

ALLMs: Assessment for Learning in Library Makerspaces

The Proposed Project

ALLMs: Assessment for Learning in Library Makerspaces project is a research-practice collaboration between the University at Buffalo-SUNY, the University of Wisconsin-Madison, and the Buffalo and Erie County Public Library (Requested Budget of \$290,000). The project will involve library staff and researchers co-designing and studying assessments of learning and engagement in Makerspaces. The focus will be to study and develop assessment tools, including a planning map with adaptable assessments, that will support librarians' development of assessment literacies for promoting lifelong learning (IMLS, 2018) in Making and similar hands-on learning experiences.

National Need and Impact

The increasing number of innovative learning experiences offered in libraries, (e.g., Makerspaces, Learning Labs, Fab Labs) presents important opportunities and challenges for librarians. Driven by new technologies, these learning experiences are a natural evolution of what libraries can offer their communities, but also require libraries, librarians, and patrons to synchronously evolve their instruction and learning behaviors. As *anchors for their communities*, libraries must have access to data that can lead to improved, equitable learning. Librarians need tools and approaches to document and assess maker-based learning and other ambitious learning experiences, part of what Koh and Abbas (2015) call facilitating learning. Patrons need formative and summative feedback for the novel but important learning they gain in libraries. Finally, guidance on what to do with assessment data is needed for all, since assessment is only valuable if it leads to positive action.

The Launch Pad, a Makerspace within the Buffalo & Erie County's Library (BECPL) Downtown Central branch, is designed for hands-on learning experiences where all patrons, children and adults (even Buffalonians without a library card), can drop-in for any length of time and learn new skills, create virtual & physical projects, and collaborate. Typical of many library Makerspaces, there is a wide variety of learning opportunities available for patrons with vastly different prior experiences. This alone would present a significant challenge to creating assessments - not knowing the age, prior experience, or how long a learning experience may take place - but the challenge is further compounded by patrons who might not want to provide personal information (often for good reasons). Test, surveys, and observation tools that are successful in measuring learning in other Makerspaces are not necessarily applicable in Library Makerspaces. Yet the patrons served by BECPL's downtown branch, is typical of many underserved populations, who need fully developed learning spaces that include assessments.

While other research has been funded to support assessment work in museums (e.g., Children's Museum of Pittsburgh) and connected learning in libraries (e.g., UC-Irvine), this proposal is unique in that it will combine three phases of design-based research into an assessment toolset that can then be adapted for use in all Library Makerspaces. Phase one is research to identify the information and feedback needs of patrons, librarians, and stakeholders (e.g., board of governors) of a library Makerspace. Phase two's primary goal is to match different information and feedback into the design of an assessment planning map that can then be used to identify the assessment needs of Library Makerspaces and what assessments can then meet those needs.

The 3rd and final phase of our research plan will provide patrons, librarians, and stakeholders with recommendations and examples of what to do with the data generated through assessments. This last part of the assessment cycle, acting on assessment data, is too often deprioritized because of the challenge of creating and implementing an assessment. However, knowing what to do with assessment data is fundamental to both improving learning opportunities and measuring impact. Consequently, we will evaluate our research proposal by examining the degree to which libraries improve learning in Makerspaces based on our assessment tools.

Our research questions are:

1. What are the expected learning goals among patrons and librarians for Makerspaces?
2. What constitutes useful evidence of learning goals among patrons and librarians in Makerspaces?
3. In what ways does documentation of learning inform the work of librarians, patrons, and other library stakeholders?

Project Design

The three phases of our research will be completed in corresponding years that would begin November 1, 2018 and end June, 30, 2021. Our primary research site for year one will be the central branch of BECPL, with four other libraries recruited in year two, and national dissemination in year three.

Phase One/Year One: Development

In the first year of this project, the research team will work with a team of library staff from the Launch Pad, through a combination of observation protocols and structured interviews with librarians, patrons, and other stakeholders (e.g., board of governors), to continue work on identifying priorities for learning in the space and articulate what that learning looks like. An iterative design-based research process (Barab & Squire, 2004) will then focus on developing an assessment map and tools to document and interpret the evidence of learning that can be used in a library Makerspaces. These tools might include, but are not limited to: an observation protocol for librarians, self-assessment questionnaires for patrons, artifact collection, peer-feedback, and a note-taking tool.

Phase Two/Year Two: Testing and Refinement

In the second year, the prototype tools and routines will be tested in two other library systems. The advisory board will help with the selection of other sites, with special emphasis on selecting rural libraries with Makerspaces, to optimize the assessment maps and tools for the variability of the experience of library staff, demographics of patrons, and the different types of hands-on learning experiences offered. Not only will the tools and routines be tested, but how library staff are trained to use the tools and routines will also be tested, with the expectation that ongoing professional development will be self-sustaining outside of this research project. Feedback from this prototyping will enable the project team to refine the maps, tools, and routines to enable rapid adoption at scale.

Phase Three/Year Three: Synthesis and dissemination

In year three, we will finalize the assessment tools and documentation and organize two regional workshops that can draw on a range of librarian communities within a geographic area (Western New York, Upper-Midwest). These librarians will engage with the tools and provide constructive feedback to ensure utility at scale. The toolkit will be openly licensed, available for download from several websites, and optimized for libraries that require printed materials. The toolkit will include: adaptable assessment maps, adjustable assessment tools (e.g., surveys, observations protocols), supporting documentation (e.g., example procedures, scaffolds for assessment theory, and reflective prompts that enable deep thinking on assessment), and guided instruction for helping librarians develop their own assessment tools. In addition, all toolkits and publications will be disseminated through conference workshops (e.g., PLA, YALSA, ARSL), online communities (e.g. YOUMedia Community of Practice), and websites (e.g., Maker Ed resource page, makingandlearning.org).

Primary Investigators and Advisory Board

Sam Abramovich (Assistant Professor, UB) will serve as the PI and supervise the entire project as well as project activities in Buffalo. Peter Wardrip (Assistant Professor, UW - Madison), a leading national scholar on Making and Makerspaces, will serve as co-PI and will supervise project activities in Madison as well as national outreach. Mary Jean Jakubowski (Director, Buffalo & Erie County Public Library) will serve as co-PI and supervise patron, librarian, and other stakeholder involvement.

To ensure the project works in synergy with national projects and taps necessary expertise, we have an advisory board with commitments from: Stephanie Chang (MakerEd), Lisa Brahms (Children's Museum of Pittsburgh), Crystle Martin (El Camino Community College), Jeff Evancho (Agency by Design/Quaker Valley School District), Amy Holcomb (Skokie Public Library), Kristin Fontchiaro (University of Michigan).

Budget and Justification

We are requesting a budget of \$290,000, with \$200,000 allocated to salary and fringe costs over three years, \$50,000 allocated to travel and dissemination, and \$40,000 for equipment. This request takes into account the PIs and Co-PIs time and junior staff developing ALLMs, UB indirect costs, three face-to-face meetings of project personnel, three conference workshops in year 3, and honoraria for advisory board and librarian staff release time.