

# Building a National Network of Museums and Libraries for School Readiness Project (SRP)

## Section B. Description of Statistical Methodology

### Overview

The Education Development Center will conduct an evaluation of *About the Building a National Network of Museums and Libraries for School Readiness* (SRP) in order to document project progress and to identify factors and processes that are key to establishing and sustaining these networks in six states, as well as to inform the scale-up of networks to all 50 states. The following goals will guide the evaluation:

- **Goal 1.** Identify institutional capacities and cross-organizational relationships that support model outreach, implementation, and sustainability in order to understand elements and processes that are central to forming, sustaining, and scaling-up the network model in all states.
- **Goal 2** Identify the ways in which the network model prepares and supports hub leaders, key partners, collaborating organizations, and families in promoting academic readiness among young children.
- **Goal 3.** Document project activities and implementation of the network model to ensure that the project is on schedule and that activities are being implemented as intended by IMLS and BCM.

The following evaluation questions will guide this work:

- EQ1: What resources, institutional structures, and cross-organizational relationships support the successful implementation of the existing network model? (Goal 1)
- EQ2: How do hub leaders, key partners, and collaborating organizations implement the network model? In what ways do they adapt the model to fit their individual contexts and needs, and what successes and challenges do they experience? (Goal 1)
- EQ3: How do hub leaders, key partners, and collaborating organizations reach families with informal learning opportunities, especially those not currently using museums and libraries? What are the barriers for accessing museums and libraries? (Goal 1)
- EQ4: What strategies and activities do hub leaders, key partners, and collaborating organizations view as optimal to sustaining existing networks and exponentially growing and adapting the network model to all 50 states? What are some key challenges including internal and external factors that will make it difficult for the current model to sustain and grow? (Goal 1)
- EQ5: What do hub leaders, key partners, and collaborating organizations view as key factors for school readiness, and what aspects of the network model do they see as supporting their institution's capacities for supporting school readiness? (Goal 2)
- EQ6: In what ways, if any, do families view organizations within state networks as supporting their young children's school readiness? (Goal 2)
- EQ7. To what extent is the project on schedule and are activities being implemented as intended? (Goal 3)

To address these questions EDC will use a mixed-methods design, pairing quantitative survey data with qualitative interview data.

**B.1 Respondent Universe**

The program model for the *Building a National Network of Museums and Libraries for School Readiness* (SRP) will be comprised of six state networks. Each network will include: (1) hub leaders (children’s museum or library that serves as the leader of the hub network); (2) key partners (organizations that hub leaders currently partner with); and (3) collaborating organizations (new partner organizations that result from this project). Part of the project work for *Building a National Network of Museums and Libraries for School Readiness* (SRP) is recruiting new organizations to participate in both existing and new state networks.

As shown in Table 6, each state network falls into one of three cohorts. Cohort 1 (Massachusetts) and Cohort 2 (Virginia and South Carolina) were established prior to this grant. Cohort 3 consists of the three states networks (Iowa, Mississippi, and New Mexico) that will be established through this grant. During Year 1 of this three year grant, Boston Children’s Museum (BCM) will recruit and onboard hub leader and partner organizations for state networks in Cohort 3, as well new organizations for state networks in Cohort 1 and Cohort 2. Thus, in Year 1, the evaluation team will collect data from organizations in state networks that are currently part of the state networks in Cohort 1 and Cohort 2. In Year 2 and Year 3, the evaluation team will collect data from organizations in state networks from all cohorts.

**Table 1. Timeline of State Network Rollout and Evaluation Activities**

	State	Year Established	Data collection timeline
Cohort 1	Massachusetts	2016	Year 1 – Year 3
Cohort 2	Virginia	2018	Year 1 – Year 3
	South Carolina	2018	Year 1 – Year 3
Cohort 3	Iowa	2020-2021	Year 2 – Year 3
	Mississippi	2020-2021	Year 2 – Year 3
	New Mexico	2020-2021	Year 2 – Year 3

The sample sizes we report here are based on an estimate of 40 total organizations spread across the six states networks. We estimate that each state network will include **at least** one hub leader organization, one partner organization, and one collaborating organization. Finally, we anticipate a respondent universe of families that visit and/or participate in programs at the organizations; however, because we do not yet know all of the organizations that will be participating, it is impossible to estimate that total possible universe of families. Across this population, EDC will complete the data collection activities below. Table 7 summarizes each data collection activity.

- Year 1
  - Document review of reports and documentation from the previous grants that supported the SRP network model
  - Interview staff lead at each of the three hub leader sites
  - Survey staff lead at each of three hub leader sites and one staff lead at each of three key partner sites
- Year 2
  - Interview subset of staff leads (n=8) from hub leader sites, a subset of staff leads (n=6) from key partner sites, and a subset of staff leads (n=6) from collaborating sites.
  - Survey staff leads at all hub leader sites, all key partner sites, and all collaborating sites.

We do not yet know the final number of sites, but we estimate it will be about 40.

- Conduct focus groups (n=2) During the Year 2 national meeting, EDC will provide a focus group training to hub and partner organizations, who will conduct their own focus groups. Across six states, we anticipate there will be a total of 30 focus groups per year (60 total), with approximately 8 participants per focus group.
- Year 3
  - Interview subset of staff leads (n=8) from hub leader sites, a subset of staff leads from key partner sites (n=6), and a subset of staff leads from collaborating sites (n=6)
  - Survey staff leads at all hub leader sites, all key partner sites, and all collaborating sites. We do not yet know the final number of sites, but we estimate it will be about 40.
  - Conduct focus groups (n=2 focus groups; 16 participants in total) During the Year 2 national meeting, EDC will provide a focus group training to hub and partner organizations, who will conduct their own focus groups. Across six states, we anticipate there will be a total of 30 focus groups per year (n=60 focus groups total), with approximately 8 participants per focus group (n=480 participants in total).

**Table 2. Summary of Data Collection Activities**

Eval Question (Goal)	Method	Method	Participant Group(s)*	Date of Data Collection	Corresponding Question(s) from instruments**
EQ1 (Goal 1)	Document review	Review of reports and documentation from previous grants	n/a	Year 1	n/a
	Interview I	Video conferencing app (e.g., Zoom)	Staff from hub leader organizations	Year 1 – Year 3	Q4 - Q6; Q21
	Interview II		Staff from key partner/collaborating organizations	Year 2 – Year 3	Q4 -Q6; Q20
	Survey I	Web-based survey tool (e.g., Qualtrics)	Staff from hub leader and key partner organizations	Year 1	Q11
EQ2 (Goal 1)	Interview I	Video conferencing app (e.g., Zoom)	Staff from hub leader organizations	Year 1 – Year 3	Q2 - Q5; Q12; Q14; Q18
	Interview II		Staff from key partner/collaborating organizations	Year 2 – Year 3	Q2; Q4 - Q5; Q12; Q14; Q17
	Survey I	Web-based survey tool (e.g., Qualtrics)	Staff from hub leader and key partner organizations	Year 1	Q10 - Q14; Q19
	Survey II**		Staff from hub leader and key partner/collaborating organizations	Year 2 – Year 3	Q10 - Q14; Q19
EQ3 (Goal 1)	Interview I	Video conferencing app (e.g., Zoom)	Staff from hub leader organizations	Year 1 – Year 3	Q9; Q11; Q15,
	Interview II		Staff from key partner/collaborating organizations	Year 2 – Year 3	Q9; Q11; Q15
EQ4 (Goal 1)	Interview I	Video conferencing app (e.g., Zoom)	Staff from hub leader organizations	Year 1 – Year 3	Q4 - Q5; Q19
	Interview II		Staff from key partner/collaborating organizations	Year 2 – Year 3	Q4 - Q5; Q19
EQ5 (Goal 2)	Interview I	Video conferencing app (e.g., Zoom)	Staff from hub leader organizations	Year 1 – Year 3	Q6; Q8 - Q9; Q11; Q13; Q16
	Interview II		Staff from key partner/collaborating organizations	Year 2 – Year 3	Q6 - Q7; Q11; Q13; Q16
	Survey I	Web-based survey tool (e.g., Qualtrics)	Staff from hub leader and key partner organizations	Year 1	Q15 - Q18
	Survey II**		Staff from hub leader and key partner/collaborating organizations	Year 2 – Year 3	Q15 - Q18
EQ6 (Goal 2)	Focus group***	In-person	Adult from family participating in SRP through hub and partner organizations	Year 2 – Year 3	All
EQ7 (Goal 3)	n/a****				

\***Hub** refers to the statewide partnerships between and across museums, libraries, community organizations, and early care and educator provider networks. **Hub leaders** are the children’s museum or library that serves as leader of the hub. **Key partners** are organizations that hub leaders are **currently** partnering with. **Collaborating organizations** are **new key partner** organizations that join the hub as a result of this project

\*\*Survey II will include items from Survey I, along with additional items we develop as a result of findings from Year 1 data collection. For the purposes of this table, Survey II question #'s in the last column refer to question #'s from Survey I

\*\*\*The EDC evaluation team will conduct four focus groups (two in Year 2; two in Year 3). During the Year 2 national meeting, EDC will provide a focus group training to hub and partner organizations, who will conduct their own focus groups. Across six states, we anticipate there will be a total of 30 focus groups per year (60 total), with approximately 8 participants per focus group.

\*\*\*\*EDC will address EQ7 by documenting BCM’s progress in carrying out the project activities. Note that there are no data collection activities associated with EQ7; rather, EDC will address this evaluation questions through updates from BCM via email correspondence

## **B.2. Potential Respondent Sampling and Selection Methods**

In order to identify institutional capacities and cross-organizational relationships that support successful model implementation and to identify the ways in which the network model prepares and supports organizations and families in promoting academic readiness, we will conduct annual surveys with a staff leads from ALL participating organizations (i.e., the entire universe of respondents). The universe of Year 1 respondents will include organizations in the state networks that are part of Cohort 1 and Cohort 2 (see **Table 5**). Organizations that are part of the Cohort 3 state networks will be onboarded by Boston Children’s Museum at the end of Year 1, and therefore will not part of the Year 1 respondent universe. The universe of respondents in Year 2 and Year 3 will include organizations from all state networks across all cohorts. We will survey the same staff lead each year (assuming the staff lead has not left the organization or changed roles). Since we will be surveying all staff leads in all participating organizations, sampling is unnecessary.

To capture variation in model implementation and experiences across state networks, local contexts, and program levels, each year we also will conduct semi-structured interviews with staff leads from a subset of hub leader, key partner, and collaborating organizations across the state networks. The sample frame for the Year 1 interviews (n=3) will consist of the staff leads at hub leader organizations in the existing state networks (see Cohort 1 and Cohort 2 in Table 5). In Year 2 and Year 3, the sampling frame for the interviews will consist of the staff leads from hub leader organizations (n=8 per year; 16 total), key partner organizations (n=6 per year; 12 total), and collaborating organizations (n=6 per year; 12 total) across all state networks and cohorts. In Year 2 and Year 3, focus groups will be conducted (n=30 focus groups per year; 60 focus groups total) with a subset of families (n=240 families per year; n=480 total). The sample frame will include families who engage with hub leader, key partner, and collaborating organizations across all states and cohorts. Note that the EDC evaluation team will conduct four of the focus groups (two in Year 2; two in Year 3). During the Year 2 national meeting, EDC will provide a focus group training to hub, partner, and collaborating organizations, who will conduct their own focus groups. Across six states, we anticipate there will be a total of 30 focus groups per year (60 total), with approximately 8 participants per focus group. To select the subsets for the interviews and focus groups, we will employ purposive sampling, specifically maximum variation sampling.<sup>1</sup> This sampling approach allows us to maximize the diversity of responses and learn about implementation

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<sup>1</sup> Teddlie, C., & Yu, F. (2007). Mixed methods sampling: A typology with examples. *Journal of mixed methods research*, 1(1), 77-100.

across a heterogeneous group of settings. Boston Children's Museum (BCM) worked with IMLS to identify a new cohort of states to implement the network model. BCM and IMLS sought states with diversity related to geography, community type (urban, rural, tribal) and populations served (dual language households). EDC will select the sub-sample for interviews and focus groups based on these three characteristics, making sure the final sub-sample is representative of this diversity. We will make every effort to ensure that our interview sample is representative of these characteristics; however, to account for the possibility of selection bias, we will compare the characteristics of any organization that opted not to participate in interviews with the characteristics of the organizations that did. All analysis and reporting will document the extent and nature of these differences.

### **B.3. Response Rates and Non-Responses**

We anticipate high response rates across all data collection activities (between 85% and 100%) given the close working relationship between Boston Children's Museum and the participating organizations and the small number of respondents. ~~Based on previous work,~~ To reach these response rates, we will follow recommendations from the literature.<sup>2,3</sup> For example, to foster increased participation, Boston Children's Museum and EDC will provide participating organizations with a detailed overview of evaluation activities at the yearly meetings, establish strong channels of communication, and provide adequate notification and time to complete each data collection activity. We recognize that missing data can undermine the findings of an evaluation. If the response rates to the survey fall below 80% (response rate threshold recommended by OMB), we will conduct missing data analysis to examine if the data are missing at random or if there are differences in the characteristics between organizations that responded and those that did not respond. If we find that there are differences and that the data are not missing at random, we will select the appropriate procedures for handling missing (e.g., weighting).

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<sup>2</sup> Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: the tailored design method*. John Wiley & Sons.

<sup>3</sup> Monroe, M. C., & Adams, D. C. (2012). Increasing response rates to web-based surveys. *Journal of Extension*, 50(6), 6-7.

## **B.4. Tests of Procedures and Methods**

In developing semi-structured instruments for the interviews, focus groups, and Year 1 survey, we drew on and adapted items from existing instruments from current and previous work, creating new items as necessary. In developing the survey, we included the required performance measure items from IMLS.<sup>4</sup> Furthermore, we drew from literature related to emergence,<sup>5</sup> social innovation,<sup>6,7</sup> social network analysis<sup>8,9</sup> and social-emotional learning<sup>10,11</sup>. EDC will use findings that emerge from the Year 1 interviews and survey to refine and revise the survey for Years 2 and 3. For example, we will likely do an analysis of open-ended items from the Year 1 survey to develop close-ended items for the revised survey.

### **Data analysis**

**Analysis of quantitative data.** We will use statistical software (such as STATA) to conduct descriptive analyses of close-ended survey items. After data have been cleaned, researchers will calculate means and standard deviations for continuous measures and frequency tables for discrete measures.

**Analysis of qualitative data.** Data from the document review, interviews, and focus groups will be transcribed and analyzed using qualitative coding software (such as Dedoose). We will conduct a content analysis, which is a systematic analytical technique that is particularly useful for analyzing text data.<sup>12</sup> Given that research on the processes and principles for establishing and sustaining networks across libraries and museums is limited, we will follow the conventional approach to content analysis. Using this inductive approach, two researchers will engage in multiple reviews of the data. Through these initial reviews we will identify overarching themes related to our research questions and generate a coding scheme that we will apply to the data during a second round of review. To ensure consistency across coders, we will double-code a subset of data, discussing and resolving differences as necessary.

## **B.5. Contact Information for Statistical or Design Consultants**

### **EDC**

Project Director: Wendy Martin, Research Scientist, [wmartin@edc.org](mailto:wmartin@edc.org)

Project Lead: Michelle Cerrone, Senior Research Associate, [mcerrone@edc.org](mailto:mcerrone@edc.org)

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<sup>4</sup> Institute of Museum and Library Services (2019). *National Leadership Grants for Museums: FY 2019 Notice of Funding Opportunity*. (IMLS-CLR-D-0024). Retrieved from: <https://reginfo.gov/public/do/DownloadDocument?objectID=84159201>

<sup>5</sup> Wheatley, M., & Frieze, D. (2006). Lifecycle of Emergence—Using Emergence to Take Social Innovation to scale.[online]. *Dostupnoprako*: <http://www.margaretwheatley.com/articles/emergence.html> [11. 2. 2010.].

<sup>6</sup> Ayob, N., Teasdale, S., & Fagan, K. (2016). How social innovation 'came to be': Tracing the evolution of a contested concept. *Journal of Social Policy*, 45(4), 635-653.

<sup>7</sup> Mulgan, G., Tucker, S., Ali, R., & Sanders, B. (2007). Social innovation: what it is, why it matters and how it can be accelerated.

<sup>8</sup> Carrington, P. J., Scott, J., & Wasserman, S. (Eds). (2005). *Models and methods in social network analysis* (Vol. 28). Cambridge university press.

<sup>9</sup> Freeman, L. (2004). The development of social network analysis. *A Study in the Sociology of Science*, 1, 687.

<sup>10</sup> Catalano, R. F., Berglund, M. L., Ryan, J. A., Lonczak, H. S., & Hawkins, J. D. (2004). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. *The annals of the American academy of political and social science*, 591(1), 98-124.

<sup>11</sup> Collaborative for Academic, Social, and Emotional Learning [CASEL]. (2005). Safe and sound: An educational leader's guide to evidence-based social and emotional learning programs – Illinois edition. Chicago, IL.

<sup>12</sup> Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, 15(9), 1277-1288.

IMLS

Reagan Moore, Program Officer, [RMoore@imls.gov](mailto:RMoore@imls.gov)

Marvin Carr, Evaluation Officer, [MCarr@imls.gov](mailto:MCarr@imls.gov)