

Designing Future Library Leaders

In this one-year project, the Syracuse University School of Information Studies and the University of Washington Information School will convene a Laura Bush 21st Century Librarian National Forum in Seattle, Washington on incorporating design thinking, methods, and principles into master's level library education. This project supports IMLS's interest in Community Anchors projects; specifically, we aim to investigate and develop potential educational opportunities informed by relevant sectors and disciplines that support library professionals' mastery of design skills. Library leaders in the 21st century need to be collaborative, creative, socially innovative, flexible, and adaptable problem solvers—skills evident in design. As libraries foster new innovative organizational cultures, design thinking, methods, and principles are an integral part of this paradigm shift. Incorporating design is critical in bridging connections between LIS education and these new models of 21st century librarianship. Yet explicit integration of design in formal library education is nascent at best and occurring in independent silos. How can master's level library education address this concern?

The project seeks to identify gaps in existing curricula, explore approaches to design in master's level library education, and offer concrete, actionable recommendations for incorporating design. To achieve these goals, we propose a national forum that brings together library educators, design educators and professionals, and library employers. This forum will have three major phases, each reflecting one of the project goals:

- 1) A **field scan** reviewing current design approaches in library education and practice. Information from ALA-accredited programs will be collected and analyzed to reveal ways in which current MLIS curricula align with or diverge from design concepts. Feedback from library practitioners regarding the interest in and use of design thinking and methods will be solicited via an online feedback form. The outcomes of the field scan phase will illustrate the current state of design in the field and help us identify potential forum participants.
- 2) A **national forum** on design in master's level library education. The forum will include 15-20 participants comprised of educators from ALA-accredited programs, educators from design schools, library employers, and design professionals. Participants will meet for two days in Seattle to review and discuss the results of the field scan, identify aspects of design education relevant to MLIS education, share professional experiences, and brainstorm curricular approaches.
- 3) Production of **curricular recommendations** that capture and communicate ways educators can incorporate design thinking into their own courses and programs. They will include content such as learning outcomes, course objectives, suggested reading lists, and ideas for course assignments and/or class activities. These materials will be freely available on the web for easy use by instructors and other interested parties.

Following the forum, a report summarizing the results and offering suggestions and recommendations for ways to integrate design thinking, methods, and principles into master's level library education will be produced and widely disseminated. These results and products will benefit library educators, in turn benefitting master's level library students and the organizations and employers they go on to serve. Master's level library education should generate graduates prepared to lead the library field, not just work in it. This National Forum puts in place a foundational framework that will affect the library workforce for years to come by offering education that supports the decision-making and problem-solving skills necessary for leadership in the 21st century.

Designing Future Library Leaders

The Syracuse University School of Information Studies and the University of Washington Information School request \$92,477 from the Institute of Museum and Library services to convene a Laura Bush 21st Century Librarian National Forum in Seattle, Washington on incorporating design thinking, methods, and principles into master's level library education. This National Forum project supports IMLS's interest in Community Anchors projects; specifically, we aim to investigate and develop potential educational opportunities informed by the relevant sectors and disciplines that support library professionals' mastery of design skills. The forum will actively engage library practitioners, library educators, and design professionals to understand the current state of design thinking, methods and principles in master's level library education and generate ideas for integrating design into this space. Following the forum, a report summarizing the results and offering suggestions and recommendations for ways to integrate design thinking, methods, and principles into master's level library education will be produced and widely disseminated. These results and products will benefit library educators, in turn benefitting master's level library students and the organizations and employers they go on to serve.

With a growing emphasis on science, technology, engineering and math (STEM) in K-12 education and the advent of creative tools like makerspaces in libraries, it is imperative that librarians not only be competent designers themselves—they need the ability to teach design to patrons in school, public, and academic libraries. Master's level library education is not a space for vocational training: it should generate graduates prepared to lead the library field, not just work in it. This National Forum puts in place a foundational framework that will affect the library workforce for years to come by offering education that supports the decision-making and problem-solving skills necessary for leadership in the 21st century.

1. Statement of Need: A Field-Wide Need for Design in Librarianship

This National Forum is a first step in addressing the field-wide need to incorporate design thinking, methods, and principles into master's level library education. While people of a variety of educational backgrounds practice the tasks of librarianship, master's level library education traditionally distinguishes professional librarians from other library workers. The MLIS and equivalent degrees are intended to prepare students to be not just practicing librarians, but professionals—future leaders and community anchors in the library world.

In the 21st century, these future leaders increasingly require new skill sets beyond what has been traditionally taught in master's level library education programs. We posit that educational opportunities informed by design can support library professionals' mastery of new skills to improve their ability to address community needs. A recent report on the future of MLIS education notes an increasing need to foster graduates that are collaborative, creative, socially innovative, flexible, and adaptable problem solvers—characteristics which are demonstrated by people with backgrounds in design (Bertot, Sarin and Purcell 2015). The Aspen Institute's recent report on the future of public libraries emphasizes the need for libraries to foster new organizational cultures that emphasize innovation, calling out design thinking as an integral part of this paradigm shift (Garmer 2016).

Design thinking helps leaders in other fields achieve these characteristics through a unique, problem-centered, iterative approach. Although the specific verbiage varies, design thinking approaches generally consist of four major phases: an investigative phase, wherein a problem is defined and understood; a planning phase, where ideas are generated; a development phase, where products or artifacts are actually created; and an evaluative phase, intended to assess the product. These phases are not linear, but form an iterative cycle (see Figure 1), allowing constant reflection and improvement.

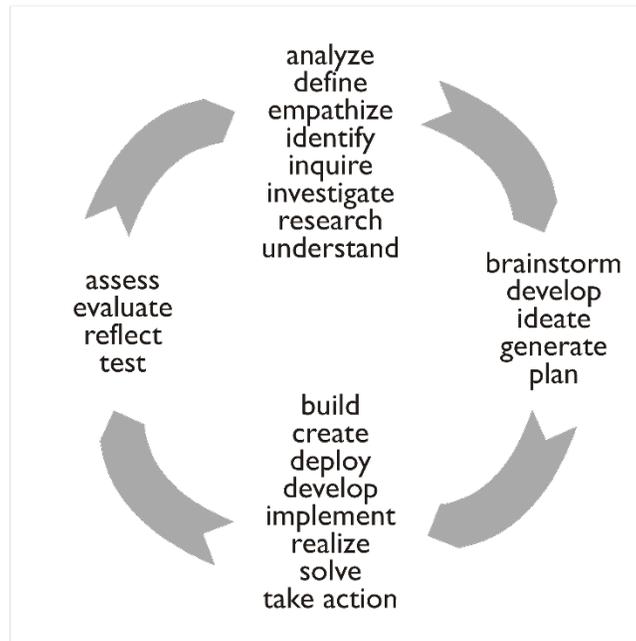


Figure 1. A basic representation of the design thinking process, including the various terminology used in different sources.

All of these phases play a role in fostering 21st century leadership skills. The investigative phase establishes a problem-solving mindset by identifying patterns, clearly identifying and articulating issues and goals, and emphasizing empathetic understanding of users and customers by seeing things from their perspective (Clark and Smith 2008). The planning phase, in which many possible solutions are brainstormed, encourages collaboration and innovation. Because design thinking emphasizes multiple approaches to solving a problem, it generates more—and more innovative—solutions (Guterman 2009). The development phase encourages creativity in the most literal sense, through the creation of problem solutions, but also encourages adaptation and flexibility, as designers find themselves navigating constraints and restraints. The evaluative phase pushes leaders to communicate value clearly, and feeds back into investigation for continued improvement.

Design thinking has generated tremendous traction in industry, where it has been applied to more than just the looks and usability of physical products. Prominent books, like Tim Brown and Barry Katz's *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation* and Roger Martin's *The Design of Business: Why Design Thinking is the Next Competitive Advantage* have argued for the application of design thinking in corporate environments, especially in management and leadership. Businesses such as Proctor and Gamble, Kaiser Permanente and Costco have applied design thinking to strategic planning, business

models, and organizational structures and processes (Leavy 2010; 2012). These organizations that have embraced design thinking and methods have been shown to do better financially than their less design-conscious competitors (Guterman 2009, 42).

Although libraries are not businesses, professional library managers and leaders also support strategic planning, organizational processes, and the creation of tools and services for library users and patrons. Design thinking is a natural approach to these tasks, and indeed, some libraries are increasingly drawing on design thinking and methods to help inform their practice. For instance, the Chicago Public Library has actively embraced a design thinking perspective, from programming ideas to staff hires (Schwartz 2013). Temple University Libraries also draw on design thinking to improve library user experiences, from services to branding (Bell 2008; 2011). In these examples, the influence of IDEO, a seminal design firm that helped publicize design thinking, is evident. So is the influence of design schools like Stanford's famous d.school. These organizations offer introductory toolkits and online mini-courses in basic design thinking approaches and methods. A few are even specifically tailored for libraries, such as IDEO's "Design Thinking For Libraries" toolkit

(<http://designthinkingforlibraries.com>), which offers librarians a step-by-step guide to adopting design thinking as a staff-driven process for change. The toolkit's popularity continues to contribute to greater awareness about design thinking among library workers. In 2016, the Library Journal Design Program, which initially focused on architectural design challenges that united librarians and architects to explore the use of design to improve library services, began to offer a design thinking workshop in conjunction with the Chicago Public Library, which itself contributed to the rise of design thinking. Other online tools, like the blogs at the Blended Librarians Online Learning Community (<http://blendedlibrarian.org>) and Designing Better Libraries (<http://dbl.lishost.org>) offer practicing librarians opportunities to participate in discussions and information exchange.

While these tools are certainly useful, they are limited in the amount of depth they can provide. And although they were created in conjunction with and with input from librarians, toolkits and online courses like those offered by IDEO and Stanford are still created by non-library organizations, which means they are limited in the historical context and knowledge of libraries and librarianship that they can capture and represent. All of these tools must also be independently sought out and found by librarians through means like published articles or word-of-mouth. There is no systematic exposure to this design material across the field of librarianship as a whole. Librarians are not formally educated in design principles and methods or taught to consider their work as a form of design. Even librarians in newly-created positions that are focused on user experience do not consider themselves designers (MacDonald 2015).

This underrepresentation of design thinking is especially noticeable in master's level library education, which purports to offer a standardized base of knowledge across the field. For instance, design research methods are conspicuously absent from textbooks on research methods for librarians, even recent publications (see for example Beck and Manuel 2008; Connaway and Powell 2010; Pickard 2013). When design is discussed in the context of librarianship, it is often relegated to architecture and space planning, such as Library Journal's annual Design Showcase, which highlights architectural and interior design prowess (Morehart 2015). Bradburn (2013) describes the stages typically found in the design thinking process in the context of redesigning school library facilities. Bradigan and Rodman's (2008) new design of consolidated reference/information service in a

single “ASL desk” also emerged in the context of remodeling/architecture. But design is much more than this. While design of physical spaces is an important aspect of library service, evidenced in the value of “library as place,” (Bushman and Leckie 2007) design is not limited to physical facilities.

In addition to this emphasis on architecture, discussions and discourse of design in library and information science literature often reflect technology (such as “web design”) and printed material formats (such as the design of book jackets) (Clarke 2015). But design in librarianship is much more than physical spaces and webpages. Librarians design all manner of tools and services to enable access to and use of information resources. From the earliest libraries of Sumeria, where workers created cuneiform lists of holdings, to the famous library of Alexandria which implemented the first known deposit model to foster access to knowledge; from Dewey’s decimal-based classification system enabling patrons to browse shelves by subject rather than acquisition order to modern databases like NoveList that support readers’ advisory and recommendations, the thing that separates a library from merely a collection is the creation of tools and services that unite users with information. These examples were chosen to illustrate the breadth and diversity of library design projects and because many of them are likely to be familiar or recognizable, but for each project listed here there are hundreds if not thousands of others, large and small, successes and failures. Arguably every tool and service created in librarianship is a design artifact, from individual bibliographic records to cooperative reference service plans spanning large numbers of libraries. Thus librarianship may even be considered a design profession, one which requires formal design education (Clarke 2016; 2017).

Formal design education is traditionally absent from education of librarianship. A curriculum review of the top 20 ALA-accredited master’s level library education programs conducted by the University of Washington revealed that none required coursework in design (Clarke, Lee and Mayer 2017). Outside of this, a few notable examples have recently emerged. Grant-funded workshops from the Council on Library and Information Resources (CLIR) focused on the method and technique of participatory design, a form of design process that supports cooperation and collaboration between users and designers (Council on Library and Information Resources 2012). However, these workshops focused mainly on applied techniques and methods rather than the underlying epistemological perspectives that constitute design. Although not yet part of required curricula, a few selected master’s level programs in librarianship have begun to show interest in incorporating design thinking and methods into their program offerings. Last summer, Simmons College offered an experimental summer course called “Library Test Kitchen” that offered students “the opportunity to experiment with human-centered design skills, ethnographic observation and interviews, rapid ideation, applied problem-solving, developing and pitching ideas, identifying assumptions, and design fictions.” (Simmons School of Library and Information Science 2016). The University of Washington Information School is currently developing a full-term course in design methods for libraries and librarianship, to be offered starting in 2017 (Mills et. al. 2017). Perhaps most notably, the University of Maryland, supported by an IMLS grant, has begun to offer a master’s level concentration in “youth experience (YX)” which draws on design methods and principles from the participatory design and user experience communities. However, the project’s focus on youth leaves other areas of librarianship not currently addressed. While these emergent ventures offer promises that design will be increasingly incorporated in master’s level library education, each of these projects is currently moving forward in its own silo. As the future of librarianship progressively hinges on reimagining the

profession in a design mindset, education for this perspective needs to be systematically included in formal education. Clarke and Bell (2017) even argue that the current MLIS degree should be should be reinvented as an “MLD”: a master’s of library design degree.

Clearly there is a great deal of burgeoning interest in educating librarians in design thinking, methods, and perspectives on the profession, as well as a perceived need to examine the potential for systematic inclusion of such content in master’s level library education. But current efforts in this space are siloed: they occur independent of one another and lack a systematic, field-wide approach. A National Forum is an ideal mechanism to address this need because it brings together these diverse streams of effort. Stakeholders from library practice, master’s level library education, design education and design professionals all have valuable needs and perspectives regarding design in librarianship that must be coordinated to move the profession forward. This project offers the opportunity to do just that and emerge with suggestions that reflect these multiple perspectives and actionable recommendations for ways these needs can be addressed systematically in formal library education.

Finding ways to incorporate design thinking, methods, and perspectives into master’s level library education is critical in bridging connections between LIS education and these new models of 21st century librarianship, a key component of advancing learning in libraries (Hill, Proffitt and Streams 2015). Although this National Forum is a preliminary step, it offers potential long-term benefits for educators, students, practitioners, and employers. Educators, including master’s level program administrators, will benefit from actionable recommendations and suggestions for concrete ways to incorporate design into their curricula. Students will then be exposed to the design skills, methods, and perspectives necessary for future professionals to both design tools and services in their libraries as well as teach design to patrons in environments like learning labs and makerspaces. These new 21st century library professionals will be competitive job applicants, a boon to employers in a variety of library and information environments.

2. Project Design

Through this National Forum, we seek to understand the current state of design thinking and methods in master’s level library education. The project focuses on the following goals: 1) identifying gaps in existing MLIS curricula; 2) exploring possible approaches to design in master’s level library education, and 3) offering concrete, actionable recommendations for incorporating design into master’s level library education. To achieve the above goals, we propose a national forum on design thinking and methods in master’s level library education organized by Syracuse University and hosted by the University of Washington in Seattle. This forum brings together expert library educators, design educators and professionals, and library employers to discuss what elements are necessary to incorporate design into master’s level curricula. This forum will have three major phases, each reflecting one of the project goals:

- 1) A **field scan** of design approaches in library education and practice
- 2) A **national forum** on design in master’s level library education
- 3) Production of **curricular recommendations**

Phase 1

The first phase, the **field scan**, reviews the current landscape of design in both master's level library education and library practice. Over the first six months, we will compile and analyze information from ALA-accredited MLIS and equivalent programs in the United States, Canada and Puerto Rico. A master's level graduate research assistant will cull program websites and course catalogs of MLIS and equivalent programs for design-related topics and content. Where necessary, the student will contact instructors or other educational personnel to clarify content or further understand the role of design in a particular course. Other factors, such as whether a course is required (core) curriculum compared to an elective, and frequency of course offering, will also be considered. This information will be analyzed and synthesized to reveal ways in which current MLIS curricula align with or diverge from concepts inherent to design thinking and methods.

Concurrently with the investigation of current formal education, we will also solicit feedback regarding the interest in and use of design thinking and methods in library practice, and the use of and need for design skills and abilities in library practice from active librarians. This will be achieved through the use of an online feedback form. The form will include prompts about topics such as practitioners' familiarity with design thinking and methods; source(s) of education for any exposure to design thinking and methods, and their thoughts regarding incorporating design thinking and methods into MLIS programs. The form will be open for any interested practitioner to contribute, and will be publicized through means like social media and library email lists. This form allows for input and consensus building from myriad participants unable to attend the forum in person, and helps us gather diverse perspectives.

The outcomes of the field scan phase will offer an understanding of the current state of design thinking and methods in the field. Additionally, the field scan will also help us identify educators and practitioners as potential forum participants, and generate topics to include when planning the forum activities and discussions. The results will also serve as a springboard for developing activities for the forum itself. We anticipate the field scan to comprise the first half of the project year (6 months).

Phase 2

The second phase consists of planning and hosting a **national forum** on design in master's level library education. In addition to the organizers, the forum will include 15-20 participants comprised of educators from ALA-accredited programs, educators from design schools, library employers, and design professionals. Participants will meet for 2 days in Seattle to review and discuss the results of the field scan, identify aspects of design education relevant to MLIS education, share professional experiences, and brainstorm curricular approaches. Planning of the forum meeting will occur concurrently and iteratively with the field scan, culminating in the forum meeting during month 7 or 8 of the year-long project.

Forum Meeting Overview

The two-day forum will be structured as a design exercise itself, bookended with findings from the field scan up front and reflective discussion and recommendations at the conclusion. During the two days, participants will themselves draw on design methods to tackle the problem of incorporating design into master's

level library education. After the introductory remarks, participants will engage in an activity supporting empathic reasoning to help them see the issue from various perspectives, including educators and library practitioners based on the feedback gathered during the field scan phase. Then, attendees will participate in a brainstorming session. In small mixed groups of librarians, educators and designers, participants will derive as many ideas as possible for incorporating design into master's level library education. The first day will conclude with a gallery walk exposing and sharing all of the brainstormed ideas. The second day will center around discussion of the ideas generated during day 1, identifying potentially actionable trajectories and moving forward toward consensus. Early prototype forms of course activities or syllabi will be drafted. The second day will conclude with reflection on the forum meeting and discussion of reporting and moving forward.

Potential Participants

In addition to the organizers, forum participants will be invited based on identification from the field scan and/or notable identification with design thinking in libraries. We seek a representative group that includes a balance of library educators, library practitioners, design educators, and design practitioners. Some early identification for potential invitation include the following:

- Eileen Abels (Dean, Simmons School of Library and Information Science and Library Test Kitchen instructor)
- Brian Bannon (Commissioner and CEO, Chicago Public Library)
- Steven Bell (Associate University Librarian, Temple University Libraries)
- Tim Brown (CEO and President of IDEO design firm and author of *Change By Design*)
- David Kelly (Founder, IDEO design firm and Stanford's d.school)
- Jeanne Liedtka (Professor, University of Virginia's Darden School of Business and author of *Designing for the Greater Good*; *Solving Business Problems with Design Thinking: Ten Stories of What Works*; *Designing for Growth: A Design Thinking Tool Kit for Managers* and its accompanying field guide, *The Designing for Growth Field Book: A Step by Step Guide*.)
- Mega Subramaniam (Associate Professor, College of Information Studies at the University of Maryland and head of the Youth Experience (YX) program)

These potential invitees are listed as examples and should not be considered inclusive. They represent the range of participants sought from the areas of library education, library practice, and design.

Phase 3

Finally, the third phase wraps up the project with the production and dissemination of **curricular recommendations** that capture and communicate ways in which educators can incorporate design thinking into their own MLIS courses and programs; these recommendations will be a concrete result from the forum. They will include content, such as learning outcomes, course objectives, and suggested reading lists, as well as means for communicating that content, such as ideas for course assignments and/or class activities. In the final months of the project year, these materials, along with the final project report, will be compiled, synthesized, and made freely available on the web for easy use by instructors in MLIS programs and other interested parties.

To ensure that the project report and other materials resulting from this National Forum will have the greatest potential for impact, we propose the following practices to support broad dissemination within the various stakeholder communities served by this project:

- In addition to posting information about the National Forum itself and its participants, a *Designing Future Library Leaders* website will be published and maintained by the Syracuse University School of Information Studies. In addition to serving as the platform for gathering feedback during the field scan phase, the website will also be used to gather feedback on the final report and other product outcomes, advertise design-related events, opportunities, publications; and to share other key items, such as future course syllabi, to support the idea of design in librarianship and help drive it forward. Site analytics, including visits, postings, and downloads will be tracked over time. This public-facing website, which will be designed to be useful to a broad range of users (educators, practitioners, designers, students), will also display live postings of a related Twitter feed to support social media as an ongoing means of communication and collaboration.
- All forum participants—both those contributing digital feedback prior to the meeting and those attending the meeting—will have the option to receive copies of final materials. Participants offering feedback via digital form will be offered the opportunity to leave their contact information not only for potential consideration as a meeting participant but also to receive final forum materials. All participants will be invited to distribute the materials within their communities of practice. Based on the diversity of participants, these communities will span a range from professional practice to library and information science education.
- The forum organizers will present findings from various phases of the project at relevant venues, such as conferences, refereed journals and trade publications, including but not limited to the American Library Association conferences, the ALISE conference, the *Journal of Education for Library and Information Science*, *American Libraries*, and *Design Studies*. These publications and presentations will be publicized by the communication departments at both the Syracuse University School of Information Studies and the University of Washington Information School. Distribution through such means will help ensure dissemination to a broader public audience.

Planning, implementing, and managing this National Forum will require coordinated resources. **Dr. Rachel Ivy Clarke**, Assistant Professor, Syracuse University School of Information Studies, will serve as the overall coordinator for the project. Dr. Clarke's research and teaching focuses on the role of design in American librarianship, making her well-versed in both design methods and fundamentals of librarianship. Prior to her faculty work, she worked as a librarian at the Fashion Institute of Design & Merchandising, an art and design college, where she was exposed to a combination of library practice and design. Dr. Clarke will be assisted by a **Syracuse University graduate student** who will perform supporting tasks including collection of data from masters' level library programs and library practitioners, developing and managing website content, coordinating meeting logistics, and acting as note taker and documentarian during the forum meeting. **Dr. Jin Ha Lee**, Associate Professor and Chair of the MLIS program at the University of Washington Information School, will serve as the UW point of contact and liaison. Dr. Lee will also participate in the forum meeting as a representative educator working toward developing design coursework in UW's MLIS curriculum. The

University of Washington will serve as host institution for the forum meeting, due to ease and attraction of travel to and from Seattle. To support attendees' participation, travel, lodging, local transportation and food will be needed in addition to meeting facilities. Financial support for these items, as well as salaries for Dr. Clarke and the graduate student assistant, including benefits and indirect costs, comprise the budget request for the forum. Additional project activities will be supported by graduate student assistants through alternative funding streams.

3. Diversity Plan

This project engages diverse and underserved communities in a variety of direct and indirect ways. First, design itself is a unique worldview and way of learning that has been traditionally overlooked in librarianship. This project directly addresses that gap by uniting designers and design thinkers with librarians and library educators so that this different view may be shared with a larger population.

This project is also purposefully and systematically inclusive of participants from a variety of stakeholder communities, including practitioners and educators from both the library and the design communities. But these communities are diverse in and of themselves, as we will seek to embrace this diversity when soliciting participation. For example, librarians practice in a variety of library settings—public libraries, academic libraries, special libraries, school libraries, and beyond. For our initial feedback gathering phase, we will seek to recruit participants from all these communities by posting calls for participation to mailing lists and social media spaces in each of these communities. We will also disseminate findings from the forum via the same venues, so that all these communities may benefit.

When inviting participants to the two-day meeting, diverse representation is key for productive and innovative idea generation. We will not only seek to represent the aforementioned stakeholder communities, but we will also purposefully attempt to invite attendees of diverse genders and gender identities; ethnicities; physical abilities; educational backgrounds (in addition to design); and years of experience, among other characteristics, to represent different points of view. Good design hinges on the generation of ideas, and the wide variety of perspectives offered by a diverse group of participants helps generate a greater number of innovative ideas.

4. National Impact

This National Forum addresses a key need in master's level library education: laying a foundation to fill a void of systematic formal instruction in design thinking, methods, and perspectives. The outcomes of this project include a thorough understanding of the current state of design education in the library field; connections among educators, employers, and design professionals to discuss the integration of design thinking and methods into master's level library education; and a project report with early prototypes of syllabi and curricular materials offering a foundation for immediate application of design in MLIS programs. This National Forum also demonstrates the potential to transform library practice and the conceptualization of librarianship itself, by changing the way librarianship as a field is conceived and perceived. Traditionally considered a social

science, this project opens the possibility to viewing librarianship in a new way: as a design profession, rather than a science.

Although tools for design instruction are cropping up throughout the library profession, this project sets in motion significant changes that can affect master's level library education nationwide. As more and more master's level library education programs seek to adopt and incorporate design thinking, methods, and perspectives into their curricula, it is imperative that such approaches are coordinated on a larger, national level. Learning outcomes and educational expectations of graduates should not be disparate across schools and programs. Results from this National Forum offer a synthesized approach to including design thinking, methods, and perspectives as part of those broader expectations. The project supports instructors through both the forum itself, as participants, and through the resulting project materials. By making the forum materials freely available, any and all instructors in master's level library education can adopt them for use in their own courses. Because the materials will be prototypical, rather than detailed, they offer the flexibility to be used in a variety of courses and settings. An instructor may choose to use a single proposed exercise idea in a reference class to help students rethink reference service as service design, while another instructor may redesign an entire cataloging course around the idea of a design studio. Such flexibility ensures that materials will be of use to the widest possible audience across all institutions offering master's level library education.

But the real long-term national impact is on the master's level library students. Such new and innovative educational approaches stand to impact graduates of MLIS programs across the nation. As these future library leaders face increasingly difficult challenges, they need education that goes beyond routine library work. Tomorrow's library leaders need explicit education in design thinking, methods, and perspectives. Additionally, with growing emphasis on science, technology, engineering and math (STEM) in K-12 education and the advent of creative tools like makerspaces in libraries, it is imperative that librarians not only be competent designers themselves—they need the ability to teach design to patrons in school, public, and academic libraries. Master's level library education is not a space for vocational training: it should generate graduates prepared to lead the library field, not just work in it. This National Forum puts in place a foundational framework that will affect the library workforce for years to come by offering education that supports the decision-making and problem-solving skills necessary for leadership in the 21st century.

Designing Future Library Leaders: Project Timeline

	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Review of MLIS course catalogs and curricula (data collection)	■	■	■									
Analyze catalog data			■	■	■							
Develop form for collecting feedback from practitioners	■	■										
Develop and maintain web presence		■	■	■	■	■	■	■	■	■	■	■
Form open for comments/feedback			■	■	■	■	■					
Participant invitations			■	■	■	■	■					
develop forum activities			■	■	■	■	■	■				
Organize/book forum logistics			■	■	■	■	■	■				
Host forum meeting			■	■	■	■	■	■	■			
Synthesize forum outcomes									■	■	■	■
Disseminate outcomes									■	■	■	■

DIGITAL PRODUCT FORM

Introduction

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to federally funded digital products (i.e., digital content, resources, assets, software, and datasets). The products you create with IMLS funding require careful stewardship to protect and enhance their value, and they should be freely and readily available for use and re-use by libraries, archives, museums, and the public. However, applying these principles to the development and management of digital products can be challenging. Because technology is dynamic and because we do not want to inhibit innovation, we do not want to prescribe set standards and practices that could become quickly outdated. Instead, we ask that you answer questions that address specific aspects of creating and managing digital products. Like all components of your IMLS application, your answers will be used by IMLS staff and by expert peer reviewers to evaluate your application, and they will be important in determining whether your project will be funded.

Instructions

You must provide answers to the questions in Part I. In addition, you must also complete at least one of the subsequent sections. If you intend to create or collect digital content, resources, or assets, complete Part II. If you intend to develop software, complete Part III. If you intend to create a dataset, complete Part IV.

PART I: Intellectual Property Rights and Permissions

A.1 What will be the intellectual property status of the digital products (content, resources, assets, software, or datasets) you intend to create? Who will hold the copyright(s)? How will you explain property rights and permissions to potential users (for example, by assigning a non-restrictive license such as BSD, GNU, MIT, or Creative Commons to the product)? Explain and justify your licensing selections.

All products created for this project including published research and educational support materials (activities, lesson plans, etc.) will be publicly available for use and sharing using a non-restrictive license that provides credit to the project. To make this clear to users, a statement will appear on the web resource that reads "This work is licensed under a Creative Commons Attribution 4.0 International License." This license provides users with the permission to share and adapt content as long as attribution is provided. No additional restrictions will apply.

A.2 What ownership rights will your organization assert over the new digital products and what conditions will you impose on access and use? Explain and justify any terms of access and conditions of use and detail how you will notify potential users about relevant terms or conditions.

As the developer of the resource, the School of Information Studies at Syracuse University will need to protect access to the resource on an administrative level, that is, the programming/coding and maintenance of the website will not be accessible by users. This is necessary in order to protect the physical integrity of the resource. However, all content will be readily accessible to users without restrictions. Potential users of the resources will be notified via publications, announcements on the website itself, and various publicity outlets of Syracuse University School of Information Studies and the University of Washington Information School.

A.3 If you will create any products that may involve privacy concerns, require obtaining permissions or rights, or raise any cultural sensitivities, describe the issues and how you plan to address them.

We do not plan to create any products that involve privacy concerns or raise cultural sensitivities. If it is deemed necessary to include content from external sources, we will seek the appropriate permissions and/or utilize content that is publically available via non-restrictive licensing.

Part II: Projects Creating or Collecting Digital Content, Resources, or Assets

A. Creating or Collecting New Digital Content, Resources, or Assets

A.1 Describe the digital content, resources, or assets you will create or collect, the quantities of each type, and format you will use.

We will create a dynamic project website that promotes the national forum; offers a mechanism for collecting participant feedback; and disseminates outcomes and materials from the meeting, including but not limited to project reports, prototypical course reading lists, syllabi, and activities, etc. The exact number of documents is unknown, but it is expected to be less than 25.

A.2 List the equipment, software, and supplies that you will use to create the content, resources, or assets, or the name of the service provider that will perform the work.

We plan to utilize web server space offered and supported by the Syracuse University School of Information Studies. The site will use the latest version of WordPress. We will use an add-on tool, such as Google Forms, to facilitate collection of participant feedback.

A.3 List all the digital file formats (e.g., XML, TIFF, MPEG) you plan to use, along with the relevant information about the appropriate quality standards (e.g., resolution, sampling rate, or pixel dimensions).

Hosted resource documents will likely be in PDF, Word, JPG or other standard document formats applicable to the type of resource. All documents will adhere to quality standards relevant to the document's format.

B. Workflow and Asset Maintenance/Preservation

B.1 Describe your quality control plan (i.e., how you will monitor and evaluate your workflow and products).

Resource documents will be compiled and processed by project staff. Quality control plan includes regular meetings with the project team, and review and spot-checking of resources.

B.2 Describe your plan for preserving and maintaining digital assets during and after the award period of performance. Your plan may address storage systems, shared repositories, technical documentation, migration planning, and commitment of organizational funding for these purposes. Please note: You may charge the federal award before closeout for the costs of publication or sharing of research results if the costs are not incurred during the period of performance of the federal award (see 2 C.F.R. § 200.461).

Syracuse University School of Information Studies has successfully maintained a number of grant project websites site for more than ten years. All sites continue to be monitored and updated on a regular basis. The School of Information Studies has a proven track record with past IMLS and other grants of sustaining the staffing and funding to continue projects for years following the end of grant.

C. Metadata

C.1 Describe how you will produce any and all technical, descriptive, administrative, or preservation metadata. Specify which standards you will use for the metadata structure (e.g., MARC, Dublin Core, Encoded Archival Description, PBCore, PREMIS) and metadata content (e.g., thesauri).

The project website will utilize native WordPress metadata for resource documents.

C.2 Explain your strategy for preserving and maintaining metadata created or collected during and after the award period of performance.

Similar to the description in B.2, all metadata will be preserved and maintained as part of the overall project website.

C.3 Explain what metadata sharing and/or other strategies you will use to facilitate widespread discovery and use of the digital content, resources, or assets created during your project (e.g., an API [Application Programming Interface], contributions to a digital platform, or other ways you might enable batch queries and retrieval of metadata).

Due to the nature of the project, resource sharing will be achieved mainly through publicity and marketing rather

than technical means.

D. Access and Use

D.1 Describe how you will make the digital content, resources, or assets available to the public. Include details such as the delivery strategy (e.g., openly available online, available to specified audiences) and underlying hardware/software platforms and infrastructure (e.g., specific digital repository software or leased services, accessibility via standard web browsers, requirements for special software tools in order to use the content).

This information will be freely available online via the project WordPress website. Resources can be accessed by standard modern web browsers. The site was built to accommodate multiple platforms and browsers. No additional special tools or software will be required to access content.

D.2 Provide the name(s) and URL(s) (Uniform Resource Locator) for any examples of previous digital content, resources, or assets your organization has created.

www.informationliteracy.org
www.projectenable.syr.edu
www.digital-literacy.syr.edu
www.advocacyu.org
www.healthytransitionny.org

Part III. Projects Developing Software

A. General Information

A.1 Describe the software you intend to create, including a summary of the major functions it will perform and the intended primary audience(s) it will serve.

A.2 List other existing software that wholly or partially performs the same functions, and explain how the software you intend to create is different, and justify why those differences are significant and necessary.

B. Technical Information

B.1 List the programming languages, platforms, software, or other applications you will use to create your software and explain why you chose them.

B.2 Describe how the software you intend to create will extend or interoperate with relevant existing software.

B.3 Describe any underlying additional software or system dependencies necessary to run the software you intend to create.

B.4 Describe the processes you will use for development, documentation, and for maintaining and updating documentation for users of the software.

B.5 Provide the name(s) and URL(s) for examples of any previous software your organization has created.

C. Access and Use

C.1 We expect applicants seeking federal funds for software to develop and release these products under open-source licenses to maximize access and promote reuse. What ownership rights will your organization assert over the software you intend to create, and what conditions will you impose on its access and use? Identify and explain the license under which you will release source code for the software you develop (e.g., BSD, GNU, or MIT software licenses). Explain and justify any prohibitive terms or conditions of use or access and detail how you will notify potential users about relevant terms and conditions.

C.2 Describe how you will make the software and source code available to the public and/or its intended users.

C.3 Identify where you will deposit the source code for the software you intend to develop:

Name of publicly accessible source code repository:

URL:

Part IV: Projects Creating Datasets

A.1 Identify the type of data you plan to collect or generate, and the purpose or intended use to which you expect it to be put. Describe the method(s) you will use and the approximate dates or intervals at which you will collect or generate it.

We plan to gather qualitative feedback regarding librarians' perceptions and incorporation of design thinking, methods, and principles in their professional practice. This data is intended to inform a meeting of educators as part of a national forum, but may also be reported on independent. Feedback will be solicited for approximately 4 months in the second half of 2017.

A.2 Does the proposed data collection or research activity require approval by any internal review panel or institutional review board (IRB)? If so, has the proposed research activity been approved? If not, what is your plan for securing approval?

As human subjects research, this data collection will require approval by the Syracuse University Institutional Review Board (IRB). A plan is in place to prepare and submit an IRB review application in the event this project is funded and moves forward.

A.3 Will you collect any personally identifiable information (PII), confidential information (e.g., trade secrets), or proprietary information? If so, detail the specific steps you will take to protect such information while you prepare the data files for public release (e.g., data anonymization, data suppression PII, or synthetic data).

Names and contact information (email addresses) will be collected as part of the feedback gathering in order to allow the project team to identify and invite potential participants to the national forum meeting. However, all personal information (including but limited to names, emails, references to specific organizations/institutions, etc.) will be redacted prior to any public release of the data.

A.4 If you will collect additional documentation, such as consent agreements, along with the data, describe plans for preserving the documentation and ensuring that its relationship to the collected data is maintained.

Any consent agreements will be collected digitally in conjunction with data collection and adhere to all IRB guidelines for collection, preservation and maintenance.

A.5 What methods will you use to collect or generate the data? Provide details about any technical requirements or dependencies that would be necessary for understanding, retrieving, displaying, or processing the dataset(s).

Data will be collected using an online questionnaire.

A.6 What documentation (e.g., data documentation, codebooks) will you capture or create along with the dataset(s)? Where will the documentation be stored and in what format(s)? How will you permanently associate and manage the documentation with the dataset(s) it describes?

No documentation or codebooks are anticipated.

A.7 What is your plan for archiving, managing, and disseminating data after the completion of the award-funded project?

The material will be stored in the digital repository of Syracuse University.

A.8 Identify where you will deposit the dataset(s):

Name of repository: SURFACE

URL: [http:// surface.syr.edu/](http://surface.syr.edu/)

A.9 When and how frequently will you review this data management plan? How will the implementation be monitored?

This data management plan will be reviewed halfway through the project (at the 6-month point) and at the end of the grant period.