



NATIONAL LEADERSHIP GRANTS FOR LIBRARIES

Sample Application LG-260152-OLS-26
Project Category: Applied Research

University of Illinois Chicago

Amount awarded by IMLS:	\$706,206
Amount of cost share:	\$0

The University of Illinois Chicago will research the need for public libraries to evaluate adult making activities and use the findings to improve library services by better leveraging new and emerging makerspace technologies to address the public's information and education needs. Project results will include a toolkit to help public libraries to assess the extent to which making activities support adult makers in meeting their individual goals, identify and reduce barriers to engagement, and evaluate participation. The project will also provide nationwide training for libraries on using the toolkit and produce documentation of adult making outcomes and engagement across the U.S., along with dissemination to both practitioner and scholarly audiences.

Attached are the following components excerpted from the original application.

- Narrative
- Schedule of completion

When preparing an application for the next deadline, be sure to follow the instructions in the most recent Notice of Funding Opportunity for the grant program to which you are applying.

Maker Benefit and Engagement: Tools for Evaluating Public Library Making Activities for Adults

Introduction

The University of Illinois Chicago requests \$706,206 with no cost share for a National Leadership Grants for Libraries Program (NLG-L) Applied Research Project in partnership with the University of Colorado Denver, Eastern Carolina University, University of Kentucky, Library Makers, and 7 public libraries: Blue Island (IL) Public Library, Bowling Green (KY) Public Library, Charlotte Mecklenburg (NC) Public Library, Chicago (IL) Public Library, Ignacio (CO) Community Library, Pikes Peak (CO) Library District, and Russell County (KY) Public Library. This proposed 3-year project (9/1/26-8/31/29) addresses the need for public libraries to evaluate their making activities for adults and use the resulting data to enhance the quality of library services by more effectively leveraging new and emerging makerspace technologies to address the public's information and education needs. Building on our previous NLG-L Planning Grant ([LG-254863-OLS-23](#), 8/1/23-7/31/26), the project results will include (1) a toolkit for public libraries to (a) assess the extent to which making activities support adult makers in meeting their individual goals, rather than basing evaluation solely on library goals, and (b) examine engagement in making activities for adults and reduce barriers to engagement, (2) training for libraries nationwide to use the tools, and (3) documentation of adult making outcomes and engagement across the U.S. using the tools developed in this project and dissemination to practitioner and scholarly audiences. To accomplish these results, the project will address the following research questions:

- RQ1: How can a maker outcome framework be applied to develop, test, and pilot an individualized outcome measurement instrument for adults who participate in public library making activities?
- RQ2: How can maker engagement frameworks be applied to develop, test, and pilot a measure of engagement and barriers to engagement with public library making activities for adults?
- RQ3: How can training and resources support public libraries in using the tools to inform their evaluation and improvement activities?
- RQ 4: What are the outcomes associated with adults' participation in public library making activities?
- RQ 5: What barriers do adult makers encounter with engagement in public library making activities and how can those be addressed?

Project Justification

The project responds to two intertwined priorities within public libraries: 1) Public library makerspaces, and 2) Evaluating making activities.

Public Library Makerspaces. Since the Fayetteville Free Library launched the first U.S. public library makerspace in 2011, public libraries across the country have increasingly invested in makerspaces and making activities to leverage new and emerging technologies as a means of addressing the public's information and education needs. A recent IMLS-funded National Forum project documented how library making activities have grown from peripheral or "niche" services to exemplify the foundational values of librarianship and constitute a core library offering ([Koh & Teasdale, 2026](#)). These offerings take the shape of dedicated makerspaces, pop-up programming, outreach and mobile units, virtual and at-home programming, and community events ([Regalla & van Halsema, 2024](#)).

While public library makerspaces serve a variety of ages, making activities for adults have emerged as key library offerings that provide robust environments, programs, and services to support adults' information and educational needs in three interrelated ways (e.g., [Hicks & Long, 2020](#); [Teasdale, 2020](#)). First, making and makerspaces foster lifelong learning focused on foundational, transferable skills and knowledge including technical skills required to operate makerspace hardware and software; skills, knowledge, and dispositions related to the design process and design thinking; and 21st century skills such as critical thinking and creative problem solving. Second, making and makerspaces support entrepreneurship and socioeconomic advancement by providing resources, support, and inspiration for adults to design and create products to sell and to produce packaging and marketing collateral ([Teasdale, 2021](#)). Third, the spaces support leisure and wellbeing by

providing opportunities for adults to develop and pursue hobbies, cultivate and express creativity, relax and have fun, and discover and enhance their unique talents and passions ([Crawford Barniskis, 2023](#)).

Evaluating Making Activities. As public libraries have invested in making spaces and activities, they have also increasingly sought to assess both the impact and value of library programs and services to support accountability to funders and inform continuous improvement of library offerings. Currently, most of the available evaluation resources for library makerspaces are designed to assess learning outcomes. For example, IMLS-funded projects have focused on developing a set of [makerspace assessments](#) and a digital toolkit for [observational assessment data](#), both with a focus on assessing making-related learning outcomes. This work is critical to understanding makerspace impact; however, as described above, making activities address a broad range of information and educational needs. For example, our NLG-L Planning Grant documented 11 distinct outcomes adults seek and achieve in public library making activities (see Supporting Document: Outcomes Framework). These include **saving money** by creating items they would otherwise need to purchase or gaining access to cost-prohibitive technology; **bolstering livelihoods** by creating products, packaging, and marketing materials or by starting, growing, or maintaining a small business by using makerspace tools or materials; **nurturing creativity** by bringing their ideas to life and developing new ideas and items through making activities; and **enhancing wellbeing** through making activities that relieve stress, foster relaxation, provide a sense of accomplishment, and cultivate self-confidence.

Further, research has highlighted the heterogeneity of public library makers and corresponding variability in makers' activities and goals. As [Cun and colleagues \(2019\)](#) observed: "Anyone could be making anything for any amount of time in a library makerspace" (p. 40). As a result, participation in a public library making activities can lead to a wide range of outcomes—and those can include and extend beyond learning-related outcomes. In our prior research, we found that failing to adequately address this variability during an evaluation could result in an underestimate of making activity benefits for two reasons ([Teasdale, 2020](#)). First, evaluation in libraries often focuses on examining a set of desired outcomes that are encapsulated in library-specified goals. However, given the heterogeneity of makers and their aims, it is unlikely that library goals can fully capture the varied, individualized nature of makerspace participation. As a result, library-specified desired outcomes may not reflect the range of makers' purposes and the benefits they seek. Therefore, an **evaluation focused exclusively on library goals may miss key outcomes** that makers value and achieve. As an alternative, libraries need evaluation strategies that address both library-specified and *participant-defined* desired outcomes.

Second, applying desired outcomes uniformly can result in a mismatch with some participants. For example, a library might specify a goal for its making activities of supporting entrepreneurship. In an evaluation of those activities, some makers may report that their participation did not help them start or advance a business. To accurately interpret these data, the library would need to distinguish between makers whose purposes and desired benefits were and were not related to entrepreneurship. Otherwise, the library could **misinterpret the findings as a lack of success, when the findings may actually represent a lack of relevance of the focal outcome** for some or all of the makers. Rather than applying desired outcomes uniformly, libraries need individualized evaluation strategies that can capture variation in makers' purposes and the benefits they seek and achieve.

In addition, public libraries are grounded in a foundational commitment to create service delivery models that ensure all community members have the resources they need ([American Library Association, 2021](#)). Thus, public library making activities aim to engage a broad range of community members, foster a positive climate, and reduce barriers to engagement and meaningful participation ([Chang et al., 2019](#)). Without careful attention to maker engagement, making activities can fall short of their potential to foster innovation, creativity, collaboration, and STEM-based learning for all segments of communities ([Koh, et al., 2018](#); [Lakind et al., 2019](#); [Martin, 2015](#)). Therefore, libraries need to evaluate engagement, including makers' experience of the environment(s) in which making takes place. For example, our analysis of data from our NLG-L Planning Grant and prior research ([Crawford Barniskis, 2025](#)) has documented key factors that facilitate engagement in making activities (Supporting Document: Engagement Framework, Supporting Document: Convivial Capabilities Checklist). In

addition to physical availability of makerspace technologies and logistics such as convenient hours and locations, these factors include makers seeing themselves reflected in the environment, availability of tools and resources that reflect makers' interests and priorities, resources and assistance being readily available in makers' home language(s), and having meaningful input in the design and operation of the environment and making activities.

Addressing Identified Needs. This Applied Research Project will address the needs described above by developing and validating evaluation instruments for library use, creating resources to support libraries in using the new tools, training library staff nationwide, and applying the new evaluation instruments to examine making outcomes and engagement across the U.S. The toolkit will help libraries address the breadth and variation in outcomes that adult makers prioritize and seek—including desired outcomes not reflected in library goals—identify factors affecting engagement with making activities and illuminate opportunities to lower barriers to engagement. Findings from the examination of adult making outcomes and engagement across the U.S. will help libraries understand and describe their local services within the broader national context, identify areas of strength, and specify areas for further refinements.

Building on our NLG-L Planning Grant, the benefits of making participation will be represented through a Maker Benefit Index (MBI). The MBI will reflect the outcomes that are most important to each adult maker and the extent to which those specific outcomes are realized. This measurement approach will be adapted from patient-centered healthcare, a field recognized as a leader in positioning individuals' specific needs and desires as the driving force in quality measurement ([NEJM, 2017](#)). A patient benefit index is used to identify patients' priorities, capture variation in priorities, and evaluate health care from patients' perspectives ([Augustin et. al., 2008](#)). Similarly, a Maker Benefit Index will enable libraries to individualize outcome data to capture and understand variation in the outcomes that makers prioritize and achieve ([Teasdale, 2022](#)).

Engagement in making activities will be examined through a Maker Engagement Inventory (MEI). The MEI will focus on both physical and cognitive engagement with spaces and programming from the perspective of each maker. The MEI will acknowledge that use of spaces can be impacted not only by physical barriers but also the making environment, which is created by those who use and staff the space. The MEI will be developed to build upon and expand makerspace-specific frameworks developed through our NLG-L Planning Grant and prior research ([Crawford Barniskis, 2025](#)). We will also draw on and expand IMLS-supported usability checklists ([Project ENABLE, 2011](#)), which offer a limited evaluation of the usability of and engagement with a library space, often focusing on the larger building and not on the individualized space or spaces where making takes place.

Who Will Benefit. Initially, the project will benefit the adult makers and makerspace staff and leaders affiliated with our public library partners. These individuals will benefit when findings are used to improve their libraries' making activities for adults to better address community needs, fostering greater engagement and the achievement of the outcomes that matter most to individual makers. At the completion of the project, the benefits will expand to public libraries of all sizes and in all types of communities and locations as we disseminate the toolkit, provide training for public libraries nationwide, and share findings about making outcomes and engagement across the country. Thus, the project will enhance the quality of public library services for adults nationwide by helping libraries more effectively leverage new and emerging makerspace technologies to address the public's information and education needs.

Project Work Plan

Year 1. At the beginning of Year 1, we will submit all research protocols and draft instruments for approval by the Institutional Review Boards (IRBs) of the University of Illinois Chicago, University of Colorado Denver, Eastern Carolina University, and University of Kentucky. These IRBs will assess all research procedures to ensure compliance with ethical and data security guidelines. We will also establish a private community space within the [LibraryMakers.org](#) platform that will serve as the hub and collaboration space for our project team and public library partners. Library Makers is an IMLS-supported network of more than 2500 members and the largest community of library makerspace professionals nationwide. [LibraryMakers.org](#) was established in 2023 and is hosted on the Mighty Networks platform. Using [LibraryMakers.org](#) as our project hub will facilitate effective

coordination and project management across all phases of the project and begin integrating this project into the Library Makers community. In addition, we will identify 1 additional partner library to join the project: a small and/or rural library in North Carolina. This will bring our total number of partner libraries to 8 (see Stakeholders section, below): 2 libraries each in Colorado, Illinois, Kentucky, and North Carolina. We will recruit this partner library through Eastern Carolina University's network of alumni and collaborators, the networks of our 7 named library partners, and the Library Makers community.

To address RQ1, we will develop, pilot, and validate a new survey tool: the Maker Benefit Index (MBI). We will utilize a measure validation methodology following [DeVellis & Thorpe's \(2021\)](#) four stages. 1.) The planning stage builds off the making outcomes framework developed through our NLG-L Planning Grant (see Supporting Document: Outcomes Framework) to describe the constructs being measured. 2.) The construction stage will develop items, scales, and survey platforms. 3.) The quantitative evaluation stage will pilot the tools to see how they function, gather reliability and validity evidence, and make modifications. 4.) The validation stage will confirm support for reliability and validity with the final tools from a larger field sample. Data will be collected through an online or paper survey as adults exit making activities and spaces in 4 partner libraries for the pilot stage (stage 2) and 4 partner libraries for the validation stage (stage 4). Minimum sample size for validation modeling follows a "rule of 10" where $n = \text{the number of items} \times 10$ (Nunnally, 1978; [Velicer & Fava, 1998](#)), or at least $n=100$ responses as recommended by [Gorsuch \(1983\)](#) and Kline (1979).

Analytical techniques are focused on gathering evidence for validity arguments. Content validity ([DeVellis & Thorpe, 2021](#)) builds off framework development with expert reviews to define constructs (i.e. outcomes, goals) and ensure indicators of constructs (i.e. survey items) are necessary and comprehensive. Item analysis and factor analysis support the accuracy of item content in relation to other items. Formative assessment evidence adds additional support by talking with library staff and makers after using the tool. Reliability analysis ([Cronbach, 1951](#)) will focus on internal consistency, assessed via Cronbach's alpha. Feasibility and usability ([Paz & Pow-Sang, 2014](#)) will be analyzed through formative analysis, as well as noting how long it took for the maker to complete. The survey platform and flow will also be examined to ensure easy access and use for future users. Internal structure validity (Bond & Fox, 2007) will be conducted through exploratory factor analysis and Rasch modeling to examine the dimensionality of the tool. Scale validity will also occur through Rasch modeling to examine the rating scale categories, which further classifies ordinal scales into logits intervals ([Linacre, 2025](#)). This allows us to examine if items can be treated as continuous and thus create reliable mean scores for comparative analysis.

To address RQ2, we will mirror RQ1's process to develop, pilot, and validate a second new survey tool: the Maker Engagement Inventory (MEI), with the addition of a qualitative analysis phase. As an inventory, the MEI will include closed-ended survey items, along with open-ended questions to collect qualitative data related to engagement and barriers to engagement. This qualitative data will be analyzed during the fourth stage of the methodology outlined by [DeVellis & Thorpe's \(2021\)](#), providing an additional layer of validation to the development of the inventory. Analysis of the qualitative data will include coding, memoing, and thematic analysis as outlined by [Saldaña \(2025\)](#).

Year 2. Once the tools have been validated across multiple libraries and adult making activities (RQ1 and RQ2) in Year 1, we will begin disseminating the measure development and validation results in Year 2 (see Results section below).

To begin to address RQ3, we will develop a digital toolkit and expanded project website, as well as training materials for public libraries. The toolkit will include the MBI and MEI instruments, along with user-friendly, appealing, and actionable materials that frame the MBE and MEI tools and provide instructions for use, guidelines for data analysis, and resources for taking action. We will develop drafts of the resources, share them with our partner libraries, and incorporate their feedback to refine and finalize these resources. We will then develop an expanded version of the project website, which is currently being created as part of our NLG-L Planning Grant, to disseminate the toolkit. The expanded website will launch in Year 3 and include (1) information about the current NLG-L applied research project, (2) the freely downloadable digital toolkit, and (3) links to

related library makerspace projects and resources developed with IMLS support. For example the website will provide links to [Library Makers](#), our project partner that connects and supports library makerspace staff nationwide; [The National Forum to Connect and Advance Library Makerspaces](#), a national forum project that documented the shared vision and values that underpin library makerspaces and outlined recommendations for the future; resources that address accessibility in making for [blind and visually impaired teens](#) and for [adults with disabilities](#); and resource to support data collection in makerspaces, such as the [Observation Deck](#). We will also develop training materials, which we will use in Year 3 to train public libraries nationwide. These materials will be designed for use virtually within the Library Makers platform and in-person at library conferences.

Finally, we will lay the groundwork for RQ4 and RQ5 by recruiting 8 additional libraries to participate in data collection in Year 3. We will leverage the [LibraryMakers.org](#) platform and community, which has a membership of more than 2500 library staff members across all 50 states, to publicize the research project and invite participation. We will post announcements in the community, publish a blog post on [LibraryMakers.org](#) and in the Library Makers newsletter, and host an informational webinar. Our partner libraries will also use their professional networks to recruit libraries to join the project. If interest exceeds our target of 8 additional libraries, we will use the following selection criteria to balance our sample of participating libraries: geographic location not yet reflected among our partner libraries (i.e. Northeast or West regions of the country), differing sizes (i.e., balance of small and medium/large libraries), differing community types (i.e., balance of rural/town, suburban, urban) and serving distinct populations (i.e., balance of demographics served). We will share the toolkit with the 8 additional libraries and conduct a half-day virtual training with them, using the Library Makers platform. We will gather participant feedback to further refine the toolkit and training materials in Year 3.

Year 3. We will continue to disseminate the results of measure development and validation (RQ1 and RQ2) in Year 3 (see Results section below).

We will address RQ3 by finalizing the digital toolkit and disseminating it to libraries nationwide. We will launch the expanded project website and publicize the project through the Library Makers community. Fourth, we will conduct training sessions that will be open to all public libraries. These will include 2 virtual trainings through the Library Makers platform and 2 in-person training sessions scheduled to coordinate with the 2028 Association for Rural and Small Libraries (ARSL) and 2029 American Library Association (ALA) conferences.

To address RQ4 and RQ5, the 8 newly trained public libraries will use the MBI and MEI tools to gather data in their makerspaces. These data will be combined with the data gathered by our 8 partner libraries in Year 1. For RQ4, we will then look across all 16 library sites to determine the individualized outcomes associated with adult participation in public library making activities. For RQ5, we will look across all 16 library sites to determine the barriers adult makers encounter with engagement with making activities, the extent to which each barrier matters, and how barriers can be addressed. While the sample of libraries will not be representative of libraries nationwide, it will provide a first-of-its-kind snapshot of adult making outcomes and engagement and lay the groundwork for future studies with nationally representative samples. For both RQ4 and RQ5, quantitative analysis will include a combination of descriptive and inferential statistics including correlation, regression, and analysis of variance to examine the extent to which makerspaces support adult makers in meeting their individual goals, the extent to which barriers affect maker engagement, and identify differences across libraries and makers. For RQ5, additional qualitative analysis will be applied to the collected data, including inductive and deductive coding and thematic analysis, to determine the salience of and responses to barriers to engagement. Results from these analyses may provide additional validity evidence to address RQ1, such as ecological validity ([Holleman, et al., 2020](#)) when examining library setting differences and temporal validity ([Roe, 2013](#)) as continued data collection builds a dataset to consider responses over time. We will also consider the engagement data in combination with the outcome data, connecting the two tools to examine relationships among factors. Finally, will disseminate findings from RQ4 and RQ5 in Year 3, as described in the Results section (below).

Project Management. The project will be led by Dr. Rebecca Teasdale, Associate Professor, University of Illinois Chicago; Dr. Courtney Donovan, Assistant Professor, University of Colorado Denver; Dr. Kawanna Bright,

Associate Professor, Eastern Carolina University; and Dr. Shannon Crawford-Barniskis, Assistant Professor, University of Kentucky.

	Overall	RQ1	RQ2	RQ3	RQ4	RQ5
Teasdale	Lead	Support	Support	Co-Lead	Lead	Support
Donovan		Lead	Support	Support	Support	Support
Bright		Support	Lead	Support		Support
Crawford Barniskis		Support	Support	Co-Lead		Lead

Dr. Teasdale will serve as Principal Investigator. She will lead the project, overseeing and managing all research and dissemination activities. She will support RQ1 and RQ2 activities by contributing content expertise and prior research. She will co-lead RQ3 activities and lead RQ4 activities, including overseeing research design, coordinating with public libraries, developing toolkit resources, delivering training, managing data, and disseminating results. She is an evaluation methodologist specializing in public libraries, with a focus on evaluating makerspaces. She has more than 15 years' experience as a public librarian and public library administrator. Teasdale served as the Principal Investigator of the NLG-L Planning Grant ([LG-254863-OLS-23](#)), on which the current proposal is based. She directed an IMLS-funded project to build evaluation capacity of public library staff and leaders ([RE-13-19-0076-19](#)) and co-directed an IMLS-funded project charting the future of library makerspaces ([LG-256680-OLS-24](#)). She holds a PhD in Educational Psychology and an MA in Library Science.

Dr. Donovan will lead RQ1 activities, including research design, developing data collection instruments and protocols, and data collection and analysis. She will support analysis for RQ2 and support RQ3 and RQ5 activities. She will support RQ4 by contributing to research design and leading RQ4 data analysis. Donovan has expertise in research and evaluation methodologies, data analysis, and measure development and validation with a PhD in Research Methods and Statistics. She has taught MA and doctoral research methods for over 10 years and received multiple grants, including as methodologist on two IMLS-funded projects: [ME-249540-OMS-21](#), which created a measure of meaningfulness for science museums, and [LG-07-14-0081-14](#), which supported early childhood literacy and won the 2016 Excellence in Youth Services Award from the Colorado Association of Libraries.

Dr. Bright will lead RQ2 activities, including research design, development of data collection instruments and protocols, and data collection and analysis. She will support RQ1 analysis and support RQ3 and RQ4 activities. She will support RQ5 activities by contributing to research design and leading data analysis. Bright holds a PhD in Research Methods from the University of Denver and an MLIS from the University of Washington. Her expertise lies in library assessment and research methodology. Her current research focuses on assessment in libraries, application of research methodology to study library and information science, recruitment and retention in LIS, and liaison librarianship in academic libraries. Dr. Bright teaches courses on research methods, academic libraries, public libraries, community engagement, and technology in libraries.

Dr. Crawford Barniskis will support RQ1 and RQ2 activities by contributing content expertise and prior research. She will co-lead RQ3 activities and lead RQ5 activities, including overseeing research design, coordinating with public libraries, developing toolkit resources, delivering training, managing data, and disseminating results. She worked in public libraries for 19 years, in nearly every capacity (including Director and Consultant), largely in small and rural communities. Her research focuses on how public libraries impact people through creative programs, makerspaces, collaborative leadership, youth services, power and ethics in policy-making, social trust, and spatial considerations. She received an IMLS Laura Bush 21st Century Librarian Early Career Grant focused on understanding public library trustee selection, training, and collaboration ([RE-256642-OLS-24](#)). She holds a PhD in Information Science and an MS in Library Science.

Dr. Lisa Regalla will support project management and dissemination within the Library Makers platform. She will configure a private community space that will serve as the hub for the project team and public library partners. She will publish announcements, a blog post, and an article in the Library Makers community, host an informational webinar to recruit additional libraries, and host virtual training sessions. She is the CEO of Regallium Consulting, LLC. Her consulting practice focuses on bridging the gap between research and practice to support innovative learning environments for children of all ages. She is the Project Director for the IMLS grant, *Library Makers: Growing a Community for Learners and Leaders* ([RE-256651-OLS-24](#)). Previously, Lisa served as the Director of STEM Learning & Innovation at the Bay Area Discovery Museum, the Deputy Director at Maker Ed, and the Manager of Science Content & Outreach for the SciGirls children's television series at Twin Cities Public Television.

Dr. Linda Hofschire will serve as instructional designer for the toolkit and training materials (RQ3). She is the founder and principal of LJH Consulting and has more than 30 years of experience conducting social science research and evaluation and providing training in-person and online. She consults with organizations such as Califa, the California State Library, and the Public Library Association and directs the Research Institute for Public Libraries, a national initiative to provide data and evaluation training for library workers. She has an MA and PhD in Mass Media from Michigan State University, and an MLIS from the University of Illinois.

Dr. Dennis DeBay will serve as an advisor for RQ1 and RQ4 activities. He is a STEM educator and researcher at CU Denver whose work explores how technological and makerspace environments mediate learning across formal and informal settings. He will bring a STEM education perspective to the project, contributing expert review and alternative explanations throughout tool development and analysis.

Dr. Latrice Ferguson will serve as an advisor for RQ2 and RQ5 activities. She is an Assistant Professor at Eastern Carolina University, advancing research that explores play, identity, and literacy in the library. She will bring expertise in rural public libraries and factors affecting engagement, contributing expert review throughout tool development and analysis.

We will be assisted by a team of **graduate students** with advanced training in evaluation, measurement, public librarianship, and library assessment. The graduate students will assist with project management, data collection, analysis, toolkit development, library training, and dissemination. In doing so, students will deepen their knowledge and skills as they prepare to take on leadership roles as researchers and library practitioners.

Stakeholders. This project emerged from our NGL-L Planning Grant that partnered with 6 public libraries to gather focus group data from 62 adult participants in making activities and 29 makerspace staff members. These libraries are located in states in 3 distinct regions of the U.S.: Colorado (West), Illinois (Midwest), and Louisiana (South). Across these regions, we included large, urban libraries (which serve the majority of the U.S. population) and small and rural libraries (which reflect the majority of libraries in the U.S.) to capture a broad range of maker experiences and contexts and to maximize applicability to all types of public libraries. The two frameworks at the heart of the current project – the maker outcomes framework and maker engagement framework – were derived directly from the input of adult makers and makerspace staff. The maker engagement framework is further informed by ethnographic research in 3 additional public library makerspaces, which included over 400 hours of observation and interviews with 65 makerspace users, nonusers, staff, administrators, trustees, community partners, and politicians ([Crawford Barniskis, 2025](#)). The libraries included a village library, a bedroom community/suburban library, and a large urban central library in the Northeastern and Midwestern U.S. We shared preliminary versions of the frameworks with our public library partners and incorporated their feedback to finalize the frameworks and inform the current project. Our NLG-L Planning Grant also engaged advisors with expertise in library makerspaces, rural libraries, and public library evaluation and capacity building. We have incorporated their perspectives and feedback into the frameworks that underpin this project and the research questions and project plan proposed here.

In this project, we will partner with 8 public libraries, including both small and/or rural libraries and medium- and large-sized libraries in 4 states. These library partners test the MBI and MEI instruments by gathering data with adult makers in their libraries and provide feedback on the MBI and MEI instruments, data collection

procedures, and toolkit resources we develop. Our public library partners' expertise will be particularly focused on the feasibility of using the instruments, procedures and toolkits to inform libraries' evaluation and improvement activities. A coordinator at each library will serve as a liaison to the research team and coordinate activities at their library.

State		Small and/or Rural Library	Medium or Large Library
Colorado	Library name	Ignacio Community Library	Pikes Peak Library District
	Description	Rural library in La Plata County, southwestern Colorado	Serves urban and rural communities with 3 adult-serving makerspaces
	Population served	850	678,684
	Coordinator	Liz vonTauffkirchen, Assistant Director	Becca Cruz, Director of Strategy and Innovation
Illinois	Library name	Blue Island Public Library	Chicago Public Library
	Description	Town/suburban library in southern Chicago metropolitan area	Urban library with 6 adult-serving makerspaces
	Population served	22,000	2,697,000
	Coordinator	Micah Rademacher, Head of Adult and Technical Services	Sasha Neri, Information Center Manager, Harold Washington Library Center Megan Greenback, Assistant Director, Legler Regional Library
Kentucky	Library name	Russell County Public Library	Warren County Public Library
	Description	Rural library in Appalachia	City library in Bowling Green
	Population served	18,178	139,843
	Coordinator	Cody Gabeheart, Interim Director	Mitch Henson, Branch Manager, Bob Kirby Branch
North Carolina	Library name	To be identified in Year 1	Charlotte Mecklenburg Public Library
	Description		Urban library with 3 adult-serving makerspaces
	Population served		1,143,390
	Coordinator		Emery Ortiz, Chief Strategy and Innovation Officer

Each partner library will receive compensation for the time and expertise library staff will invest in the project in the form of makerspace supplies and materials that will directly benefit their makerspace participants. Each library will select the supplies and materials that are most relevant for the community it serves (see Budget Justification for examples). UIC will purchase those items and provide them to each participating library. In Year 2, we will recruit an additional 8 libraries, which will participate in training in Year 2 and data collection in Year 3. These libraries will provide feedback on the data collection procedures, toolkit resources, and training materials we develop, with particular attention to the feasibility of using the instruments, procedures, and resources in libraries.

National Impact. This project will achieve and demonstrate national impact in 5 key ways. First, we will engage 8 public libraries in 4 states as partners in developing, testing, and validating the MBI and MEI instruments. This will ensure the instruments effectively address a broad range of maker experiences and library contexts. Second, we will incorporate feedback from our 8 public library partners and 8 additional libraries across the country when developing the digital toolkit and training materials. This will maximize feasibility and

applicability for public libraries nationwide. Third, through our partnership with Library Makers, we will integrate the project into the largest and most active network of library makerspace professionals in the U.S. to foster national reach and impact. Fourth, we will share the digital toolkit as a freely available download through the project website, ensuring ready access for public libraries nationwide. Fifth, we will actively disseminate results to multiple segments of both library practitioners and the academic research community, as outlined below (see Results section). This will include dissemination to library makerspace professionals (via Library Makers), general library professionals (American Library Association conference, *Public Libraries* magazine), rural and small libraries (Association of Rural and Small Libraries conference), library and information science educators and researchers (Association for Library and Information Science Education conference, manuscripts submitted to peer reviewed journals), and evaluation and measurement professionals (American Evaluation Association, American Educational Research Association conference, manuscripts submitted to peer reviewed journals).

Project Results

Project results will include (1) a toolkit for public libraries to (a) assess the extent to which making activities support adult makers in meeting their individual goals, rather than basing evaluation solely on library goals, and (b) examine engagement in making activities for adults and reduce barriers to engagement, (2) training for libraries nationwide to use the tools, and (3) documentation of adult making outcomes and engagement across the U.S. using the tools developed in this project and dissemination to practitioner and scholarly audiences.

The toolkit and training will equip public libraries with the tools, resources, knowledge, and skills to employ individualized evaluation strategies that capture variation in makers' purposes and the benefits they seek and achieve. This will help libraries address the breadth and variation in outcomes adult makers prioritize and seek, including desired outcomes not reflected in library goals. The toolkit and training will also equip libraries to evaluate makerspace engagement, identify factors and barriers affecting makerspace engagement, and illuminate opportunities to lower barriers to engagement. Documenting makerspace outcomes and engagement across the U.S. will help libraries understand and describe their local services within the broader national context, identify areas of strength, and specify areas for further refinements.

To ensure project results are readily adaptable and usable across institutions and communities, we will develop the MBI and MEI (RQ1 and RQ2) through piloting and validation in public libraries with a variety of characteristics: differing sizes, varying geographic locations, differing community types (i.e., rural/town, suburban, urban) and serving distinct populations. Similarly, we incorporate feedback from public libraries with a variety of characteristics into the development of the toolkit and training materials (RQ3). The toolkit and materials will be user-friendly, appealing, and actionable to ensure usability by public libraries of varying sizes and contexts. Findings regarding makerspace outcomes and engagement across the U.S (RQ 4 and RQ5) will reflect data gathered in a sample of 16 public libraries with varying characteristics.

Dissemination of results will be tailored to reach multiple segments of library practitioners and the academic research community. We will submit a proposal to disseminate the MBI and MEI development and validation results (RQ 1 and RQ2) at the 2028 American Educational Research Association conferences in Year 2 and the 2028 American Evaluation Association conferences in Year 3. Presenting our results at these conferences, where measurement is a central theme, will enable us to gather expert feedback to strengthen the quality of the new MBI and MEI instruments. We will also prepare manuscripts to disseminate the RQ1 and RQ2 results through peer-reviewed publications, such as *Library & Information Science Research* and *Performance Measurements and Metrics*.

In Year 3, we will disseminate the digital toolkit (RQ3) through the expanded project website, 2 virtual training sessions on the LibraryMakers.org platform, and 2 in-person training sessions scheduled to coordinate with the 2028 ARSL and 2029 ALA conferences. We will promote the project website and training sessions by posting announcements in the Library Makers community, the ALA Connect Platform (including the Public Library Association, ARSL, Maker Technology Interest Group communities), and relevant library listservs. Our partner libraries will also use their professional networks to publicize the website and training. Each session will enroll

representatives of at least 10 public libraries, for a total of 40 libraries trained in this project phase. The virtual training sessions will be recorded and freely available through the archive on the LibraryMakers.org platform.

We will disseminate findings from RQ4 and RQ5 through a Library Makers webinar and by submitting proposals to present at the 2029 ALA and ALISE conferences. We will also author an article for *Public Libraries* magazine and prepare manuscripts to submit for peer-reviewed journals, such as *Library Quarterly* or *Library and Information Science Research*.

Sustainability. We will sustain the benefits of the project beyond the conclusion of the period of performance in four ways. First, the project website will be freely available for a period of at least 3 years after the conclusion of the project. The website will include project information, the freely downloadable digital toolkit, conference presentation materials, a bibliography of published articles, downloadable copies of any articles that are open access, and links to recordings of the webinar and virtual training sessions.

Second, we are partnering with Library Makers to ensure that our project is integrated into the larger community of library makerspace professionals and easily accessible for those seeking to evaluate their makerspaces. This includes our dissemination activities through Library Makers, as well as using the LibraryMakers.org platform as the hub and collaboration space for our project team and public library partners.

Third, this project continues to build a network of libraries engaged in makerspace evaluation. Our NLG-L Planning Grant brought together 6 public libraries in 3 states to develop the outcome and engagement frameworks that underpin the current project. This Applied Research project engages 4 of those libraries in 2 states as partners, while expanding the network by adding 4 new partner libraries in 2 additional states. Further, in Year 2 of this project, we will recruit 8 additional public libraries to join the network. All participating libraries will be connected through a private community space within the Library Makers platform to foster ongoing collaboration and support. In Year 3, we will train an additional 40 public libraries, bringing the total to 56 libraries in the network.

Fourth, our project team includes graduate students in evaluation, measurement, and library and information science. By assisting with project management, data collection, analysis, toolkit development, library training, and dissemination, these students will build the knowledge and skills needed to take on leadership roles as researchers and library practitioners and advance the work of evaluating and strengthening public library makerspaces going forward.

