Making is for Everyone: Learning within Library Makerspaces for Youth with Disabilities

Aligned with the IMLS program goal #1, objective 1.3, *Create and/or facilitate opportunities for continuous learning for families, groups, and individuals of diverse cultural and socioeconomic backgrounds and needs including, individuals with disabilities,* researchers from the University of Oklahoma will provide evidence of the current state of programming, design, and accessibility of public library makerspaces' programs for youth with disabilities (targeted age range: 8-24) and suggest principles for inclusive making programs. We will partner with a team of experts in makerspace design, a youth services librarian, a self-advocate with disabilities, a special education specialist, and a parent advocate for youth who have disabilities to conduct a three-year Applied Research project with the goals of determining: 1) the prevalence of makerspaces or maker programming for youth with disabilities in public libraries, 2) the role of parents/caregivers and youth with disabilities in maker programming decisions, 3) the barriers encountered by both libraries developing the programs and those of youth with disabilities who participate, 4) the accessibility of makerspaces or maker programming for youth with disabilities (both physical and learning-enabled design), and 5) the best practices being applied to ensure accessibility of makerspaces and maker programming for youth with disabilities. We are requesting $295,657 for this project, which will be conducted from August 1, 2022 to July 31, 2025.

Project Justification: Makerspaces are flourishing in public libraries, yet little is known about the inclusive programming being provided to library patrons, especially youth with disabilities. Makerspace programming can address inequities in underserved communities (including disabled youth), by providing access to various making technologies, skill acquisition, and peer and professional mentoring, each critical to today's youth with disabilities who plan to move into the workforce, but also essential for improving each youth's quality of life. In 2018/2019, 7.1 million youth with disabilities between the ages of 3-21 were served by the Individuals with Disabilities Education Act (IDEA), which comprises 14% of U.S. public school students (National Center for Education Statistics, 2020). Approximately 61 million, or nearly 1 in 4 (26%) people in the United States, are affected by a disability (Centers for Disease Control and Prevention [CDC], 2020b). Disability is defined as, "any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions). There are many types of disabilities, such as those that affect a person's: vision, movement, thinking, remembering, learning, communicating, hearing, mental health, and social relationships" (CDC, 2020a, para. 1).

In 2001, the American Library Association approved the Library Services for People with Disabilities Policy, which states in part "Libraries play a catalytic role in the lives of people with disabilities by facilitating their full participation in society. Libraries should use strategies based upon the principles of universal design to ensure that library policy, resources and services meet the needs of all people" (ALA, 2021). Additionally, ALA has made equitable access to library services by all individuals a key action area in its updated strategic plan (ALA, 2015). One way that libraries have met this challenge is by developing programs and services for disabled individuals of all ages and abilities. Because maker movement aims to support *all* learners' tinkering and inquiry-based learning, makerspaces or maker programming are one example of how libraries engage with youth who have disabilities to meet their educational and social needs.

According to youth.gov, "disabilities can be an important part of a young person's identity and contribute to their life in many ways. These identities shape how young people with disabilities foster their strengths, interests, and diverse perspectives on the world around them." (https://youth.gov/youth-topics/disabilities). To successfully transition to adulthood and possibly into the workforce, youth with disabilities require: 1) opportunities to develop social, civic, and leadership skills; 2) strong connections to caring adults; 3) access to safe places to interact with their peers; and 4) support services to allow them to become independent adults (http://www.ncwd-youth.info/publications/guideposts/). Makerspaces and maker programming can provide each of these and more through connected learning experiences, adult and peer mentors, and a safe environment in which youth with disabilities can feel like they belong.

Between 2011-2016, IMLS invested over $10 million dollars into initiatives and grant projects to enhance library and museums' learning through making efforts (IMLS talking points, 2016). IMLS continues to fund grants and programs, even through 2021, to provide makerspace, STEM, and other inquiry-based learning programs within libraries. IMLS has also funded projects that developed best practices of universal design and guidance for designing accessible and equitable makerspaces or inquiry-based programs for youth with disabilities (Project Enable; Project PALS). Libraries and IMLS recognize that serving youth (and adults) with disabilities is a critical need, *but are these services and programs reaching the intended audience(s) for which they are designed? Is maker programming for youth with disabilities providing inclusive, inquiry-based learning experiences?* Only one study to date (Brady et al., 2014) provides research-based guidance for developing and delivering programming for youth with disabilities or learning-enabled designs of such programs within public libraries even though the value and need for equitable programs within public library makerspaces are widely recognized in libraries.

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Project Work Plan: This three-year applied research project will be led by Dr. June Abbas (an expert in makerspaces, user-centered design, and digital media advocacy, and a parent of two youth with disabilities) and Dr. Yong Ju Jung (an expert in informal learning, learning design, educational technology, and makerspaces). An advisory board comprised of a makerspace expert (Dr. Kyungwon Koh), a youth services librarian (Rebecca Spence), a self-advocate with disabilities (Dr. JooYoung Seo), a special education specialist (Dr. Alvaro Gomez), and a parent advocate for youth who have disabilities (Heather Pike) will provide feedback through all phases of the project and assist in the assessment of project activities. The ***research questions*** guiding the project include: 1) Are makerspaces or maker programming in public libraries providing inclusive, inquiry-based programming for youth with disabilities? 2) How do public library makerspaces or maker programming incorporate the opinions and participation of parents/caregivers and youth with disabilities into their programming decision? 3) What barriers do exist for libraries/librarians developing makerspaces or maker programming for disabled youth? 4) How accessible are makerspaces or maker programming to youth with disabilities (both physical and learning-enabled design)? and 5) What accessibility and inquiry-based learning best practices are makerspace programs using to engage youth with disabilities? 6) What principles can guide public library makerspaces to facilitate inclusive maker programming for youth with disabilities?

Theoretical Framing: The principles of user-centered design will be the theoretical basis in understanding and analyzing accessibility and learning-enabled design of the public library makerspaces and maker programming. Also, the embodied learning approach will be used to develop a conceptual and analytical framework to explore youth's learning and experiences during making.

Year 1: The first year will be devoted to assessing the prevalence of public library makerspace programming for youth with disabilities. A national survey will be developed and distributed through ALA/YALSA listservs, state department of libraries youth services representatives, and through other professional social media channels. Follow-up interviews will be conducted with youth services librarians who direct makerspaces or develop maker programming. ***The survey and interviews will achieve Goals 1-3 and address research questions 1, 2, and 3.*** Year 2: The second year will include an in-depth analysis of the accessibility of a select sample of makerspaces that have programs designed for youth with disabilities. The sample will be derived from the survey results and review of IMLS publications on funded makerspace programs and meet the criteria outlined in the Diversity Plan below. The project team will choose 5-8 public libraries that have makerspaces or maker programming for youth with disabilities (aged 8-24) to visit and observe. The visits will include the observation of the physical space of library makerspaces and their making programs for youth with disabilities as well as conversations (i.e., semi-structured interviews) with participants (parents and youth) and librarians. ***The observations and interviews will achieve Goals 4 and 5 and address research questions 4 and 5.*** Year 3: The final year will include analyzing Year 2 data and design of accessibility best practices. Training modules and webinars will be developed by the project team and delivered through multiple channels, such as YALSA and Niche Academy. Scholarly and practice-oriented publications will also be developed to disseminate the findings and best practices. ***The activities of Year 3 will achieve Goal 5 and address research question 6.***

Diversity Plan: The research team will select libraries to visit and observe based on the following criteria: 1) the presence of a makerspace or maker programming for youth with disabilities, and 2) their geographic and demographic diversity. Every effort will be made to choose libraries that meet the two criteria but that are also located in highly diverse communities in urban, suburban, and rural areas, which include a diverse range of ethnic and racial groups with strong representations of Latino, African American, and low-income populations. The training modules will also be adaptable for use with geographically and demographically diverse populations and contain sections devoted to working with users from underrepresented groups.

Project Results: Project results will provide libraries with data to make strong, youth-with-disabilities-enabled decisions when designing makerspaces and maker programming. Youth with disabilities will benefit from libraries providing youth-with-disabilities-centered maker programming. Youth services staff in libraries (and other informal making environments) will have guidance to develop maker programming for youth with disabilities.

Budget: Funds are requested for: 1) salary and fringe benefits for the PIs for one month each year during the summer and one course buyout in Years 2 and 3 for Co-PI Jung ($101,980); 2) support for a graduate student, including tuition, salary, and fringe ($84,030); 3) travel support for PIs and graduate student ($35,000); 4) stipend for advisory board members, libraries, and librarian and parent participants ($12,200); 5) transcription services ($5,000) and 6) equipment, supplies, and data analysis software licenses ($3,981). In total, the cost will be $295,657 for the project, inclusive of indirect costs of $53,466. There will be no cost sharing or sub-awards.