

Digital Toolkit for Qualitative Observational Assessment in Hands-on Library Programs

Project Overview: Madison Public Library (MPL), Skokie Public Library (SPL), and Waupaca Public Library (WPL) propose a **3 year National Leadership Project grant** to pilot a digital application and web platform for **collecting, organizing, and analyzing qualitative, observational data to better measure the impact of hands-on, creative programming for all ages** (including STEAM exploration and open-ended play) and create a model to disseminate these tools nationwide. Impact refers to the effect on stakeholders' lives to **promote lifelong learning** through social emotional development and 21st century skills such as critical thinking, creativity, and collaboration. This **\$244,515 pilot project** would further develop a prototype tested by the Bubbler at MPL in 2019, with the goal of creating a comprehensive toolkit for librarians in diverse communities to easily and consistently assess hand-on, creative program goals and outcomes - to better tell a compelling data driven story of the transformational learning that happens in their hands-on, creative library experiences.

National Need: Public & school libraries across the county have successfully embraced hands-on maker, STEAM, and open ended play programs. These programs appeal to patrons of all ages as fun opportunities to take initiative of their learning through open ended experiences, where activities are free of the pressures of traditional educational assessments. Yet, these same liberating attributes make it very challenging for librarians to assess impacts, a crucial step in the process of program development. While tools exist for librarians to determine goals, outcomes, and measures, including [PLA's project outcome](#) and a recent IMLS guide for [Evaluating Library Programming](#), these tools rely on analog means of assessment and are highly dependent on patron surveys. Yet, other studies (like [IMLS Making Observations](#)) have shown that observational data can definitively show learning outcomes in hands-on programs. However, these [observational tools have been developed on paper](#) and have directly sited that documentation while facilitating is incredibly challenging. Without an evaluator on staff or research partner, analyzing these observations to continuously improve practices, connect experiences and impacts over time, or share findings with diverse stakeholders is next to impossible for an independent librarian. In fact, a main concern raised at the 2019 IMLS National Forum: [Research and Assessment in Library Makerspaces](#) was staff capacity and time. This project grant would build on this existing research, including 5 years of work from the Bubbler at MPL collecting observational data, to develop easy to use tools and usage guides for librarians and libraries, no matter their size, to draw conclusions about their programs' outcomes, adjust practices, and share impacts with their communities.

Project Design: In 2019 the Bubbler at MPL partnered with Rootstock Partners to digitize their current practices of qualitative data collection into an app. Their initial test of this tool observed 18 unique programs over 6 weeks in 4 public and 5 school library maker programs. The tool allowed observers to record indicators of 21st Century skills like collaboration, perseverance, and creativity, as well as documenting ah-ha! moments of social emotional connections through photos, voice to text, and observer notes. Sharing the rough data with participants increased the rigor of their reflections and their ability to articulate a growth mindset. For facilitators, analysis of these observations lead to changes in activity design and facilitator moves to increase the frequency of learning indicators. The results of the prototype were promising, but the tool still presented challenges with ease of use and MPL lacked further resources to develop a platform for sorting back end data, making the analysis process difficult and time consuming. This study was also limited to Maker focused programs, which is only one aspect of hands-on, creative programming offered by many libraries.

Phase 1: The project will examine the data from the Bubbler's prototype study and conduct user interviews to inform a beta redesign. This redesign will also include accommodations for customizable frameworks of goals, outcomes, and observable indicators for a larger variety of hands-on programs beyond making including STEAM and open-ended play programs, making it more usable to a broader audience of librarians. The project team will also conduct user interviews to construct a prototype of a web-based platform for practitioners to analyze data for learning outcomes by tagging, linking, and connecting related data and to generate purposeful reports to share with stakeholders. This phase will seek to answer: 1. What form of observational data is the most feasible for practitioners to collect? 2. What form of data (photo, talk to text, facilitator notes) is the most meaningful to draw conclusions of impact while still protecting privacy? 3. What type of analysis is most

meaningful to practitioners and stakeholders? 4. What form of analysis is useful, yet feasible with capacity restraints? Findings of stakeholder interviews will be analyzed and the development plan of the app and web platform will be shared with an advisory board in preparation for continued testing.

Phase 2: The project team will conduct a 2nd small scale study of data collection and analysis practices with librarians in Madison Public Libraries, Skokie Public Library, and Waupaca Public Library with the assistance of interns, offering valuable mentoring experiences while increasing capacity for data collection. This smaller study will inform refined changes to the collection practice and analysis web platform, as well as allow the project team to develop drafts of user guides to accompany the digital tools. These guides and newly tweaked tools will be shared with the advisory board in preparation for a larger field study.

Phase 3: Expands the study to a broader range of libraries in urban, suburban, and rural communities (still to be recruited) to run a large scale field test. This will allow for broader feedback through in depth surveys and interviews on both the usability of the app, web platform, and accompanying user guides, but also for the development of a community of practice amongst libraries centered around common goals. The results of this larger scale test will be shared at the national level at several conferences (potentially: Play, Make, Learn, the Public Library Association National Conference, Connected Learning, and the Maker Educator Convening).

Phase 4: Focuses on dissemination and sustainability. The results of the studies and user guides will be disseminated through confirmed interested partners the **Public Library Association (PLA) and Maker Ed.** The project team will work to create a sustainable cost sharing consortium for the toolkit to be available for commercial use by library systems at minimal costs while still enabling data storage and ongoing upkeep.

Diversity Plan: This project is designed to assess learning outcomes in programs that can be seen as peripheral or extra, yet are often spaces where children who struggle with traditional educational measures thrive. Like the Bubbler's [Making Justice](#), [Making Spaces](#), and [Media Academy](#) programs that seek to address the opportunity gap and inequitable access to hands-on learning. Yet without accessible assessment tools, librarians struggle to justify allocation of time, money, and staff to sustain programs like these. By seeking to engage a diverse collection of libraries (urban, suburban, and rural) this project will ensure these tools are applicable by librarians in communities regardless of their size, justifying the rich learning experiences of diverse groups of learners.

Project Team: Project Lead Rebecca Millerjohn (MPL): Youth services librarian with the Bubbler focusing on maker education pedagogy, assessment, and practice; **Carissa Christner (MPL):** Youth services librarian, early childhood and play expert, Anji Play coordinator; **Holly Storck-Post (MPL):** Youth services librarian, early childhood and play expert, manager of the MPL Play Lab. **Amy Holcomb (SPL):** the Experiential Learning Supervisor managing the BOOMbox, a STEAM learning space; **Sue Abrahamson (WPL):** children's services librarian specializing in STEAM learning. **Advisory board:** From UW-Madison: **Erica Halverson:** Professor of Curriculum & Instruction focusing on learning through the arts, **Peter Wardrip:** Assistant Professor of STEAM Education, **Rebekah Willett:** Associate Professor in the ISchool focusing on children's literature and play. In addition, **Stephanie Chang,** Director of Impact at Maker Ed. **Kurt Keifer:** Asst. State Superintendent Wisc. and **Tessa Michaelson-Schmidt** head librarian at the Wisconsin Department of Public Instruction

National Impact: With innovative, well designed digital tools to collect and analyze qualitative data efficiently, libraries will be able to easily assess learning outcomes in hands-on programming and share them with their diverse communities, revolutionizing the way the field is able to understand learning, and driving the library programming practice forward for greater impact.

Budget: Part time Project lead at Madison Public Library (\$86,000) Digital Toolkit development (\$100,000), Project interns (\$29,515), Advisory board & stakeholder honorariums & stipends (\$14,000), Materials & Program support (\$3,000), Device costs for data collection (\$2,000), Travel costs (\$10,000). Total: **\$244,515**