.S. (2012). "Student engagement: What is it? Why does it matter?" In S. Christenson, A. Reschly, & C. Wylie. (eds). *Handbook of research on student engagement*. While the authors provide a useful definition of engagement, this manuscript is not part of the research included in the literature and landscape reviews because its focus is outside of the scope of the review.
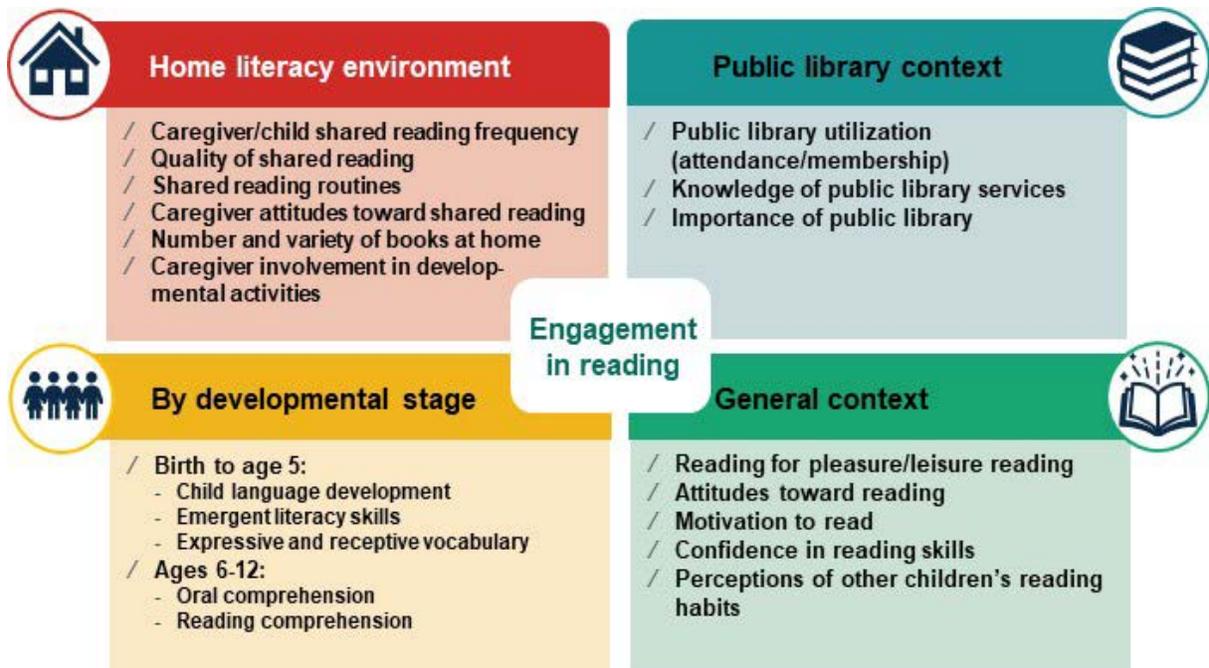
prominence, such as literacy skills, reading comprehension ability, how much a child reads for pleasure, and children's motivation to read.

Reading engagement can be difficult for public libraries to measure directly. The interviews and grant materials suggest that public libraries face challenges in measuring children's engagement in reading at different developmental ages. Because of that, public libraries tend to rely on measures of program attendance and participation experiences when they try to quantify engagement in reading. The challenges public libraries face in collecting data from the participants in their programming include inconsistent attendance and the fact that much of the engagement public library programs seek to influence happens at home and is, therefore, difficult for public library staff to assess.

2.   Findings from the literature and landscape reviews

Across the reviewed manuscripts, 63 percent contributed to our understanding of how engagement in reading is defined and how it can vary across different developmental ages. Some aspects of engagement in reading can be categorized as participation in early literacy programming, and others as whether children are meeting specific program goals. Common measures of the latter include measures of activities that mostly take place within the home environment, such as shared reading with caregivers and reading for pleasure, and measures of children's literacy skills. Exhibit IV.1 shows different constructs of engagement used in studies across the literature review and landscape manuscripts. (Appendix E lists references for the constructs in Exhibit IV.1).

Exhibit IV.1. Constructs related to children's engagement in reading

Home literacy environment
/ Caregiver/child shared reading frequency
/ Quality of shared reading
/ Shared reading routines
/ Caregiver attitudes toward shared reading
/ Number and variety of books at home
/ Caregiver involvement in developmental activities

Public library context
/ Public library utilization (attendance/membership)
/ Knowledge of public library services
/ Importance of public library

Engagement in reading

By developmental stage
/ Birth to age 5:
  - Child language development
  - Emergent literacy skills
  - Expressive and receptive vocabulary
/ Ages 6-12:
  - Oral comprehension
  - Reading comprehension

General context
/ Reading for pleasure/leisure reading
/ Attitudes toward reading
/ Motivation to read
/ Confidence in reading skills
/ Perceptions of other children's reading habits

The manuscripts examined in the literature review measured different aspects of engagement in reading depending on the ages of the participants in the reviewed studies. When looking at engagement in reading before school entry, researchers often used the Benchmarks Curricular Planning and Assessment Framework and Program Evaluation Tool identified in Campana et. al. (2016) to measure early literacy skills. However, to look at engagement more holistically at early ages, researchers also used measures related to the home literacy environment because caregivers play such a critical role in children's engagement. This approach could include measures such as frequency of shared reading, number of books at home, number of visits to a public library, and a parent's knowledge of early literacy skills (Exhibit IV.1). Research examined the quality of the home literacy environment as an outcome associated with an initiative or program (Barat-Pugh & Allen, 2011), or as a predictor of improvement in later reading outcomes such as reading for pleasure and reading abilities (Pfost & Heyne, 2023).

Engagement in reading in early elementary years, defined here as kindergarten–5th grade, has multiple dimensions, and multiple measures are therefore necessary to assess it. Such measures assess reading ability, reading for pleasure, and motivation to read (Boden, 2018; Schmidt, 2023; Onwubiko et al., 2022). Reading engagement for elementary-age children is typically assessed through measures of ability such as standardized tests of skills in English and language arts. However, some studies have measured other aspects of reading that reflect engagement. For example, in a recent report from an annual literacy survey of more than 70,000 students in the United Kingdom, researchers measured engagement in reading with measures of reading enjoyment and whether children read every day (Cole et al., 2022). Although frequency of reading for pleasure, or leisure reading, is often measured as a distinct program goal (Mat Roni & Merga, 2017; Mat Roni & Merga, 2019), it can also be seen as a predictor variable related to reading ability, where students who read more in their free time have better reading ability outcomes (International Reading Association., 2014; Leitão et al., 2015). For instance, in a study of the role of the public library in literacy development, the researchers measured the associations between reading for pleasure and instructional level in reading and how familiar youth were with children's literature (Celano & Neuman, 2001).

Studies of public library programs measure program factors that are likely to influence children's engagement in reading. The program outputs—the direct results of the program activities—these studies measured included (1) caregivers' desire to participate in additional public library programming in the future, including storytime and summer reading programs, (2) caregivers' perceptions of whether public library programming helped remove barriers to engaging in reading, and (3) ways to improve public library programs to increase access and attendance. (Public library practices to support children's reading engagement are discussed in detail in reporting the findings from Research Question 2.) IMLS staff reported that public libraries do not think about "engagement in reading" as a distinct output or outcome, instead, they think about

"One primary way we see or talk about reading and children is from an output lens like how many, how much, how many hours, etc. We do see a bit of the process part, so how do we better prepare librarians around the science of reading or phonemic awareness? There's some of that, not necessarily the focus on the children but on the capacity of librarians or library workers to engage children around reading in different ways."

IMLS staff

how well the outputs of their programs reflect the extent of the support the programs provide to improve children's engagement in reading—for example, whether providing training to library staff on teaching literacy skills would support library staff in engaging children in reading.

Researchers in the public library field acknowledge the difficulty of measuring reading outcomes in informal settings such as public library storytimes. That difficulty stems from variable attendance at public library events and also because several

established measures of reading literacy skills were designed for formal education (where children of a similar age are grouped in classrooms, which is an environment that facilitates administration of literacy skills assessments) rather than informal settings (Campana et. al., 2016). Caregivers, as noted, are critical to understanding engagement at early ages. However, there are challenges in data collection that are based on considering the needs of caregivers (Box IV.1), such as balancing the burden of data collection activities with caregivers' busy schedules (Crist et al., 2019).

> **Box IV.1. Broad perspective in data collection**
>
> In addition to the general challenges of collecting measures of children's reading engagement in public library settings, researchers also need to think about how they can collect data that captures experiences more broadly by considering:
>
> - Translation of study materials and data collection instruments
> - Accessibility issues for reaching caregivers with poor literacy skills ◢

3. Findings from the grant data

The grant documents the review team examined echoed the literature review's findings on the challenges of measuring children's reading engagement. To assess their programs' impact, grant recipients tended to measure reading engagement among children and their caregivers by using metrics such as the number of participants in a program,

the number of books checked out from participating public libraries, or the number of new library cards given out to program participants (Box IV.2). Although these participation-based measures of reading engagement do not directly measure constructs identified in the literature review, such as literacy skills or love of reading, they are easier for public libraries to track and may act as proxy measures of those constructs.

> **Box IV.2. Example measures of reading engagement used by grant recipients**
>
> - Program participation
> - Number of books checked out
> - Children's plans to return to the library
> - New library cards issued
> - Caregivers' perceptions of children's reading readiness ◢

Some grant recipients measure children's engagement in reading indirectly by administering surveys to their parents or caregivers. The Take 5 Early Literacy Family Engagement Initiative grant awarded to the Glynn County Board of Commissioners, for instance, administered a survey to caregivers at different points during the program to ask them about their children's readiness for reading (among other questions). These surveys, however, sometimes had low response rates, reflecting another obstacle libraries face in measuring children's reading engagement.

The grant documents do not detail whether engagement in reading varies with age. Many grants appeared to support programs that engaged children of different ages in reading and alluded to offering different activities and materials to children of different ages. However, it was uncommon for the grant materials reviewed for this research to articulate how reading engagement was expected to vary among children of different ages. A few grant documents did mention how engagement may differ across ages. Colorado's Growing Readers Together program, for example, provided caregivers with information on key developmental milestones related to literacy for children of different ages. Thus, although discussions of engagement at different ages were not prevalent in the reviewed grant materials, public libraries were aware of how engagement differs across ages.

4. Implications for future research

- Researchers could work with public libraries to better understand the different ways that reading engagement can manifest when children of various ages participate in public library activities.

- Future studies could explore which components of public library programming, such as library staff levels of literacy training, delivery methods and content, are correlated with different aspects of children's engagement in reading. This research could consider the measures and methods used in Campana et al. (2016) as a starting point for the investigations.

- Future research could explore whether measures of participation in public library programming, such as the number of books checked out and the number of new library cards issued, could be appropriate proxies for measuring other aspects of reading engagement, such as literacy skills and love of reading.

Research Question 2. What activities and outreach do public libraries see as best practices to engage children in reading? How do public libraries invest in staff and infrastructure to improve the implementation of these practices?

1. Key takeaways

Public libraries offer a variety of programs to promote children's reading engagement, and these programs tend to be aligned with best practices in the academic literature. Some of the most common strategies discussed in the literature and grant materials reviewed for this research aimed to engage children directly through initiatives like summer reading and storytimes. These approaches reflect *which* activities libraries and research view as best practices, and Research Question 3 will discuss findings related to *how* those activities can support engaging children in reading.

Public libraries prioritize investments in training staff to deliver reading literacy programming. The literature and landscape reviews point to the importance of providing professional development to equip library staff to deliver programming. This emphasis on training is echoed by grant recipients, who commonly report providing such training to their staff.

2. Findings from the literature and landscape reviews

Activities and outreach that public libraries see as best practices to engage children in reading include pursuing initiatives to expand or strengthen their offerings, supporting children and their caregivers capacity to participate in those initiatives, and collaborating with other organizations in the community to increase caregivers' opportunities to engage in reading (see, for example, Caldwell, 2023; Campana et al.,

2022; Campbell-Hicks, 2016; Celano & Neuman, 2001; and Crist et al., 2019). Across the reviewed manuscripts, 74 percent contributed evidence addressing Research Question 2. The section begins with findings on activities and outreach public libraries may consider as best practices, followed by findings on investments in staff and infrastructure to improve implementation of these practices.

Storytime and summer reading programs were the most discussed library programs in the literature review. More than one-third of the manuscripts examined or discussed aspects of public library storytimes, stressing the importance of the program in developing children's early literacy skills, setting the foundation for a love of reading, and educating caregivers on how and why they should be reading to their children. Because caregivers are frequently attending programming for their child's enjoyment and socialization, public libraries may consider the stories that will resonate most with the children in their community and also provide space for parent-to-child interaction (Cahill et al., 2020). To make storytime more effective in developing early literacy skills, researchers noted they should include a range of activities to meet the need of the community (Campana et al., 2016), such as adapting principles of the Every Child Ready to Read initiative (Box IV.3), which educates caregivers on developing children's early literacy skills (Neuman et al., 2007; McCormack, 2018). Box IV.3 has more information on the initiative's core concepts and how it has shaped the ways public libraries think about children's programming since its inception. The information is based on a three-year evaluation of the program by Neuman et al. (2007).

/////////////////////

"[Storytime] isn't just about the baby or toddler, it's for the adult because it's a teaching and practice of those behaviors that make inroads [in] a young child's literacy journey. [Librarians are] demonstrating to parents how to read a story and keep a child engaged and ... build not just interest but phonological awareness and build book literacy, like how to engage with a book, how do you utilize the book as a whole instrument."

IMLS staff

Summer reading programs were also commonly discussed in the manuscripts. Strategies explored around summer reading that may be seen as best practices include providing literacy-related incentives, such as books, for participating in summer reading programs and reaching certain reading milestones (Becknel et al., 2017; Justice, 2023; Small et al., 2017). Summer reading programs should encourage social interaction (for example, by organizing book clubs) and consider selections based on peer recommendations (Copeland & Martin 2016; Dillon et al., 2017).

Other programming that public libraries provided included activities such as music, games, arts and crafts, and playing with puppets and toys (Barrat-Pugh & Allen, 2011; Burn et al., 2022; Celano & Neuman, 2016; Clark, 2017; Clark & Hunt, 2016; Crist et al., 2019; Dankowski, 2018; Sivkoff-Livneh 2022; Xu et al., 2020). Some public libraries provided children and their families with increased access to the library, such as more library cards and no late fees, or technology, such as laptops, tablets, e-books, audiobooks (Campana et al., 2019; Holt & Holt, 2015; Payne and Ralli, 2013; Prendergast & Sharkey, 2021; Smith, 2018). Additional programming included reading rooms, book talks, activity stations for play, American Sign Language (ASL) interpreters, bookmobile visits, reading screenings for young children, a summer library meal program, or resources and training for parents to help them promote literacy at home

(Campana et al., 2022a, Bushman et al., 2019; Kozikowski and Williams., 2020; Pannone, 2019; Peters et al., 2019; Ptacek, 2016, Rubiner, 2016; Schmidt, 2023; Stoltz et al., 2015).

> ## Box IV.3. Every Child Ready to Read (ECRR)
>
> Neuman et al. (2007) indicate that "ECRR is based on two core concepts: reading begins at birth, and parents are a child's first and best teacher. Librarians encourage parents and caregivers to interact and help build their children's vocabulary and early literacy skills using the Five Practices of talking, singing, reading, writing and playing." (p. 5) That study also discusses lessons learned from ECRR 's work with libraries and caregivers in the early 2000s:
>
> * Libraries need to strategically think about how their space encourages family interaction.
> * Programming moves beyond traditional storytime to incorporate activities like music and play that children and adults can do together.
> * Library staff's focus is not exclusively children but has shifted to engaging and educating the whole family.
> * Public librarians are doing more to connect caregivers to other resources in the community. ◢

Activities that support caregivers are critical for public library programming along the entire continuum of a child's development. Public libraries support caregivers in (1) choosing appropriate reading materials for their children (Peng & Chuang, 2020), (2) understanding what to expect about their children's literacy development and how children will interact with books and other children during public library programming (Hedemark et al., 2018), and (3) committing to participating in public library programming for helping children develop literacy skills and sustained interest in reading (Clark, 2017). Public library staff teach and model reading activities so caregivers can learn how to conduct them at home to support development of their children's literacy skills (Chung & Sung, 2020; Crist et al., 2019; Kozikowski & Williams, 2020; Perkins & Sawyer, 2023; Smith, 2018).

Research points to several best practices that public libraries can adhere to in delivering these activities, including:

* Maintaining a consistent schedule of activities that support literacy development and engage children and their caregivers (Young et al., 2019)

* Offering flexible, year-round programming (Jepson, 2013)

* Providing public library cards to as many children (of all ages, including infants) as possible (Holt & Holt 2015; Payne & Ralli 2013)

* Providing caregivers with high quality and culturally relevant materials (Barrat-Pugh & Allen 2011; Baralt et al., 2022; Onwubiko et al., 2022)

Public libraries invest in staff professional development, materials, and physical space upgrades to support activities they consider best practices. Investments in staff professional development (Box IV.4) can include mentoring public library staff (Eastman and Hargove, 2021) and training them on early literacy education (Barrat-Pugh & Allen, 2011; Chung & Sung, 2020; Clark, 2017; Mills et al., 2018). Manuscripts suggest that the combination of training and mentorships may help staff structure public library programming based on best practices for engaging children in reading and promote early literacy development with activities such as storytime. Providing public library staff with training has also been correlated with increased self-efficacy among storytime providers (Perkins & Sawyer, 2023), though few studies aimed to assess the effectiveness of different approaches to providing such training. Some approaches to training library staff may be borrowed from the literacy education field. However, challenges emerge for translating evidence-based practices into real-world settings, such as changing how public library staff and teachers incorporate "science of reading" practices into their day-to-day work (Novicoff & Dee, 2023).

> **Box IV.4. Investing in training public library staff**
>
> Reviewed manuscripts also discussed training in the following areas:
>
> - Techniques to manage children (Perkins & Sawyer, 2023)
> - Best practices for implementing specific programs offered at the public library (McCormack, 2018)
> - Communicating with caregivers about the importance of literacy skills development (Clark Hunt, 2016)
> - Supporting participation in public library programming by children with varying learning needs (Bushman et al., 2019)
> - Information technology, administration, and management skills (Peng & Chuang, 2020) ◢

Investing in materials and physical space encompasses (1) expanding the public library collection to include materials that are relevant and accessible to the community and (2) creating a physical space that is accessible to people from all backgrounds and abilities and encourages children to interact with public library staff and each other. Play is a key activity through which young children can begin to develop literacy skills (Neuman et al., 2007), and public libraries can invest in physical spaces that encourage play. These investments in space require commensurate investments in professional development for staff to understand how to facilitate play as part of programming (Flint 2018). The space should also allow public librarians to demonstrate for caregivers the physical ways children can interact with books (Hedemark et al., 2018). The space of the public library also shapes how children with disabilities move through it, requiring investments to make it accessible (Prendergast, 2016).

Public libraries work to meet children and their caregivers "where they are" to support their reading engagement. In some cases, these efforts are rooted in raising awareness of the programs public libraries offer through partnerships with community organizations already serving the population of interest (Barrat-Pugh & Allen, 2011; Campbell-Hicks, 2016; Klass et al., 2009; Leitão et al., 2015; Ptacek, 2016). In other cases, public libraries aim to remove access barriers to library programming (Campana et al., 2022; Dankowski, 2018; Neuman et al., 2020; Young et al., 2019). Investments public libraries are making in outreach include the following:

- Promoting reading programs at community events and other institutions such as daycare centers and schools (Barrat-Pugh & Allen, 2011; Burns et al., 2022; Copeland & Martin, 2016; Crist et al., 2019)

- Sponsoring reading rooms at other institutions in the community, such as community and public health centers (Peters et al., 2019)

- Offering programs or events that are not focused on reading—such as events focused on art, music, crafts, or free meals—but are designed to extend literacy experiences, cover needs of children and their caregivers, and bring children and caregivers to the public library so they can experience the public library's reading programs (Celano & Neuman, 2001; Rubiner, 2016)

3. Findings from the grant data

As in the literature review, summer reading and storytime programs were among the most common activities grant recipients offered. The child- and caregiver-facing activities and outreach supported by grants largely fell into four broad categories: summer reading programs, storytimes, tutoring, and distributing reading or literacy packets (top columns of Exhibit IV.2). Yet these broad categories mask the variety of approaches that grant recipients took to *implement* these programs. The specific components of summer reading programs, for example, differed across grants. California's Summer @ Your Library program took advantage of an existing state book club to find various titles and authors for its summer reading program in order to engage a wider range of children. Another program, Kids Read Across Rhode Island, provided resource guides to teachers to integrate materials from the summer reading program into their classroom lessons. These distinct approaches speak to the innovation occurring through IMLS's grant programs and as will be discussed in Research Question 7, offer opportunities to identify the specific aspects of library programming that may be most effective in engaging children in reading.

Exhibit IV.2. Percentage of grants supporting different activities
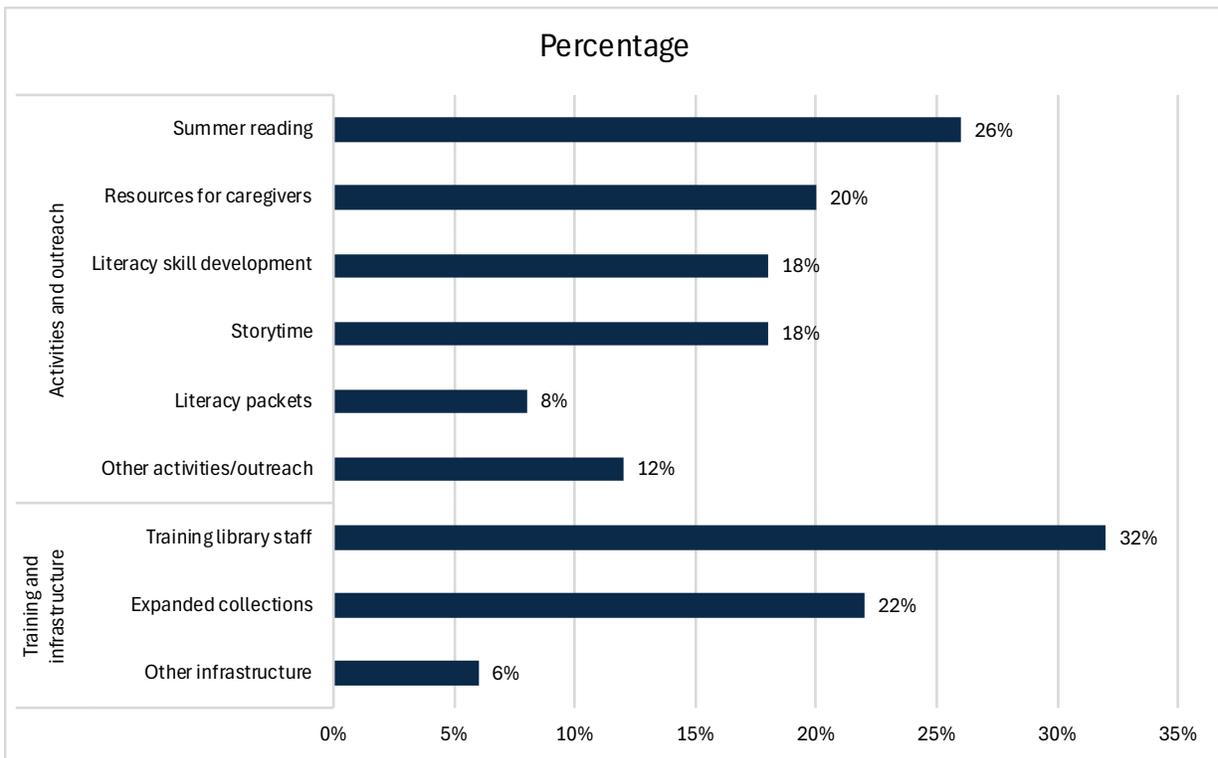
Percentage

N = 50 grants

Source: Review team's review of IMLS's grant materials

Note: Categories are not mutually exclusive; a single grant could and often did support multiple activities, so percentages do not sum to 100 percent.

One-third of grant recipients offered training to library staff to improve program implementation. Exhibit 3 provides evidence that, at least among the grants reviewed for this research, many public libraries view building staff capacity to effectively deliver programs as a key step in supporting children's reading engagement. The nature of the training provided varied across grants. Some grants, like the Sealaska Heritage Institute's Raven Reads at the Library Toolkit, trained library staff to deliver a specific reading program, while others, like Arizona's Building a New Generation of Readers program, appeared to provide more general professional development (in the case of the Arizona program, librarians were given the opportunity to complete an Early Childhood literacy certificate). Nor was the training supported by grants limited to library staff, with some grants (such as the Strength in Families program in Springfield, Massachusetts, providing resources or training for caregivers. The prevalence of staff training in the grant materials suggests that public libraries view building staff capacity as important and speak to their role as a potential provider of training opportunities, both for librarians as well as other members of the community.

Beyond investing in staff, some grant recipients invested in other forms of infrastructure intended to support children's reading. It was common for grant recipients to use grant funds to expand the collection of materials they offered to patrons, including books, e-books, audiobooks, and other forms of multimedia (22 percent of grants). These investments in infrastructure extended beyond library

collections. For example, a discretionary grant awarded to the Library System of Lancaster County, Pennsylvania, supported the library's purchase of a bookmobile—a mobile library designed to bring public library resources to the community. Other grants invested in physical infrastructure, like the Stillaguamish Library Program, which invested in age-appropriate, adaptable furniture for the library's early learning center.

4. Implications for future research

Future studies could further investigate how many different approaches to conducting public library programming and investing in training public library staff could improve program implementation and, relatedly, efficacy. Investments in training staff are particularly relevant because such training was among the most common activities mentioned in the grant materials.

Research Question 3. How do children engage with public library resources supporting their reading engagement (individually and together with their caregivers)?

1. Key takeaways

Public libraries offer important spaces outside of the home where children can engage in reading activities and interact with peers. Although this engagement often happens in public library buildings, evidence from the literature and grant materials points to the importance of engaging children (and their caregivers) outside of the library buildings through, for example, mobile book programs or library-sponsored programming at elementary schools.

Public libraries recognize the importance of involving caregivers in children's reading engagement. Many grants either directly engaged caregivers as participants in public library programming or provided them with resources to engage children more effectively in reading at home. Manuscripts from the literature and landscape reviews emphasize that caregivers are central to children's reading engagement.

2. Findings from the literature and landscape reviews

Children's engagement with public library resources changes as they progress from infancy through early elementary school. Similarly, the role of caregivers evolves, but is consistently important to children's engagement in reading. The role of the caregiver as the child's first teacher was consistently mentioned across manuscripts and in IMLS's staff interviews. Across the manuscripts reviewed, 66 percent contributed evidence addressing Research Question 3.

At early ages, between birth and the start of kindergarten, children engage with the public library through activities like singing and playing with caregiver support. When caregivers bring children to a storytime at the public library, they may receive resources that can help them support their children's engagement in reading (Cahill et al., 2020; Crist et al., 2019). Caregivers also view storytimes as important opportunities to socialize, both for their children and for themselves (Cahill et al., 2020; Clark & Hunt, 2016; Clark, 2017; McCormack, 2018). Caregivers form relationships with public library storytime providers that encourage future attendance at reading literacy programs (Young et al., 2019). Although caregivers are critical to engagement, young children also begin to see the public library as a place separate from

home where they can interact with their caregivers and other children, read books, and participate in library activities with increasing autonomy (Xu et al., 2020).

With their caregiver's support, young children engage in programming through activities such as songs, crafts, playtime, and group activities that are theorized to support their later engagement in reading. Part of this early engagement is physical, involving movement, rhyming and songs; the librarian models the physical interactions with books and reading for caregivers through the storytime programming (Hedemark et al., 2018). Through play, children experience a deeper understanding of the text by building on their existing knowledge and experiences (Flint, 2018). Children may also engage more in storytime when librarians use questioning strategies, intentionally including prompts for children to share, and give children opportunities to develop their language acquisition and other early literacy skills (Cahill et al., 2020). The importance of giving children opportunities to speak in this setting is supported by evidence that early talk and conversations with adults are associated with later language development and cognitive outcomes (Gilkerson et al., 2018).

At later ages—5 through 12—children engage more directly with the public library by participating in summer reading programs, reading books, and attending book talks. For both children and caregivers, the public library provides a space to facilitate dialogue with peers (Copeland & Martin, 2016; Schmidt, 2023). Participating in public library programming is associated with more positive attitudes toward reading and more use of library resources (Schmidt, 2023). However, all children in a community may not be equally likely to participate in these programs. Older elementary-school–age boys, for instance, are often more reluctant to participate in these programs, but engage more when given opportunities to socialize and provided with books recommended by peers rather than library staff (Dillion et al., 2017). Children who have home learning environments that foster a love of reading may be more likely to engage in library programming (Justice et al., 2023; Small et al., 2017). As children often need transportation to library programming, family engagement affects participation in library programming (Becknel et al., 2017; Boden, 2018). In addition, children may engage more when public library programs are introduced in schools. This highlights the importance of collaboration across organizations supporting children's engagement in reading (Leitão et al., 2015).

Even as the ways children engage with libraries evolve, caregivers are still essential for supporting children's literacy development (Box IV.5). Public libraries can help caregivers play that role by, for example, providing them with reading literacy resources and training. In a descriptive study of a family literacy program in Australia, caregivers reported increases in their motivation to read to their young children, frequency of book sharing, and utilization of the public library after receiving reading packs with high quality books and tips for reading to their children (Barrat-Pugh & Allen, 2011). Interviews conducted as part of an evaluation of summer reading programs offered by public libraries in Pennsylvania suggested that while children engaged in the programs by spending time with books and developing literacy skills, caregivers reported that the programs also encouraged them to be more involved in their child's reading, helping them sound out difficult words, or pick out books to read with their children (Celano & Neuman, 2001). IMLS staff indicated that public libraries understand the caregivers' role as "a child's first teacher," and that public libraries support caregivers through their programming over the course of the children's literacy journey. For example, during storytime, public library staff are not just reading to children, they are demonstrating to caregivers how to read with their children.

> **Box IV.5. Highlights on the importance of a caregiver's role**
>
> - Research in non-library settings has demonstrated that parent or caregiver involvement in a child's reading leads children to be more interested in reading and improves their literacy-related behaviors and skills (Guven & Haddad, 2023)
> - Biomedical research has demonstrated associations between the home reading environment and activation of specific brain regions that support emergent reading skills (Hutton, et al., 2015)
> - Research suggests that joint library visits are associated with youth spending more time on leisure reading and demonstrating improved knowledge of fiction books (Pfost & Heyne, 2023) ◢

Children and their caregivers engage with the public library only if they have the opportunity to do so. Caregivers may face several obstacles to accessing public library services, such as time constraints and competing needs like food or childcare. Removing such barriers could make it easier for caregivers to engage with public library programming and ultimately help support children's reading literacy development. For example, public libraries can offer programs or bring their resources to laundromats or offices of the Special Supplemental Program for Women, Infants, and Children (WIC) so children can read or attend programming while their caregivers access other services (Dankowski, 2018; Neuman et al., 2020).

"The other thing is understanding that while literacy is important, there are people for whom literacy is secondary or tertiary in their life experience; I can't think about reading Captain Underpants if my concern is that the school is out for spring break, and where do I get breakfast or lunch? Libraries are thinking about a continuum of care in the literacy journey and that there are gaps that need to be filled so you can think about literacy and reading."

IMLS staff

3. **Findings from the grant data**

Grant materials reiterate the importance of engaging caregivers through library programming discussed in the literature review. Though grant materials reviewed for this research rarely spelled out how children would engage in programming beyond participation, the kind of activities grant recipients offered shed light on how children were expected to engage. Massachusetts's Strength in Families grant, for example, offered activities that matched the forms of engagement outlined in the literature review: songs and storytimes for infants, music-movement literacy events for toddlers, and play groups for preschool students.

Many grant recipients either explicitly or implicitly reiterated the importance of family engagement through their programming. About one in three grants supported programming that integrally involved children's caregivers. In some cases (such as the Prime Time Family Reading program highlighted in Box IV.6), caregivers participated in library programming alongside their children. The Oneida Nation Library Enhancement Project, for example, mentions engaging children and their caregivers in storytime while walking trails around the library grounds. In other cases, public libraries provide caregivers with resources or training to help them engage children at home. Programs like the Take 5 program in Glynn County, Georgia, and Louisiana's Early Literacy grant distributed literacy packets that included reading materials, activity guides, or other resources to support caregivers in engaging children in reading at home.

> **Box IV.6. Exemplar grant: Prime Time Family Reading**
>
> The Prime Time Family Reading program, which is supported by IMLS's grants in multiple states, engages elementary-school–age children and their caregivers in a storytime program. A humanities researcher helps lead caregivers in a discussion of children's books to support communication about reading between children and their caregivers and provides them with resources to become engaged public library users. ◢

Grant activities designed to engage children in reading outside of public libraries by providing resources to caregivers are a reminder that the reading engagement public libraries aim to foster is not always easily observed in the confines of the library building. Though the findings presented on Research Question 1 show that public libraries most often assess reading engagement through metrics that libraries can easily measure themselves (such as the number of children participating in a public library program), some grant recipients acknowledged that reading engagement extends beyond public library walls. For instance, the Sealaska Heritage Institute's Raven Reads grant materials reference a previous evaluation of the program that assessed children's reading engagement by measuring the amount of time that caregivers spent reading with children outside of the library.

4. **Implications for future research**

- Future studies can explore the effectiveness of strategies public libraries employ—whether through programming or community outreach— to reach children and caregivers who may be less likely to engage in reading.

- Future studies can also directly integrate caregivers' perspectives into evaluations of the success of public library programming in engaging children.

Research Question 4: How has children's engagement in reading changed over time with the introduction of digital and online resources in public libraries?

1.   Key takeaways

Public libraries have made strides in expanding the digital offerings that are available to patrons, including among the grants reviewed for this research. Grant recipients have invested in digital resources such as audiobooks and e-books and often frame these digital offerings as a means of engaging children who would otherwise be reluctant to read by making the material more accessible to them. Reviewed manuscripts explored ways for libraries to make the best use of this technology and the kind of staff training that would help them to do so.

Despite the increasing prevalence of these offerings, few sources provide evidence about how libraries' digital resources have changed the way children engage in reading. Understanding the impact of digital offerings in the public library context and how the resources can be used most effectively remains an important area for future inquiry.

2.   Findings from the literature and landscape reviews

Few manuscripts addressed studies of how engagement in reading has changed with the introduction of digital and online materials, and only manuscripts on studies conducted outside the public library context examined the association between the use of digital devices and reading outcomes. Only 24 percent of the reviewed manuscripts contributed information about the use of digital and online resources and engagement in reading. None of the studies addressed by these manuscripts were specific to the public library context. Some of them suggested that exposure to e-books, reading applications, or non-educational media was associated with fewer or lower quality reading-engagement interactions between adults and children (Hutton et al., 2021; Tomopoulos et al., 2007; Mat Roni & Merga, 2017). Other manuscripts (Guevara et al., 2021; Roskos et al., 2016) reported mixed or inconclusive findings related to digital device use and reading outcomes, and researchers in another study conducted in Head Start classrooms (Roskos et al., 2016) found added benefits of using e-books paired with targeted instruction on word learning. Those researchers also found that children with poor self-regulation skills engaged with e-books longer than print books, suggesting that an environment rich with options for exposure to reading materials might increase engagement for young readers.

Some of the manuscripts discuss how digital resources in public libraries could attract children and their caregivers to the public library. In addition to making it more attractive to go to the public library's physical location, digital offerings (including access to internet and technology such as computers and tablets) at the public library can also help ease the divide in access to library resources in the communities (Campana et al., 2022, Holt & Holt, 2015; Xu et al., 2018). In under-resourced areas, the public library might be the only access point to this technology (Neuman et al., 2017). However, based on the studies in our review, the link between these factors and increasing children's reading engagement has not been explored. In doing a literature review of literacy and reading programs (Guven & Haddad, 2023), the researchers found that the programs incorporating technology did not have significant effects on children's reading outcomes and had mixed results on children's motivation to read. Interviewees at IMLS discussed the differences they are seeing in grant recipients' use of technology in their programming and indicated grant recipients are increasingly incorporating technology and information literacy in their programs with Science Technology Engineering and Mathematics (STEM) components. Interviewees also acknowledged that the public library field recognizes the need for incorporating technology into practice. However, uncertainty remains on whether digital resources can change reading engagement, either positively or negatively.

> "It's so interesting … because part of me asks the critical question: does technology need to do that? Do we need to support technology to support reading? What will it mean if technology doesn't support reading? If we look at technology as it seems to be shaped today, it feels like it won't, and the question is, does it have to? … We've seen some experimentation with augmenting reading experiences. In my career of 30 years, we've seen enabled e-books with embedded additional surprises like videos or music. They have varying degrees of success with enhancing the experience; we've experimented with video game style literacy with varying degrees of success."
>
> IMLS staff

Some of the manuscripts explore topics related to the public library's use of technology in its programming for children and their caregivers (Box IV.7). Authors of these manuscripts discuss: (1) ways to use digital resources to thoughtfully increase engagement in reading in a supportive environment, (2) the training or professional development librarians need to incorporate digital resources in programming, and (3) the role of the public library in teaching caregivers how to use digital tools effectively. Data from a survey on public libraries' use of new media (Campana et al., 2019) demonstrated an increase in the use of technology in the public library setting from 2014 to 2018 and a shift in the types of technology being used. In the past, public libraries have provided access to tablets or learning stations to increase children's and caregivers' engagement with the public library; more recently, programming has expanded to include training on coding and computer literacy skills. With this increased use, public libraries acknowledged they are now guiding caregivers in using new media with their children (Campana et al., 2019).

3. Findings from the grant data

The grant materials reviewed for this research did not provide much information about how digital resources have changed children's engagement in reading over time. Some grant recipients, however, viewed the provision of such resources as a way to engage children in reading and literacy. Several grant recipients used funds to provide digital resources to children and their caregivers, including:

- E-books (for example, West Virginia's CARES Virtual Reading Platforms)

- Audiobooks (for example, Charles Evans Community Library)

- Virtual library programming (for example, Santa Rosa Band of Cahuilla Indians)

- Computer-based literacy programs (for example, the Allen, Texas, public library)

> **Box IV.7. Considerations for technology and digital resource use in public libraries**
>
> Public libraries can seek input on the technology that youth in their community are most interested in. For example, they could consider how to incorporate podcasts into programming (Rodgers, 2018), due to their rising popularity with children
>
> Public libraries can seek out opportunities for partnering with community organizations to fill gaps in expertise around incorporating technology in programming. As they prepare their digital offerings, public libraries should also seek input from caregivers to understand their views on technology. Public library staff are more likely to incorporate technology into programming if they think caregivers see it as a positive addition (Cahill et al., 2023) ◢

Some of these virtual offerings were motivated by social distancing requirements during the COVID-19 pandemic and were intended to provide library patrons with access to materials and programming even if they were unable to visit the public library. Others were meant to supplement libraries' physical material offerings to engage a broader group of children in reading. A Native American Basic Grant awarded to Galena Village to support the Charles Evans Community Library, for example, claimed that investing in audiobooks and digital versions of graphic novels was an important way for public libraries to engage reluctant readers.

Some grant recipients are starting to investigate how digital resources can support engagement in reading. In addition to grants supporting public libraries in providing digital resources, one of the reviewed grants was awarded to the University of Kentucky to work with libraries to interview children and their caregivers. The purpose of the interviews was to learn what children and their caregivers value about participating in virtual storytime programming and what other supports they need to take advantage of this programming. This descriptive study, which is ongoing, could generate important evidence on how virtual programs could (1) expand the number of children public libraries reach, and (2) support children's engagement in reading.

4. Implications for future research

- Future research could consider examining effects on the development of early literacy skills of (1) incorporating digital devices in programming such as storytime and (2) offering some programming digitally.

- Researchers could directly survey or conduct focus groups with elementary-school–age children and their caregivers, with the goal of understanding whether the offer of technology and other digital resources is attracting them to the public library. This new research could also shed light on the caregivers' thoughts about the value-added of digital resources and whether their availability is changing how they use other resources at the public library.

- A new and focused literature review could be conducted on how digital devices and technology affect how children engage in reading generally. The current review captured some of the work being done outside the public library, but there might be other resources that were not part of this review that could contribute specifically to this topic regardless of library contribution.

Research Question 5: What does existing research tell us about what a healthy literacy ecosystem is? Where is a public library's best fit as a contributor, and in what ways do they contribute to the overall health of the system?

1. **Key takeaways**

A healthy ecosystem promotes awareness, among children's caregivers and professionals at the public libraries and other community organizations, of how literacy develops, emphasizes the importance of early reading, and provides caregivers with the resources they need to support children's engagement in reading. Existing literature suggests that, in a healthy literacy ecosystem, public libraries, community organizations, and children's caregivers work together to promote the importance of reading early in a child's life, foster supportive home reading environments, and make literacy resources easy to access throughout the community.

Public libraries play an important and multifaceted role in the literacy ecosystem.
Public libraries occupy an important position in the literacy ecosystem by providing children and their caregivers with opportunities to engage in reading and do related activities without charge. The literature and grant materials reviewed for this research suggest that public libraries can play three distinct, though not mutually exclusive, roles in the ecosystem (Box IV.8): (1) a resource hub that offers reading literacy materials for children and caregivers, (2) a direct service provider of programs such as summer reading, and (3) a convener of other community organizations devoted to improving children's reading literacy.

> **Box IV.8. Public libraries' roles in the literacy ecosystem**
>
> 1. **Resource hub.** Libraries house resources like books, multimedia materials, and physical space that children can use to support their reading engagement.
>
> 2. **Direct service provider.** Libraries sponsor programs like summer reading or after-school tutoring that directly engage children in reading. These programs are often intended to supplement formal learning taking place in schools.
>
> 3. **Convener of other community organizations.** Public libraries convene, collaborate with, or provide resources to community organizations that support children's reading development, such as schools or pediatricians' offices. ◢

2. **Findings from the literature and landscape reviews**

Across the literature review and landscape review, 93 percent of documents contributed to our understanding of the ecosystem. Across these documents, the review team analyzed themes to

understand what makes a literacy ecosystem healthy and how the public library contributes to the ecosystem.

What makes a literacy ecosystem healthy?

A healthy literacy ecosystem promotes awareness of the importance of (1) introducing reading as early as possible in children's lives, (2) participating in high-quality shared reading practices, (3) offering access to literacy resources in the community, and (4) viewing reading as important to lifelong learning. A healthy literacy ecosystem includes organizations working together around those common goals while considering the characteristics and needs of their community. Box IV.9 gives examples of community needs that a literacy ecosystem can support (Baralt et al., 2022; Barrat-Pugh & Allen, 2011). Lessons around working toward a common goal can be drawn from initiatives such as The Campaign for Grade Level Reading (CGLR), which galvanized different partners in the reading literacy ecosystem—including caregivers; local, state and national school leaders; and community organizations—to share and distribute literacy resources across their networks. CGLR's approach to working with partners was to treat all the different priorities around children's literacy goals of the partnering organizations and entities as "both/and" issues rather than "either/or" issues. For example, CGLR supported initiatives that focused on reading and math rather than just on reading or math, or that focused on both the school day and out-of-school time and not just one of those realms. CGLR also aimed to attract new partners by increasing visibility and reach through existing partners like the United Way USA, America's Promise Alliance, and Mission Readiness (The Campaign for Grade-Level Reading, 2020). Finally, other researchers (Hutton et al., 2016; Mat Roni and Merga, 2019) noted that in a healthy literacy ecosystem, children and their caregivers understood the importance of (1) reading beyond acquiring initial literacy skills, and (2) reading to continue learning at all developmental stages, not just learning what is necessary to pass a test.

A healthy literacy ecosystem encourages enjoyment of reading along with access to public libraries and promotes the importance of reading for children. In a secondary data analysis of the National Educational Panel Study in Germany (Pfost & Heyne, 2023), family book reading and family library visits predicted higher self-reported time spent on reading by children. Longer time spent on reading at home in turn predicted higher reading comprehension scores. Other studies show that programs that support the literacy environment at home can also have a positive influence in library outcomes such as utilization of the public library (Canfield et al., 2020; Funge et al., 2016; Zhan, 2023). For example, in their quasi-experimental study of Cocky's Reading Express—a program implemented at children's homes (outside of the library context) that aimed to support positive reading attitudes, motivation to read, and reading for fun at home—researchers found that children who participated in the program were more likely to go to the library for literacy resources after participating (Zhan, 2023).

> **Box IV.9. Example of community input needs that can inform a healthy literacy ecosystem**
>
> In Baralt et al. (2022), researchers used focus groups to understand family needs in a multicultural community. The aim was to shape an early literacy program that included book gifting and family shared reading. Key takeaways caregivers shared about their needs that the literacy ecosystem could address were:
>
> - Having limited literacy resources at home
> - Having difficulty getting to the public library due to work schedules
> - Lack of understanding about their role in promoting literacy for their child
> - Concerns around the time children spend using technology at home
> - A need for more books that reflect caregivers' culture and background
> - A need for guidebooks about how to conduct literacy-promoting activities at home ◢

A healthy ecosystem understands and addresses barriers to accessing the resources public libraries provide. In their various roles in the literacy ecosystem, public libraries must overcome barriers to providing free, accessible resources that can help bolster outcomes (Holt & Holt, 2015):

- Serving as resource hubs outside of the library. Sometimes, to serve children and their caregivers, the public libraries must offer resources outside of the library's physical space, in the places where caregivers already are. For example, in a manuscript on a program that brought literacy resources to laundromats to ease barriers on working caregivers, researchers observed the children engaged with the resources for longer when a librarian was present (Neuman et al., 2020).

- Direct service provider through partnerships. Public libraries may not always have the capacity to provide services by themselves but can create partnerships to overcome this challenge. For example, public libraries may partner with other social service programs, such as WIC, to provide bags with literacy toys, brochures, and preschool-level books themed around nutritious food or physical activity to WIC participants waiting for services (Dankowski, 2018).

How do public libraries contribute to a healthy literacy ecosystem?

The public library's place in the ecosystem is significant because the library is more accessible than many other resources. Caregivers often must pay to use resources with literacy activities such as day care, preschool, and private tutoring. The public library can provide free access to reading literacy support

and resources through staff trained on literacy skills development, high-quality and culturally relevant reading materials, and the offering of a safe space to interact with peers (Celano & Neuman, 2001; Jepson, 2013; Holt & Holt 2015; Mills et al., 2018). Some of the reviewed studies hypothesized that public library programming could be a mediator between the quality of the early literacy environment and future academic outcomes. However, none of these manuscripts found that such a mediator effect was supported by the data they examined. For example, Mann et al. (2021) found that public library use and shared book reading predicted children's kindergarten reading skills, and that family poverty (as a proxy for a less positive literacy environment) was associated with lower reading skills. However, they did not find that the association between family poverty and lower reading skills was mediated by a buffering effect from the public library.

The public library is also an important convener of other community organizations in the literacy ecosystem. The public library's place in the ecosystem is often to bring other members of the ecosystem, such as schools and community organizations, into the public library's physical space to facilitate access to reading resources for children and their caregivers (Ford, 2019; Nichols, 2011). But public libraries can also reach young readers beyond the public library's building with programming that involves other institutions in the community. Sometimes these partnerships help the library raise awareness of children's literacy programming with community members who might otherwise miss this programming, such as families with low incomes (Crist et al., 2019). The relationship between the public library and other entities in the ecosystem can also be seen as one of shared capacity building between contributors. In this scenario, the public libraries can be a meaningful partner in skill building for staff at schools and community organizations on topics such as learning to identify books and other resources that can be compelling for children. Public librarians may also partner with organization or experts to learn more "science of reading" skills to incorporate in their programming (Hill et al., 2015).

Public library programming can support the home learning environment (Box IV.10). The public libraries' programs examined in the research included in this review supported the literacy environment at home through free book giveaways and by providing supports and guidance for caregivers to help build children's literacy skills and overall love of reading (Canfield et al., 2020; Fricke et al., 2016; Funge et al., 2016; Neyer et al., 2018; Zhan, 2023). Those supports and guidance included having librarians model or teach caregivers how to effectively engage children in early literacy activities and reading and explaining what types of children's engagement caregivers can expect at certain ages (Hedemark et al., 2018; Kozikowski & Williams, 2020). The public library can also bridge gaps between school and home by educating caregivers on how to create a positive literacy environment at home through public library programming (Cassidy, 2016; Crist, et al., 2019). This caregiver education should go beyond focusing on children, as research shows better literacy skills in caregivers, where needed, is related to the literacy development of their children (Taylor et al., 2016). However, none of the manuscripts included in this review examined initiatives that specifically aimed at increasing caregiver's literacy skills. Public libraries could also collaborate with educators to offer

> **Box IV.10, Interview highlights the role of public libraries in a healthy literacy ecosystem**
>
> Public libraries play different roles across the continuum of children's reading literacy, as a more formal partner with caregivers in early literacy development (preschool) phasing to a more supplemental role as children enter school by offering out-of-school programming such as summer reading. ◢

emergent literacy and early reading screenings that could help identify children's learning needs (Rubiner, 2016). Those collaborations between public libraries and educators could follow the model of collaborations between educators and pediatricians, in which the pediatricians screen children for reading behaviors, educational potential, relational skills, and mental, physical, and brain health (Hutton et al., 2021).

3. Findings from the grant data

Although the grants reviewed for this research did not explicitly articulate a vision for a literacy ecosystem or the public library's place in that system, the activities the grants funded nonetheless implied different roles that public libraries can play. Consistent with evidence from the literature review and landscape analysis, the grant data implied that libraries fulfill one or more of three main roles in the literacy ecosystem: (1) resource hub, (2) direct service provider, and (3) convener and connector of other organizations. These roles are not mutually exclusive, and a single library (and even a single grant) can play multiple roles simultaneously.

A common role of public libraries is that of a resource hub (25 grants). In this role, public libraries act as a physical (or digital) space in which patrons can access reading materials, knowledgeable staff, or other resources. Grant activities supported libraries' role as a resource hub in several ways. Some grant funds, for instance, were used to expand the library's collection of books (or, as described in the findings on Research Question 4, e-books) under the theory that a wider selection of reading materials would engage a wider range of children. Utah's Get Them Choices, Get Them Reading program, for instance, aimed to appeal to a wider range of young readers by expanding collections to include books with a variety of characters.

An equally large number of grants (25) supported programming and services that public libraries directly provided to patrons. Some of these programs were designed to engage children directly in literacy and reading, such as summer reading programs and storytime programs. A Native American Basic Grant awarded to the Santa Rosa Band of Cahuilla Indians, for example, supported a storytime program in which storytellers who were fluent in both Cahuilla and English read to children with the goal of engaging them in reading and exploring their culture. Other direct service programming offered by public libraries was also meant to support caregivers or educators to engage children more effectively in reading. For instance, the Prime Time reading program, which was supported by Grants to States in Georgia and Kentucky, engaged children and their caregivers in storytime programming led by humanities researchers intended to support family members in talking about books with one another.

A slightly less common role that this set of grant data suggested public libraries could play was that of a convener of other organizations that support children's reading engagement (13 grants). In this role, public libraries collaborate with and provide resources to other organizations in the community that support children's reading. In some cases, public libraries integrated outside organizations into existing public library programming. As one example, a grant awarded to the Honey Grove, Texas, Library and Learning Center supported the library in creating classes for bilingual children and their caregivers, where children and their caregivers participated together in reading time and activities. As part of these classes, principals and teachers from local pre-kindergarten programs would speak to caregivers about the benefits of children attending pre-kindergarten, leading some caregivers to

enroll their children in these programs. In other cases, public libraries provided resources to other community organizations to support their programming. For instance, Alaska's Ready to Read Alaska program provided literacy training or literacy and reading materials to early childhood education providers and pediatrician offices to better equip these organizations to support children's reading development.

4. Implications for future research

- Although the manuscripts identified several components of the literacy ecosystem, future work could develop a more formal conceptual framework of a healthy literacy ecosystem and articulate more roles public libraries and other organizations play in the ecosystem.

- Future research could include case studies of libraries that effectively play different roles in the literacy ecosystem to develop and clarify the three roles identified in this research.

Research Question 6: Are there different patterns of children's engagement in reading through public libraries by public library infrastructure or community characteristics?

1. Key takeaways

Findings[6] suggest the physical infrastructure of public libraries matters as a way to get caregivers and children in the door for public library programming, and that public libraries should design spaces intentionally, keeping unique characteristics of the community in mind. However, there is limited evidence on what features of the library space lead to more or less engagement in reading. Public libraries should also consider their hours, placement near public transportation, and accommodations for children and youth with disabilities to increase accessibility.

Although some of the reviewed manuscripts focused on the characteristics and implementation of programs that could address the needs of various communities, there is little research on how community characteristics relate to engagement in reading. Researchers and public libraries are trying to understand how to implement programming that better serves all communities. However, research about how community factors are associated with children's engagement in reading is more limited.

2. Findings from the literature and landscape reviews

The literature and landscape review did not reveal specific patterns of engagement in reading but did shed light on factors that might increase or decrease engagement. Across the reviewed manuscripts, 59 percent contributed to our understanding of Research Question 6. Such factors related to public library infrastructure or their spaces and to community characteristics.

Physical Infrastructure

To increase engagement, public libraries need to consider the needs of their community to create spaces that are welcoming to children and caregivers. When interviewed about their views on public libraries, children ages 3 to 6 shared that they viewed the public library as a fun place that provides more

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[6] Findings for this research question are summarized across literature and landscape articles. The grant review was not intended to support this question (Exhibit II.1).

than just books—for example, activities such as drawing and dancing (Xu et al., 2020). Similarly, in trying to understand how to motivate boys to attend summer reading programs, Dillon et al. (2017) found boys needed space where they could play games, have refreshments, and socialize. As noted, engaging young children in reading while they are in public libraries is dependent on caregiver participation. Caregivers noted the importance of storytime programming space as an area for children to socialize with each other, in addition to just participating in the program (Cahill et al., 2020; Clark & Hunt, 2016; Smith, 2018). Observations of storytime found that children and caregivers often carved off their own alternate spaces within the public library that fit their needs, such as informal socialization spaces for caregivers to interact during storytime. Based on this, IMLS's interviewees (Box IV.11) and research (Smith 2018) suggested public libraries need to remain flexible in how they design their spaces and consider what will be most relevant for their community, to give caregivers and children more engagement opportunities.

Public libraries need to be accessible —for example, located near public transportation or with other community services —and offer schedules that are convenient for working caregivers. As discussed, Zhan (2023) found that youth participating in a public library's free book give-away program who also went to the public library building to read, access materials, or participate in other public library programming had better reading outcomes. Caregivers also discussed the difficulty of getting to public libraries because the opening hours conflicted with their work

> **Box IV.11. Interview highlights on how the public library setting can support engagement in reading**
>
> Public libraries are considering their setting, and how that setting can increase engagement in reading through furniture, toys, and places for unstructured play between parents and children. This can be explored through a research-based design, or more often, through seeing what other public libraries are doing and trying that. ◢

schedules (Ptacek, 2016). Having public libraries open later in communities where this is a known issue could be helpful, in addition to ensuring that the public libraries that have extended hours make their schedules publicly available and do appropriate outreach to communities in need (Baralt et al., 2022). Having branches located in the community near other frequently visited locations, such as health centers, can also increase engagement for working caregivers or those with limited transportation options (Peters et al., 2019).

The space inside the library may also affect which early literacy skills are gained from storytime. Campana et al. (2016) found several positive associations between participation in storytime and early literacy abilities, except for writing skills. The researchers noted that findings might have been due to a lack of space and surfaces that give children the ability to practice writing. A key finding from the literature review by Guven & Haddad (2023) was that the quality of the public library spaces is positively associated with children's language development and engagement in learning activities.

Reading engagement through public library programs requires that public libraries be accessible to all children. The engagement of children with disabilities depends on whether the infrastructure of a public library can accommodate that disability. If a public library cannot accommodate wheelchairs or does not have elevators, then it affects the engagement of that child with the public library (Predergast, 2016; Predergast & Sharkey, 2016). Similarly, engagement for deaf and hard of hearing children may improve with the addition of staff who are trained to work with them and by adding accommodations to

existing programs, such as books with ASL pictures, computers with assistive technology, and the availability of ASL interpreters (Bushman et al., 2019). For bilingual caregivers, engagement with the library may improve when direct programming outreach materials and books in the collection are available in their language and bilingual staff are available to assist them (Celano & Neuman, 2016; Rosales, 2016). Additionally, a panelist at the IMLS Focus Learning in Libraries convening pointed out the importance of a universal design approach in libraries that considers, for example, the selection and arrangement of furniture and table height and spacing for people with mobility issues, to ensure the library spaces are accessible to all patrons (Hill et al., 2015).

Community factors

Community factors are often intertwined with factors related to accessing public libraries and how they may influence engagement in reading. Earlier, the report discussed the need for public libraries to consider convenient locations and hours so more caregivers and children in neighborhoods with high proportions of working caregivers could access the public library's resources to support their engagement in reading. Community characteristics might also influence how children

> **Box IV.12. Interview highlights on reaching all communities**
>
> Reaching all communities is a core tenet of public library programming, and that can include understanding transportation issues, programming around parents' work schedules, allowing people to bring food, and reaching families where they are via bookmobiles and community events in schools. ◢

and their caregivers use the public library services. For example, Latino communities in some areas may under-utilize public libraries' resources. Investing in bilingual services could increase utilization and build trust in those communities (Rosales, 2016). Another example is that stress levels seem to be an important part of the relationship between economic status and the home literacy environment, so children and caregivers in communities with fewer resources and more stressors may engage less with public library resources (Sun & Wang, 2022). IMLS staff also pointed out that reaching all communities was core to public library programming (Box IV.12). One way to address particular needs in communities would be for public libraries to establish partnerships with organizations that have long-standing relationships with specific communities and that can help libraries build trust from and better support for these groups (Campana et al., 2022).

Some manuscripts included in this review acknowledged that reading literacy outcomes are related to whether a neighborhood has a high proportion of caregivers with low incomes. Research based on national data from the Early Childhood Longitudinal Study found that children from households with low incomes who were almost a year behind academically at kindergarten entry, used the public library less often, and participated in less book sharing with their caregivers (Mann et al., 2021). One reason for these differences could be a lack of high-quality and varied books at homes and libraries in low-income areas. The children in these areas may not relate to the available books because they are not culturally relevant, or caregivers may not find the time spent visiting the library to be worth it (Baralt et al., 2022; Cheyney-Collante, 2021). Caregivers from households with low incomes who participated in a free book-delivery program (sponsored by a private organization) shared through interviews that book ownership was a great source of pride for them and the reason they saw value in the program (Neyer et al., 2018). Lack of book ownership could lead to less engagement with the public library from these communities,

because ownership of books is not the goal of a visit to the public library. Another manuscript found that caregivers with higher education may invest more resources in informal literacy activities at early ages, such as public library visits (Pfost & Heyne, 2023). Specifically, that study found that more supportive home literacy environments at early ages led to more time spent by children reading for pleasure and higher reading comprehension scores in 4th grade.

The overall level of resources in the community is also important for supporting engagement in reading. The amount of resources (financial, social, educational) available in a community influences the amount and types of services and other resources that support engagement in reading (Nichols, 2011). Hutton et al. (2021) developed an eco-bio developmental model of emergent literacy before kindergarten that included ecological and community factors. That model takes into account the differences in children's and caregivers' economic status and reading outcomes, and in the cultural and linguistic barriers they may face to engage in reading. To address those differences and barriers, programs and organizations (including public libraries) could prioritize support for the home learning environment (Hutton et al., 2021).

3. Implications for future research

- Future research could examine the physical space of the public library to understand what features may be contributing (more or less) to children's engagement in reading.

- Larger, more representative studies could be done pertaining to how public libraries influence children's reading engagement and examine differences in that by census track or neighborhood. These studies could also examine data collected from caregivers to understand their access to programs and the public library's role in connecting the caregiver directly to literacy and other resources in the community.

Research Question 7: What are considerations for future studies examining the effectiveness of ways public libraries engage children in reading?

1. Key takeaways

Future work examining public libraries should carefully consider what literacy outcomes are most important to measure when assessing program effectiveness—and how to measure them. The manuscripts reviewed for this report point to several different dimensions of reading engagement, ranging from immediate and easily measured outcomes such as participation in a program, to longer-term outcomes that are more challenging to operationalize, such as building a lifelong love of reading. It is important for future work to articulate and reach consensus on what "success" entails for a particular public library program, how to measure it, and how those measures are related to different dimensions of reading engagement. This will entail investing in tools that can measure important aspects of reading engagement (such as the quality of the home reading environment) that are challenging to assess in the library context.

Opportunities exist to further investigate the effectiveness of literacy-focused public library programming on reading engagement. The literature review and grant data analysis consistently point to the importance of public library initiatives like storytimes and summer reading programs in supporting children's reading development. These data sources also reveal there is limited evidence about the

effectiveness of these programs, suggesting opportunities to invest in research assessing the impact of public libraries' efforts to engage children in reading.

2. Findings from the literature review

Across literature review manuscripts, 81 percent contributed to Research Question 7.[7]

Future studies should find ways to make findings more generalizable across library contexts. Many of the studies included in the literature review had small sample sizes and noted that their findings were likely not generalizable to all public library contexts. For example, some studies relied on data from voluntary surveys, so the findings only applied to the individuals who chose to respond to the survey (Cahill et al., 2020; Cassidy, 2016). Researchers suggested that future work should aim to recruit larger samples and use more representative sampling strategies to ensure findings could be generalized to broader populations (as discussed in Becknel et al., 2017; Cahill et al., 2020; Cassidy, 2016; Justice et al., 2023; McCormack, 2018).

Future studies should find ways to address the difficulty of measuring program impacts in informal learning environments, such as public libraries. Evaluations of public library programs are more challenging than, for example, evaluations in schools, because children and their caregivers choose to participate in library programming. The "opt-in" nature of library programs means those that participate might differ in important ways from those who choose not to participate. In addition, attendance at public library programs is more sporadic than attendance in school, making it difficult to collect outcome data from all program participants to draw conclusions about program effectiveness. In a planned quasi-experimental design evaluation of a summer reading program, for example, the researchers did not include assessments taken at the end of the program in their analysis because program attendance was not consistent. Instead, they analyzed children's reading literacy skills at the beginning of the program to discern how the skills of children who attended library programming differed from those of children who attended other programming (Celano & Neuman, 2001). Some researchers have attempted to address these challenges by developing tools that are designed to measure outcomes in informal learning settings. Campana et al. (2016), for example, studied the effectiveness of storytime programming using a tool that was designed to measure children's learning in informal educational programming and a separate tool that captured the storytime provider's contribution to early literacy content. Even with innovative data collection tools like these, though, rigorous evaluation studies require comparing the outcomes of program participants to those of children who did not participate in the program, which can be difficult in informal learning settings (Barrat-Pugh & Allen, 2011).

Future studies can broaden the scope of the investigations to include contexts outside of public library buildings. Given the importance of the home in fostering children's reading literacy engagement (discussed in Research Question 1), many manuscripts indicate a need for evidence on how both non-library and public library reading literacy programs affect the home literacy environment. Future studies should consider examining community partnerships around children's reading engagement, perhaps assessing the collective impact of these partnerships (Campana et al., 2022). They may also consider

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[7] Findings for this research question are summarized across literature and grant data analysis. The landscape review was not intended to support this question.

multiple ecological factors that could impact early literacy development, such as policies and programs and caregiver and community factors (Hutton et al., 2021). Lastly, if future studies want to survey caregivers, researchers should consider the length of the survey, balancing caregivers' busy schedules, and addressing cultural barriers to ensure all members of the community can provide feedback (Crist et al., 2019).

3. Findings from the grant data

Few grants reviewed for this research appeared to be coupled with evaluations designed to provide evidence of the effectiveness of public library programs on reading engagement. IMLS's grants fund a wide range of initiatives through which public libraries aim to support children's engagement in reading. These grants offer important opportunities to better understand what kinds of programs are most effective in supporting children's engagement in reading and explore the specific components that may drive their impact. By using IMLS's funds to support specific strategies, grant recipients either explicitly or implicitly express a belief that the strategies will be effective. Although many grantees collected data on program usage or participants' perceptions of programming, none appeared to employ a research design that could isolate the programs' impact on children's or caregivers' reading engagement. This suggests an opportunity for IMLS to encourage research that evaluates the effectiveness of programs supported by the agency's grants. Among the materials reviewed for this research, a grant awarded to the University of Kentucky to evaluate the effectiveness of virtual storytimes stands out as a strong example of using IMLS's resources to build an evidence base for the library programs that the agency supports.

As discussed in the literature review, there are numerous challenges to conducting such evaluations, including obstacles to measuring children's reading engagement in the library context. In this vein, it will be critical for future research to identify which specific outcomes provide evidence of "success" in the public library context. The participation measures cited by many grant recipients are important indicators of program success, but participation is a precursor to the longer-term outcomes that the programs seek to influence, like children's literacy skills and promoting a lifelong love of reading. Future work should consider the specific ways that library programs are intended to influence children's reading engagement or literacy skills and design evaluations to assess how successful these programs are in doing so.

There are many questions relating to public library programming that could help IMLS and public libraries provide evidence about their programs to identify promising practices that could be tested and scaled. Although grant recipients at times articulated hypotheses related to how library programs foster reading engagement, they did not offer evidence in the materials to substantiate these claims. For instance, one grant recipient noted that summer reading programs (which were among the most common uses of grant funds reviewed) tended to reach only individuals who already patronized the public library. This assertion implies important questions about whether there are specific components of summer reading programs that would engage children who are not already using the public library. Identifying those components could help maximize the impact of public libraries' programming.

4. Implications for future research

- Future research can reveal approaches to measuring aspects of reading engagement that are difficult for libraries to assess themselves (for example, children's attitudes toward reading, or efficacy of the home literacy environments).

- Future research could also use methodological approaches that would allow scholars to overcome the challenges of estimating the impact of informal educational programs such as those offered at public libraries on reading literacy outcomes, including engagement in reading.

Appendix A

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Landscape analysis references

Exhibit A.1. IMLS-identified landscape research documents

Source	References
IMLS-funded research	• Nielsen, E., Mamedova, S., & Deal, C. (2023, September 29). *Literature review of geospatial analysis of public libraries, with suggested geospatial analysis methods for understanding library-community interaction* [Memorandum]. Office of Research and Evaluation, Institute of Museum and Library Services, American Institutes for Research. • Guven, O., & Haddad, Y. (2023, September). *Research on motivation, literacy, and reading development: A review of best practices* [Final report]. Institute of Museum and Library Services. • Guven, O. (2023, September 29). *IMLS-funded literacy projects: Application of best practices* [Memorandum]. Office of Research and Evaluation, Institute of Museum and Library Services, American Institutes for Research.
Materials from IMLS's convenings	• Hill, C., Profitt, M., & Streams, S. (2015, May 14). *IMLS focus: Learning in libraries.* Kansas City Public Library. • Planet Word Museum. (2022, March 1-2). *Empowering readers, empowering citizens convening* [Event summary report]. • Planet Word Museum. (2022, September). *Empowering readers, empowering citizens: Promising practices convening* [Conference slides].
Research on economic mobility	• Chetty, R., Jackson, M. O., Kuchler, T., Stroebel, J., Hendren, N., Fluegge, R. B., Gong, S., Gonzalez, F., Grondin, A., Jacob, M., Johnston, D., Keonen, M., Laguna-Muggenburg, E., Mudekereza, F., Rutter, T., Thor, N., Townsend, W., Zhang, R., Bailey, M., Barbera, P., et al. (2022, August). Social capital I: Measurement and associations with economic mobility. *Nature, 608*, 108–121. • Chetty, R., Jackson, M. O., Kuchler, T., Stroebel, J., Hendren, N., Fluegge, R. B., Gong, S., Gonzalez, F., Grondin, A., Jacob, M., Johnston, D., Keonen, M., Laguna-Muggenburg, E., Mudekereza, F., Rutter, T., Thor, N., Townsend, W., Zhang, R., Bailey, M., Barbera, P., et al. (2022, August). Social capital II: Determinants of economic connectedness. *Nature, 608*, 122–134. • Chetty, R., J. Friedman, N. Hendren, M. Jones, and S. Porter. (2020, January). *The Opportunity Atlas: Mapping the childhood roots of social mobility*. Opportunity Insights, United States Census Bureau. • The Opportunity Atlas interactive mapping tool (https://opportunityatlas.org/).
Early literacy achievement and reading landscape research	• Neuman, S. B., Moland, N., & Celano, D. (2017). *Bringing literacy home: An evaluation of the Every Child Ready to Read Program*. American Library Association. • The Campaign for Grade-Level Reading. (2020, August 1). *The making of a movement: The story of the Campaign for Grade-Level Reading*. • Cole, A., Brown, A., Clark, C., & Picton, I. (2022). *Children and young people's reading engagement in 2022: Continuing insight into the impact of the COVID-19 Pandemic on reading*. London, U.K.: National Literacy Trust. • Novicoff, S., & Dee, T. S. (2023, December). *The achievement effects of scaling early literacy reforms* (Ed Working Paper, 23–887). Annenberg Institute at Brown University. https://doi.org/10.26300/jnmt-2093

Appendix B

Literature Review Search Terms and Summary of Prioritized Manuscripts

Exhibit B.1. Literature search parameters

Search parameters	Search terms[a] and resources
Keywords	Children OR young readers OR emerging readers OR engaged readers AND literacy models OR science of literacy OR literacy research OR literacy organizations AND Reading OR book sharing OR story time OR literacy OR emergent literacy OR community literacy OR reading program OR reading activities OR reading practices OR reading intervention OR reading initiative OR books OR digital reading resources OR online reading resources OR families AND Engagement OR enjoyment OR love OR motivation OR foster OR promote OR support OR motivate OR family engagement OR community engagement AND Public library OR public libraries OR library OR libraries OR librarian OR librarians OR library program OR library initiative OR library intervention OR public library infrastructure OR neighborhood NOT[b] Cochrane Library OR Wiley Online Library
Relevant databases and websites	Academic Search Elite, EBSCO (provides access to numerous databases including Academic Search Complete, Education Source Ultimate, ERIC, and Family & Society Studies Worldwide), Library, Information Science & Technology Abstracts (LISTA), and American Academy of Pediatrics Grand Rounds, International Literacy Association Journal (ILA), Journal of Early Childhood Literacy, SAGE Journals.

[a] Our search strategy included truncations of the search terms or keywords.

[b] Some of the searches (but not all) excluded the following terms: School library, school libraries, classroom library, classroom libraries, school librarian, teacher librarian, and classroom librarian.

Exhibit B.2. Prioritization of manuscripts for the literature review: Criteria and points value

| Criteria	Number of points assigned if:		
	Meets criteria	Does not meet criteria	Uncertain it meets criteria
Manuscript published in 2013 or after	1	0	n.a.
Manuscript on a study conducted in the United States	2	1	n.a.
Focus on children (newborns to 12), or young readers, or emerging readers, or engaged readers	3	1	1
Focus on literacy, or literacy models, or science of reading, or science of literacy, or literacy organization, or emergent literacy, or reading, reading activities, or reading program/initiative/intervention, or reading engagement, or motivation	3	0	0
Focus on public libraries, or public library program/intervention, or library initiative, or public library infrastructure	3	0	0
Manuscript on a study that presents findings from data (qualitative or quantitative)	2	0	1

Criteria	Number of points assigned if:		
	Meets criteria	Does not meet criteria	Uncertain it meets criteria
Manuscript on an evaluation study (descriptive, implementation, or impact)	2	0	1
Provides information relevant to Research Question 1	3	0	1
Provides information relevant to Research Question 2	3	0	1
Provides information relevant to Research Question 3	3	0	1
Provides information relevant to Research Question 4	3	0	1
Provides information relevant to Research Question 5	3	0	1
Provides information relevant to Research Question 6	3	0	1
Provides information relevant to Research Question 7	3	0	1

Note: The review team summed the points across criteria to obtain a total score. The lowest possible total score is 2 and the highest possible total score is 37. The research questions are the following:

1. How is engagement in reading defined at different developmental ages? What are measurable outcomes of engaged reading in the public library context?

2. What activities and outreach do public libraries see as best practices to engage children in reading? How do public libraries invest in staff and infrastructure to improve the implementation of these practices?

3. How do children engage with public library resources supporting their reading engagement (individually and together with their families)?

4. How has children's engagement in reading changed over time with the introduction of digital and online resources in public libraries?

5. What does existing research tell us about what is a healthy literacy ecosystem? Where is a library's best fit as a contributor, and in what ways do libraries contribute to the overall health of the system?

6. Are there different patterns of children's engagement in reading through public libraries by public library infrastructure or community characteristics?

7. What are considerations for future studies examining the effectiveness of ways public libraries engage children in reading?

n.a.= not applicable.

Exhibit B.3. Summary of manuscripts included in the literature and landscape reviews by topical relevance
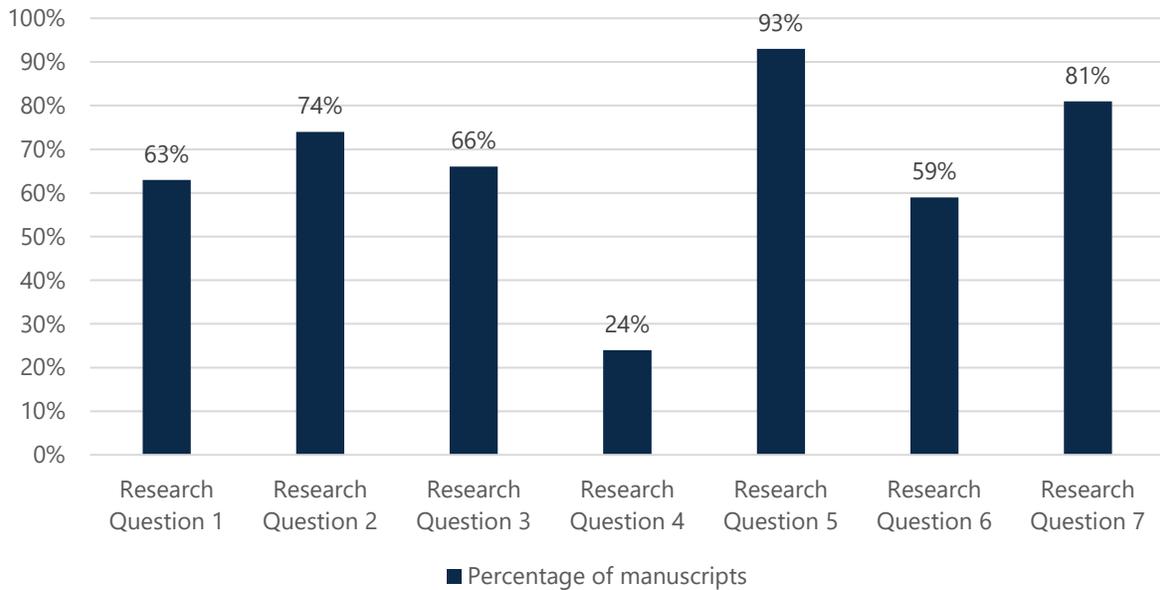


Percentage of manuscripts

N= 98 manuscripts

Source: Literature and Landscape Review Data Extraction Template.

Note: The research questions are the following:

1. How is engagement in reading defined at different developmental ages? What are measurable outcomes of engaged reading in the public library context?

2. What activities and outreach do public libraries see as best practices to engage children in reading? How do public libraries invest in staff and infrastructure to improve the implementation of these practices?

3. How do children engage with public library resources supporting their reading engagement (individually and together with their families)?

4. How has children's engagement in reading changed over time with the introduction of digital and online resources in public libraries?

5. What does existing research tell us about what is a healthy literacy ecosystem? Where is a library's best fit as a contributor, and in what ways do libraries contribute to the overall health of the system?

6. Are there different patterns of children's engagement in reading through public libraries by public library infrastructure or community characteristics?

7. What are considerations for future studies examining the effectiveness of ways public libraries engage children in reading?

**Exhibit B.4.** Summary of prioritized manuscripts by other criteria
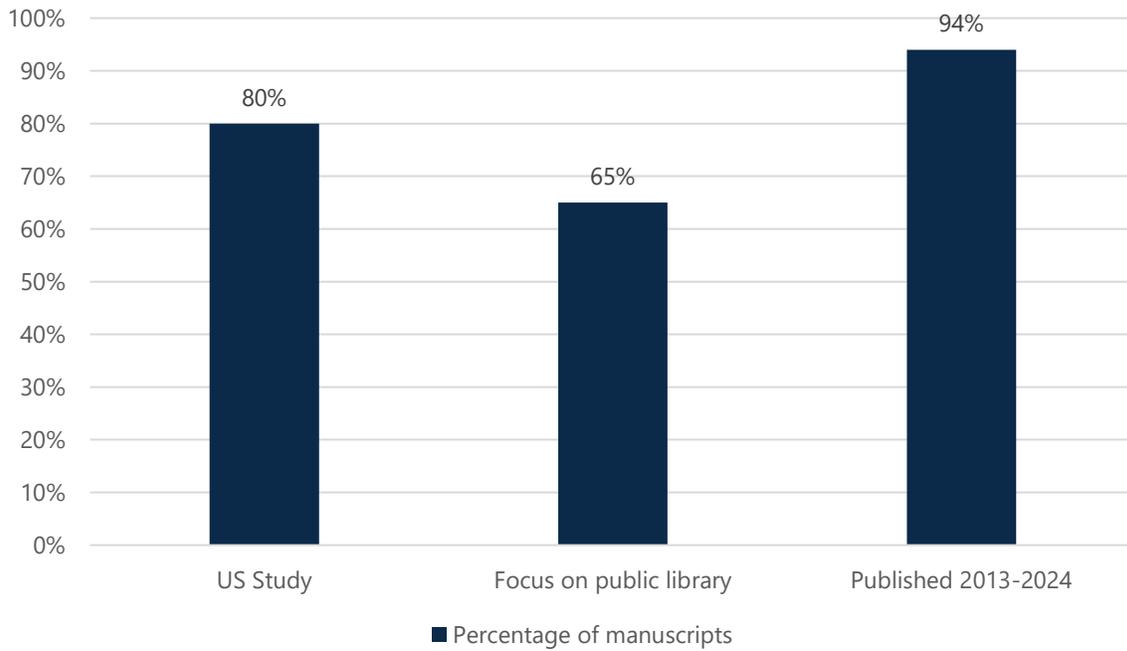
N = 98 manuscripts

Source: Literature and Landscape Review Data Extraction Template.

Note: The non-U.S. studies included in the review were published in English and conducted in Australia, Canada, China, Sweden, Taiwan, England, and Nigeria.

Exhibit B.5. Summary of prioritized manuscripts by type of data examined
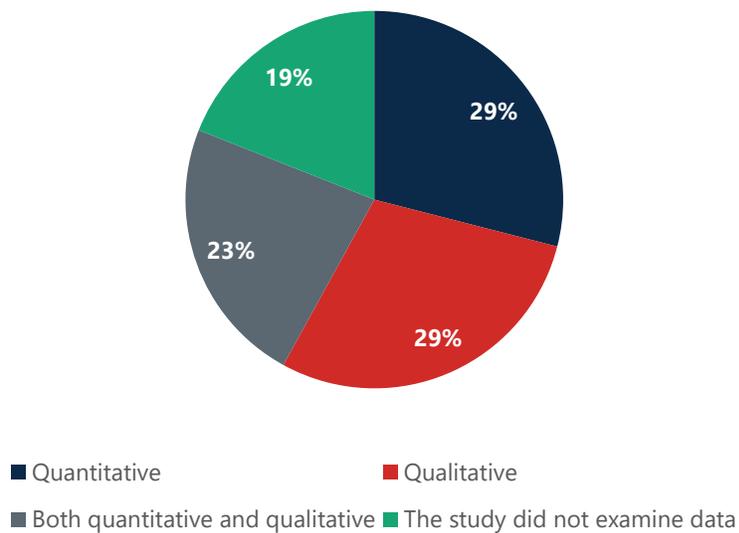
N = 98 manuscripts

Source: Literature and Landscape Review Data Extraction Template.

Appendix C

Literature and Landscape Review Template

Exhibit C.1. List of key elements the review team summarized for each manuscript

Key element	Example information to document
Characteristics of the study reported in the manuscript	
Author(s)	Author(s)
Title	Title
Year of publication	Year of publication
Full citation	Full citation
Study or source setting	Relevant setting for the study or examination, including (but not limited to) a public library, neighborhood, or community institution
Geographical setting	Country, region, state, city, county
Participants	Characteristics of study participants
	Sample size
Program, initiative, or intervention	Name and description of program, initiative, or intervention examined in study or source, if applicable
Study design	Type of study (for example, descriptive study, experimental study, research synthesis, or literature review)
	Type of data sources (interviews or questionnaires, direct observation, or administrative records)
Definition of engagement in reading (by age)	List of constructs or measures examined
Findings	
Research Question 1–7	Summary of the findings that resulted from the analyses, indicating if they are quantitative (descriptive statistics, correlations, or differences) or qualitative findings

Appendix D

Additional Details on Grant Data Analysis

Exhibit D.1. Grants reviewed by fiscal year

Fiscal year	Number of grants
2020	20
2021	19
2022	9
2023	2

Exhibit D.2. Grants reviewed by program

Program	Number of grants
Discretionary grants	**18**
American Rescue Plan for Museums and Libraries	2
Laura Bush 21st Century Librarian Program	2
National Leadership Grants - Libraries	3
Native American Basic Grants	8
Native American Enhancement Grants	3
Grants to States	**32**

Exhibit D.3. Grants reviewed by service to rural population

Fiscal year	Number of grants
Served rural population	35
Did not serve rural population	15

Exhibit D.4. Grants reviewed by grant recipient state

State	Number of grants
Multiple states	3
Alaska	4
Arizona	1
California	7
Colorado	1
Delaware	1
Georgia	3
Idaho	2
Kentucky	1
Louisiana	3
Massachusetts	1
Missouri	1
Nebraska	1
New Hampshire	1
New York	2
Oklahoma	1
Pennsylvania	1
Rhode Island	3
South Carolina	1
Texas	3
Utah	3
Virginia	1
Washington	2
West Virginia	1
Wisconsin	2

Appendix E

Research Question 1 Supplemental Materials

Exhibit E.1. Constructs of engagement in reading documented in the manuscripts included in the literature and landscape reviews

Constructs	Manuscripts
Measures of home literacy environment reported by caregivers	
Caregiver and child shared reading frequency	Barrat-Pugh & Allen 2011; Canfield et al., 2020; Cassidy 2016; Crist et al., 2019; Funge et al., 2016; Guevara et al., 2021; Hutton et al., 2015; Mann et al., 2021; Peters et al., 2019; Pfost & Heyne 2023; Sinclair et al., 2019; Tomopoulos et al., 2007
Quality of shared reading	Barrat-Pugh & Allen 2011; Canfield et al., 2020; Cassidy 2016; Guevara et al., 2021
Number of books at home	Baralt et al., 2022; Burns et al., 2022; Cassidy 2016; Fricke et al., 2016; Peters et al., 2019; Sinclair et al., 2019; Tomopoulos et al., 2007
Variety or types of books read	Canfield et al., 2020; Guevara et al., 2021; Hutton et al., 2015; Tomopoulos et al., 2007
Shared reading routines	Frick et al., 2016; Sinclair et al., 2019
Reasons why families engage or do not engage in shared reading	Baralt et al., 2022
Quality of caregiver and child verbal conversations (adult word exposure, child vocalization, turn-taking interactions)	Gilkerson et al., 2018; Hutton et al., 2015
Sources for books at home	Baralt et al., 2022
Caregiver knowledge of early literacy skill development	Crist et al., 2019
Caregiver involvement in developmental activities	Hutton et al., 2015; Tomopoulos et al., 2007
Media use in home	Guevara et al., 2021; Tomopoulos et al., 2007
Family goals for children's literacy	Baralt et al., 2022; Frick et al., 2016; Justice et al., 2023
Caregiver positive attitudes toward reading	Klass et al., 2009; Sinclair et al., 2019
Caregiver experiences of shared reading as a child	Sinclair et al., 2019
Child's enjoyment of reading	Cassidy 2016; Funge et al., 2016 ; Neyer et al., 2018
Child's request to be read to	Barrat-Pugh & Allen 2011; Funge et al., 2016
Caregiver motivation to attend early literacy programming	Clark & Hunt 2016
Public library context	
Public library utilization (attendance, membership)	Barrat-Pugh & Allen 2011; Cassidy 2016; Burns et al., 2022; Funge et al., 2016 ; Leitão et al., 2015; Mann et al., 2021; Peters et al., 2019; Pfost & Heyne 2023
Knowledge of other literacy services in the community (including the public library)	Burns et al., 2022; Canfield et al., 2020
Importance of public libraries	Burns et al., 2022

Constructs	Manuscripts
Development stage	
Ages birth to 5	
Child language development	Guevara et al., 2021; Klass et al., 2009
Emergent literacy skills	Taylor et al., 2016; Campana et al., 2016
Reading assessment	Mann et al., 2021
Expressive and receptive vocabulary	Gilkerson et al., 2018; Klass et al, 2009
Ages 6–12	
Oral comprehension	Gilkerson et al., 2018
Reading comprehension	Boden 2018; Pfost & Heyne 2023; Zhan 2023; Rubiner 2016
General context	
Reading for pleasure or leisure reading	Leitão et al., 2015; Pfost & Heyne 2023; Onwubiko et al., 2022; "Leisure Reading", 2014; Roni and Merga, 2019
Attitudes toward reading	Copeland & Martin 2016; Roni and Merga, 2019; Dillon et al., 2017
Motivation to read	Justice et al., 2023
Confidence in reading skills	Dillon et al., 2017
Perceptions of other children's reading habits	Dillon et al,. 2017