

Individualized, Equity-Focused Evaluation of Public Library Makerspaces

Overview. The University of Illinois at Chicago, Blue Island Public Library, Chicago Public Library, Denver Public Library, East Baton Rouge Parish Library, and Eaton Public Library propose a **National Leadership Grant (NLG) Planning Grant** to support the first phase of development of an individualized, equity-focused evaluation framework and survey instrument for public library makerspaces: **Maker Benefit, Experience, and Equity (MBEE)**. MBEE will advance NLG Goal 1, Objective 1.1.

The **\$149,851 project** will build library's capacity to evaluate their adult-serving makerspaces by addressing four inter-related performance measures: **outcomes** of participation, **relevance** of outcomes to individual participants (i.e., makers' perceived benefits of participation), makerspace **access** (i.e., participation by and barriers for different populations), and makers' **experience** of the makerspace climate. MBEE will guide libraries in applying an **equity** lens to each performance measure to assess equity of makerspace access, experiences, and outcomes. The project addresses a guiding principle for library programming outlined in an IMLS-funded [report](#): "Programming is effective to the degree it serves the authentic needs and interests of its target participants" (p. 8). MBEE will equip libraries to assess the extent to which makerspaces support adult makers in meeting their **individual goals**, rather than basing evaluation solely on library goals. In addition, the project addresses an IMLS-supported [competencies framework](#) that highlights the need for libraries to employ **equity-oriented** evaluation frameworks when assessing programming.

Project Justification. Public libraries offer adult-focused makerspaces and making programming to facilitate lifelong learning, foster entrepreneurship and socioeconomic advancement, and support recreation and wellbeing. In evaluating those offerings, libraries have focused on assessing learning outcomes that align with library goals. However, research [highlights](#) the heterogeneity of public library makers and, consistent with the self-directed nature of making, the variability of makers' activities and goals. Research also [illustrates](#) that focusing only on library goals and applying those desired outcomes uniformly to all makers could underestimate the benefits of makerspaces by missing key outcomes makers value and failing to account for the relevance of outcomes to makers' activities. As a result, libraries need to capture variation in the outcomes makers prioritize and seek, including outcomes not reflected in library goals. Further, makerspace evaluation involves more than assessing learning outcomes. In keeping with libraries' commitments to equity, diversity, and inclusion (EDI) and as outlined in a recent [white paper](#), makerspaces aim to foster an inclusive and welcoming climate; identify and address potential disparities in outcomes or experiences; and eliminate barriers to access and meaningful participation. Therefore, in addition to assessing learning outcomes, libraries need to evaluate access and climate, as well as disparities in access, experiences, and outcomes.

MBEE will address these needs by helping libraries investigate four inter-related performance measures: access, outcomes, relevance, and experience. To investigate these measures, the MBEE survey will capture maker demographics, barriers to access, self-reported outcomes of participation, makers' perception of the relevance of those outcomes, and makers' experience of makerspace climate. Benefits of participation will be represented through a Maker-Benefit Index, that captures the outcomes that are most important to each maker and the extent to which those outcomes are realized. This measurement approach will be adapted from patient-centered healthcare, in which a [patient-benefit index](#) is used to identify patients' priorities, capture variation in priorities, and assess health care from patients' perspectives. Similarly, the Maker-Benefit Index will enable libraries to individualize outcome data, capturing variation in the outcomes makers prioritize and achieve.

The MBEE framework and survey instrument will help build libraries' capacity to meet the needs of the public (NLG Goal 1) by conducting rigorous makerspace evaluation that attends to the heterogeneity of makers, self-directed nature of makerspace participation, and EDI in making—and applying results to enhance opportunities to support inquiry-based, self-directed learning (NLG Objective 1.1). MBEE complements IMLS investments to develop capacity and resources for makerspace evaluation, including a set of [makerspace assessments](#), a digital toolkit for [observational assessment data](#), and a framework for examining [community-level impact](#); a national forum on [makerspace research and assessment](#); training for library staff in [research methods](#) and [evaluation](#); a library makerspace [collective](#); and research to improve access for [makers with disabilities](#). Given the complexity and variability of library makerspaces, a suite of complementary resources and strategies is needed to equip libraries to conduct rigorous, comprehensive makerspace evaluation. This is similar to efforts in informal science education such as [EvalFest](#) and [PEAR](#) that provide a set varied data collection approaches and resources and, in the museum sector, the IMLS-funded [COVES](#) project. MBEE will uniquely contribute to the suite of makerspace evaluation resources by providing an individualized, equity-focused approach to examining quality and success, which libraries can combine with other assessments of learning outcomes. MBEE will be shared with the leaders of the listed initiatives to support integration and collaboration across IMLS-funded projects.

Project Workplan. We will conduct exploratory research in 5 public libraries to identify demographic variables, desired outcomes, and aspects of makerspace climate and access to address in the MBEE survey. The UIC Institutional Review Board will oversee all procedures. To address EDI in making and maximize national impact, research will be conducted in libraries of

varying sizes that serve racially and economically diverse populations in 3 states, operate makerspaces in distinct community contexts, and have continued to provide making services for adults (virtually or in person) during the pandemic.

State	Library	Context Population	Racial and Ethnic Identity	Median Income % Poverty
Colorado	Denver Public Library (DPL)	Urban 771,643	4% Asian, 0% Black, 93% White 7% Multiracial, 30% Latinx	\$72,661 12%
	Eaton Public Library (EPL)	Rural 5,868	1% Asian, 9% Black, 72% White 5% Multiracial, 28% Latinx	\$86,620 7%
Illinois	Blue Island Public Library (BIPL)	Suburban 22,005	0% Asian, 31% Black, 50% White, 2% Multiracial, 47% Latinx	\$51,859 18%
	Chicago Public Library (CPL)	Urban 2,696,555	7% Asian, 29% Black, 48% White, 5% Multiracial, 29% Latinx	\$62,097 17%
Louisiana	East Baton Rouge Parish Library (EBRPL)	Urban 443,158	4% Asian, 54% Black, 38% White, 2% Multiracial, 4% Latinx	\$44,177 16%

For each library, we will gather survey and observation data to capture makerspace characteristics, including (1) hours and locations, (2) equipment, software, and programming, and (3) level and nature of making activities. Then we will conduct 1 staff focus group and 1-2 maker focus groups per library, with 5-7 individuals per group. Staff focus groups will include those who staff and supervise the makerspace. Library staff will recruit participants for maker focus groups, using purposive sampling to reflect the population served and variation in makerspace participation. Semi-structured protocols will be used to focus the conversation on the desired and actual outcomes of makerspace participation; aspects of environment and interactions that contribute to or detract from an inclusive climate; potential barriers to participation; and demographic variables necessary to understand which populations are and are not engaged. Instruments will be reviewed by the project team and advisors.

Data collection will be led by the PI with assistance from a graduate student Research Assistant (RA). The PI and RA will analyze data thematically, using a coding scheme informed by the literature and supplemented by open, inductive coding. Findings will be reviewed by the project team and advisors and will provide the basis for future phases of development of the MBEE framework and instrument. We will share the MBEE framework and planning grant results through a webinar (e.g., [PLA, Infopeople](#)) and blog post (e.g., [Programming Librarian, Make](#)) and submit a proposal to present our work at a library or making conference (e.g., [PLA, NOMCOM](#)). We will also share results with the IMLS-funded initiatives listed above.

The **project team** will be led by PI **Dr. Rebecca Teasdale** (Assistant Professor, Educational Psychology, UIC), an evaluation methodologist with expertise in makerspace evaluation who directs an IMLS-funded [evaluation capacity building](#) project. Team members are national leaders in library makerspace design and implementation, oversee makerspaces in the participating libraries, and bring more than 100 years of combined public library experience: **Kristen Edson** (Deputy Library Director, EBRPL), **Amber Greene** (Library Director, EPL), **Ashley Kazyaka** (ideaLab Program Administrator, DPL), **Diane Marshbank Murphy** (Director of Service and Program Innovation, CPL), **Sasha Neri** (Maker Lab Librarian, CPL), **Micah Rademacher** (Head of Adult and Technical Services, BIPL), and **Adam St. Pierre** (STEM Librarian, EBRPL). Project advisors bring expertise in four key areas: **Dr. Cecilia Garibay** (President, Garibay Group), equity-focused evaluation of informal learning; **Kieran Hixon** (Rural & Small Library Consultant, Colorado State Library), rural library services; **Dr. Linda Hofschire** (Principal, LJH Consulting), evaluation methods for libraries; and **Dr. Kyungwon Koh** (Associate Professor, School of Information Science, University of Illinois at Urbana-Champaign), library makerspaces and maker learning.

Diversity Plan. EDI lie at the heart of the proposed research, as the project addresses the need for libraries to employ equity-oriented frameworks when evaluating programming. Specifically, MBEE will provide a framework and survey instrument to for assessing equity of makerspace access, experiences, and outcomes. Our research sites will be libraries of varying sizes in distinct community contexts that serve diverse populations, thereby maximizing the relevance of the research for a diversity of libraries and communities. We have engaged advisors who will guide us in addressing EDI in each phase of the project.

Project Results. This proposed planning grant will deepen understanding of the performance measures that constitute the MBEE framework and yield a preliminary set of variables to address in survey items. The project has also been designed to surface unanticipated themes that may need to be addressed and to finalize research methods and protocols for subsequent use. Findings will be disseminated through a webinar, blog post, conference submissions, and to the IMLS-funded initiatives listed above. Results will inform a full-scale NLG Applied Research Project that will engage additional libraries nationwide.

Budget. We request \$149,851 over 2 years with no cost sharing: \$20,289 Salary and Wages (PI), \$7,075 Fringe Benefits (PI), \$10,400 Travel (\$6,400 data collection, \$4,000 conference presentations), \$12,000 Supplies and Equipment (research site honoraria), \$12,200 Subcontracts and Awards (\$6,000 advisor honoraria, \$5,000 professional development for research sites, \$1,200 transcription), \$32,916 Student Support (\$25,196 RA salary, \$6,050 fringe, \$7,116 tuition remission), \$2,400 Other Costs (incentives for focus group participants), and \$52,571 Indirect Costs.