

## ***RTI Online: Deepening Research Capacity of Health Sciences Librarians***

The Medical Library Association (MLA) seeks funding from the Laura Bush 21<sup>st</sup> Century Librarians Continuing Education Program (\$227,862) for *RTI Online: Deepening Research Capacity of Health Librarians*. This initiative will build upon, extend, and enhance the successful Research Training Institute (RTI) research training and support program funded by a previous grant from the Institute of Museum and Library Services (IMLS). IMLS funding support will enable MLA to transition the existing RTI research curriculum and learning activities to online formats, test and refine the new online/hybrid model, reduce costs for participants, enhance the effectiveness and reach of the program to new audiences, and provide the capacity to develop an infrastructure that MLA is committed to sustaining after the grant period ends. The online institute will leverage MLA's existing educational services, software, web and communication tools, scholarship and diversity programs, annual meeting services, and strong organizational alliances to maximize broad impact and long-term sustainability.

### **STATEMENT OF BROAD NEED**

Librarian-led health information research supports quality health care [1, 2] and library practice [3]. However, access to research methods education is limited and more rigorous research training is critically needed to instruct health library practitioners, [3, 4] early career health librarians, [5] and library and information science (LIS) master's degree students [6, 7]. The RTI pilot project that funded the 2018 and 2019 institutes aimed to address this gap by delivering an immersive, five-day face-to-face training/support model for practicing health librarians to increase research competencies, confidence, and productivity. [RTI assessment findings](#) demonstrate that the RTI learning model is sound and effective. MLA has subsequently adopted this RTI learning model and is fully funding a third in-person institute in Chicago in July 2020. *RTI's positive results are particularly encouraging in light of recent research that shows librarians who received research training after completing their master's of library and information science (MLIS) were more likely to have higher research productivity* [8].

Transitioning the RTI curriculum and learning activities into an online, sustainable learning model has several benefits and advantages, while still providing the capability of delivering high-quality education. Online learning reduces instruction, operating, and participant costs, and is more convenient for the learner. Affordability and greater flexibility encourage participation in an online learning program from a wider range of library staff, including those who may not be able to attend courses away from the workplace and those with limited budgets from small, rural, and low socioeconomic regions around the country. Additionally, online learning continues to grow in popularity [9, 10]. MLA has seen an upsurge in participation in online learning courses by members, and a decline in in-person courses. The association is committed to increasing the number of [online learning](#) options that respond to the different needs of health library professionals, increase access to health sciences librarian education throughout the country, and overcome barriers to effective learning. This proposal seeks to capitalize on the many strengths of online learning, while providing much needed quality research methods education to a more diverse and inclusive health librarian-researcher workforce.

*RTI Online* will feature an updated and expanded research curriculum, including new curriculum content in the emerging area of research dissemination that uses social media to engage research consumers. Effective dissemination of research is vitally important to library staff. Beyond the traditional publishing methods, researchers are increasingly using digital

media—such as Twitter, podcasts, and photo- and video- driven platforms such as Instagram, Pinterest, and YouTube—to expand the reach of their work and to engage with academic and non-academic users [11]. Recent studies have shown the positive relationship between citations and social media activity for newly published research [12, 13]. Library staff need increased proficiency in digital dissemination to help individuals and groups in their understanding, assessment, and reporting of impactful research outcomes, and to implement their own digital dissemination strategies that demonstrate their relevance and contributions to society.

*RTI Online* will provide a new educational model that provides advanced research training and engagement for graduate students in LIS master’s programs in the country through a partnership with the American Library Association (ALA)–accredited University of North Texas (UNT) Master of Science in Information Science (MS-IS) [online program](#). Four UNT MS-IS graduate students with a concentration in health informatics/librarianship will be embedded into the 2021 and 2022 *RTI Online* yearlong institutes (4 graduate students per institute). This pilot research methods education project will provide immersive research methods education for these LIS graduate students and the educational experience of developing and implementing a research project that will be of practical use and importance to them as future LIS practitioners.

*This pilot project will serve as a model for all other LIS master’s programs for improving the quality of research methods instruction in a formal LIS graduate-level program.* Similar to other LIS master’s programs in the country, UNT master’s students in information science are not required to take research methods courses [14]. LIS students in general often lack education in social science research and do not understand the need for LIS practitioners to conduct research [15]. Mandel reports the need for LIS master’s student to have “hands-on experiential opportunities” to see a research project through from beginning through the dissemination of findings [16].

The *RTI Online* pilot program will be unique among LIS master’s programs nationwide, because it provides much-needed advanced research methods education as part of a formal LIS graduate-level course and because it atypically and innovatively offers real-world opportunities (experiential learning) for LIS graduate students to collaborate with LIS practitioners and to create their own “relevant” research projects that will be of practical use and importance to them as future LIS practitioners. This pilot program directly meets the emerging need for future LIS practitioners to become practitioner-researchers to support quality library practice and health care. This unique LIS graduate-level educational experience will raise their awareness of librarian-led research and demonstrate to them the value and impact of research in practice and, as future functioning professionals, help them better assist their health library user communities through evidence-based practice. See supporting document Appendix 1: UNT *RTI Online* Embedded Student Program Details.

The *RTI Online* project supports *Lifelong Learning* (IMLS project category) by bolstering health libraries’ capacity to provide quality, effective, relevant, and accessible services for end-users, including end-user education programs. Many of the 2018 and 2019 RTI Fellows’ research projects involved the use of research to assess and strengthen their health-related end-user education programs, further increasing RTI’s impact. *RTI Online* aligns with *Continuing Education* (IMLS project type), as the proposal aims to provide a formal training program to improve research competencies and productivity of health sciences library professionals, enabling them to better understand user needs and improve end-user services and education programs for health care professionals, faculty, students, patients, and consumers. The project’s maturity level is *Piloting* in that the project will *pilot an online version* of the existing successful

face-to-face RTI curriculum/program that will allow us to *scale the program* by increasing the number of participants, extending the program to new audiences, and meeting the diverse needs of all learners.

### **Effectiveness of RTI training model**

*RTI Online* will build upon, extend, and enhance the successful Research Training Institute (RTI) research training and support program that was partially funded by a previous IMLS grant (RE-95-17-0025-17). Two sessions of this program (2018 and 2019 institutes funded through an IMLS grant), along with the planned 2020 institute (funded by MLA), address an immense gap in advanced research training for health librarians in professional practice by delivering a combination of a one-week residential workshop in research methods, individual mentoring, and a full year of post-institute support for participants to complete their research projects. [RTI assessment findings](#) demonstrate that the RTI learning model is sound and effective, and increases research competencies, confidence, and productivity of participants, as well as having other positive impacts. At the conclusion of the 2020 RTI, 60 library professionals from various health-related environments nationwide will have participated in and received training in the 2018-2020 RTI institutes. Comparing results before and after the 2018 RTI workshop, participants experienced significant increases in research confidence (self-efficacy) across all 26 research skills/areas assessed. In another data collection activity, 95% of the RTI participants reported that their understanding of research had increased as a result of the RTI program and that they are confident in applying what they learned and in their ability to conduct research. This evidence is important since research self-efficacy has been shown to be a predictor of research productivity [17]. Sixty-five percent of the 2018 institute participants completed their research projects within the year (others have either multi-year studies or had postponements due to job changes or work-related issues). Five participants have had their research articles accepted in peer-reviewed publications. One high-quality and impactful research publication developed by an RTI participant showed there is need for greater diligence in ensuring that retracted articles are properly cited by scientists, using the retracted 1998 article that falsely linked the measles-mumps-rubella (MMR) vaccine and autism. Another important published study by an RTI participant examined the publishing activities and attitudes of early career researchers in the field of cancer research and demonstrated the need for greater outreach to early career researchers to change misconceptions about open access publishing (OA). See the attached letters of support from these two RTI participants, Suelzer and O'Hanlon.

This proposal enables MLA to transition the current RTI research training model to online formats, and test and refine a new online training model (*RTI Online*). The MLA/RTI is uniquely positioned to develop and deliver highly effective online research instruction for several reasons. MLA has extensive experience with providing online instruction and education support services, including webinars, online courses, a learning management system, and communities of practice. Instructional design will be informed by MLA's experienced education services staff and the RTI's team of experienced and expert research faculty. The new *RTI Online* program will be based on the current, carefully designed and tested RTI research content, curriculum, instructional practices (strategies), and instructional materials. The new program will leverage RTI's rich repertoire of tested assessment methods and tools to understand and compare effectiveness and impact and improve practices. Also, library professionals who provide health information and services across the country continue to express interest in acquiring research skills and confidence by attending the RTI training program, as reflected by the high number and

quality of RTI applicants each year, despite registration and travel costs and the logistics of being away from home for a one-week residential workshop.

## PROJECT DESIGN

### Key project goals (overview):

The *RTI Online* project will include:

1. Design and pilot 2 12-month, cohort-based, online, blended learning opportunities (2021 and 2022 institutes) at reduced costs for participants (\$750 per participant instead of \$1,000 for 2018 and 2019 in-person institutes);
2. Increase cohort size from 20 participants (in-person program) to 30 participants (2 cohorts/60 participants for duration of grant);
3. Convert current RTI curriculum and create new content on research dissemination strategies using social media to engage research consumers, increase usage, and impact over time;
4. Embed 4 LIS master's students into the *RTI Online* program, learning activities, and RTI community of practice per year, through a new academic partnership with the University of North Texas (UNT) (4 of 30 participants will be UNT students);
5. Augment the curriculum through capstone presentations (in-person and online) at special RTI sessions at MLA annual meetings (May 2022 and May 2023);
6. Increase research output of participants through mentorship, peer coaching, networking, and support for 1 year while participants complete their research projects (potentially 60 projects for duration of grant);
7. Support curriculum and active student engagement through the existing RTI community of practice to maximize participants' learning, productivity, and collaboration;
8. Enrich and extend program with a new peer coaching program; recruit, select, and train 5 peer coaches with diverse backgrounds and experiences from previous RTI graduates;
9. Provide full tuition scholarships for all participants (both 2021 and 2022 institutes) via a combination of funding from the IMLS grant, RTI partners, MLA chapters, and MLA cost sharing; provide 2 focused scholarships per institute for library staff working in small/rural libraries with limited budgets; and provide 2 focused scholarships per institute (full tuition scholarships) for library staff who propose research that explores diversity, equity, or inclusion in health library services;
10. Employ assessment methods (successfully tested for in-person RTI program) to understand and compare the effectiveness and impact of the program and improve the *RTI Online* model; and
11. Disseminate *RTI ONLINE* value, information, processes, outcomes, and products to a broad range of audiences using in-person, print, and online strategies.

**Project timeline (brief):** (See the attached Schedule of Completion for key project activities)

- **Year 1** (8/2020–7/2021): Convert the curriculum, promote the *RTI Online* program, secure scholarship donations, select applicants and scholarship recipients, and begin the pilot of first *RTI Online* (May 2021–June 2022).
- **Year 2** (8/2021–7/2022): Assess effectiveness of core curriculum/activities (Modules 1–9) (August 2021), complete pilot for 1st *RTI Online* (June 2022), assess the effectiveness

of program, promote program, secure scholarship donations, select applicants and scholarship recipients, and begin the pilot for second *RTI Online* (May 2022-June, 2023).

- **Year 3 (8/2022–7/2023):** Assess effectiveness of core curriculum/activities (Modules 1–9) (August 2022); complete the pilot for second *RTI Online* (June 2023); assess the effectiveness and impact of program; and share results, products, and outcomes for IMLS reports, broad dissemination, and future planning.

### **Project personnel:**

The current RTI Leadership Team (Susan Lessick, MLS, MA, AHIP, FMLA, Project Director; Barry Grant, PhD, MLA Director of Education; Debra Cavanaugh, MLA Director of Professional Development; and Mary Langman, MLA Director of Information Issues and Policy) will continue to support the *RTI Online* pilot project. The carefully selected faculty of research experts for *RTI Online* include two lead faculty (Jodi Philbrick, MSLS, PhD, AHIP, and Emily Vardell, MLS, PhD) and four research instructors/specialists (Mark MacEachern, MLIS; Katherine Gould Akers, MS, PhD; Shanda Hunt, MPH; and Karen Gutzman, MA, MLS). The leadership team and faculty will work together with the peer coaches, the digital dissemination coordinator (Gutzman), and the UNT academic liaison (Ana D. Cleveland, PhD, AHIP, FMLA) to design, deliver, and assess the new online learning program.

### **Project estimated budget:**

The estimated budget for this project is \$227,862. This will cover: 0.25 FTE project director (\$39,000 with \$36,000 cost share); MLA staff support (\$69,120 including fringe benefits); faculty (\$55,330); peer coaches (\$5,250); 0.05 FTE digital dissemination coordinator (\$4,800); 0.05 FTE academic liaison (\$4,800); scholarships (\$23,250 with \$15,750 cost share); RTI operating expenses (\$4,800); other costs (\$2,910); and indirect costs (\$18,602).

### **Conversion of current in-person RTI instruction program:**

The proposed work plan for developing the RTI online curriculum involves a rigorous planning process that includes converting the one-week, face-to-face RTI curriculum (fourteen course modules) into a series of fully online modules that will be offered over a one-year period. Key education support service functions of the RTI training model also will be adapted for online instruction, such as creatively using online small group discussions, individual online mentoring, and an online large group discussion forum (RTI community of practice). Together, these new online delivery methods will provide an enhanced *RTI Online* training model that includes an immersive online research training environment and a full year of online support for participants as they complete their research projects.

The work plan for *RTI Online* was developed by a project design team that is composed of the two lead RTI instructors/faculty (Philbrick and Vardell), the MLA Director of Education (Grant), the MLA Director of Professional Development (Cavanaugh), and the RTI Project Director (Lessick). This group has expertise and extensive experience in the field of health library and information research and teaching formal master-level courses in graduate LIS departments, as well as continuing education programs for library professionals, learning analytics and program assessment, and online course development and instructional design and delivery.

The work plan includes analyzing and choosing online formats from the existing inventory of course work, learning outcomes, syllabi, readings, slide sets, videos, and worksheets

for each course module in the RTI face-to-face program. The full inventory of all instructional materials for the existing RTI program is available on the RTI course web page in MLA's learning management system (MEDLIB-ED) [18]. The team has made many determinations regarding what content will be continued, updated, eliminated, reorganized, or created. Much of the curriculum content and many of the instructional materials are already available in online formats and can continue to be used; other coursework will need to be altered or created for online delivery. This ongoing prep work and plan, and the guidance of the team advisors will ensure that existing training content is successfully moved online and that there is effective sequencing and choice of learning strategies and delivery formats for the new online modules and activities. The modules for *RTI Online* will be designed to maintain learner interest and engagement for the duration of the one-year institute training program.

***RTI Online instruction:***

*RTI Online* will be a module-based online learning environment that consists of a series of sixteen online modules (tentative) that participants engage in over a one-year period and that align with the various stages of the research process for designing an effective health information research project. RTI experience has shown that participants complete most research projects within the one-year institute program and that the subsequent stages of the research process are generally carried out by participants in a similar pattern. While this is true for most participants, the institute's yearlong curriculum and support activities are flexible enough to accommodate each unique cohort and their research projects and the special circumstances of participants. See Appendix 2: Suggested Timeline for Research Project Completion that will be provided to RTI participants.

*RTI Online* is designed to increase participants' research competencies, confidence, and productivity by enabling them to acquire advanced-level knowledge and skills in research methods and by guiding/mentoring them in taking a single health information research project from conceptualization to completion and dissemination. The curriculum covers all stages of the research process, including development of effective research questions, implementation of a research project, method selection (quantitative, qualitative, mixed), data collection and analysis, and dissemination, as well as other practical and theoretical research considerations.

Two highly skilled lead instructors (Philbrick and Vardell), who specialize in teaching research methods and evidence-based librarianship, will coordinate curriculum development, as well as provide didactic lectures and facilitate active learning activities and group discussions for the bulk of the online modules. Four additional instructors (MacEachern, Akers, Hunt, and Gutzman) with expertise in specialized research areas—such as scoping and systematic reviews, data management, statistics, publication life cycle, and digital research dissemination—will provide curriculum development and teaching support for several specific online modules. In addition, a major new curriculum thrust will be the development of a new module on digital research dissemination, supplemented by focused mentoring, to help prepare participants to disseminate their research using social media. All teaching staff will facilitate small group mentoring sessions and provide individualized mentoring online, so each participant can receive intensive, individualized coaching as they complete their research projects.

An *RTI Online* course/curriculum draft and work plan were developed by the project design team based on *RTI Online* project goals, MLA's [research competencies standards](#), and the highly effective face to face RTI curriculum. See attached Appendix 3: *RTI Online* Course and Curriculum Details and Appendix 4: Course Work Plan. Appendix 5 provides examples of

curriculum adaptations and modifications for Modules 5–8 in the new *RTI Online* curriculum. Appendix 6 provides an example of a worksheet adaptation that will use the Zoom polling feature. These drafts will be discussed, revised, and finalized collaboratively by the project design team and instructors, and will be piloted for the 2021 RTI. Subsequent revisions will be informed by learning analytics and other program assessments.

### **New curriculum content (digital dissemination skills):**

A new module on research dissemination using social media will be developed for *RTI Online* that will inspire and energize participants to do more with social media, to promote and share their work broadly, and to more deeply engage with other relevant researcher and end-user online communities. This module developed by an expert in this field (Gutzman) will include a lecture and learning activities on creating and implementing dissemination plans, including addressing possible audiences, using formats and tools for dissemination, generating an audience and content for various social media platforms, and writing lay summaries and creating appealing visual abstracts of their research. The new module also will cover how to evaluate the effectiveness of their dissemination plan by discussing the importance of altmetrics as digital indicators for the online engagement, social relevance, and scholarly impact of their research.

### **Mentoring and monitoring progress:**

A key component of the *RTI Online* curriculum will be small group and individual mentoring. Each participant will receive focused online mentoring during all stages of the *RTI Online* program: the pre-work, within the learning modules, and as students conduct their research projects during the year. Five teaching faculty will be assigned six mentees each and will provide guidance, learning, and feedback through small group discussions (using Zoom Meetings), group discussion forums (using the RTI community of practice), and individual email communications. The digital dissemination coordinator will also assist individual participants in implementing their social media dissemination plans and in boosting online attention and engagement with their research. Additionally, participants will be required to submit quarterly research progress reports (using a web form) to monitor their research progress, help them address with any challenges, and identify other impacts as a result of their RTI research training. See attached supporting document Appendix 7: *RTI Online* Quarterly Research Project Progress Report for 2021 RTI Online.

### **RTI community of practice:**

*RTI Online* will continue to use MLA's existing association management system, [MLANET](#) to provide the platform for the RTI community of practice. Similar to the previous institutes, the RTI community of practice will continue to serve as the primary communication tool and online discussion forum for RTI faculty, staff, mentors, peer coaches, and participants. The *RTI Online* community of practice will provide trusted online support for Fellows interacting with each other and instructors, sharing knowledge, and building a sense of belonging among members. Community of practice capabilities include a general discussion forum, mentor group forums, file sharing for resources, images, media, an RTI calendar, and quick links to relevant websites.

### **Capstone presentation:**

At the end of the one-year *RTI Online* program, Fellows will participate in an [RTI capstone experience](#) that serves as a culminating learning experience. This capstone experience will consist of giving an in-person or virtual oral presentation and preparing and sharing an e-poster on their research project at a special RTI session at the MLA annual meeting. Through the capstone presentations, Fellows will apply skills they learned during the institute and develop new skills (oral communication, public speaking, and media literacy) that will help them build research confidence and readiness that enables them to use and share evidence in their professional practice to enhance services and the communities they serve.

### **New peer coaching program:**

The *RTI Online* will pilot a new peer coaching program. Five peer coaches reflecting diverse backgrounds and experiences will be selected each year from previous RTI Fellow graduates. They will receive training and be assigned to one of the five mentor groups. Peer coaches will assist students in small mentor group discussions, individual sessions, and a mentor group forum by sharing experiences and offering encouragement to other participants in the RTI program.

### **PARTNERS**

The UNT [Health Informatics Program](#) reached out to us to partner with them in enhancing research methods instruction for UNT LIS graduate students. We enthusiastically agreed to embed four LIS graduate students per year into the *RTI Online* research training program because the goals of the *RTI Online* institute and UNT MS-IS health informatics program complement and bolster each other. As our academic partner, UNT intended to provide full tuition scholarship funding for all UNT LIS graduate student participants in *RTI Online*. However, due to recent circumstances related to the COVID-19 crisis, UNT is unable to provide scholarship funding. Please see attached letter of support from UNT. The Association of Academic Health Sciences Libraries (AAHSL), a long-established MLA partner, has enthusiastically agreed to continue its support and to provide scholarships (\$6,000 for 8 scholarships; 4 per institute) for academic library participants from AAHSL member libraries. Please see attached letter of support from AAHSL.

In the past, the RTI program has sought and received growing support and scholarship donations from MLA chapters located throughout the country: three partial scholarships in 2018 and six partial/full scholarships in 2019. Numerous MLA chapters now provide RTI updates and information for members at regional chapter sessions and events. We expect that significant scholarship funding from MLA chapters will be available for the 2021 and 2022 *RTI Online* programs and will leverage our existing connections to the National Network of Libraries of Medicine (NNLM) and state and regional health library-related organizations, as well as other allied organizations, such as ALA/Association of College and Research Libraries (ACRL) research-related groups to promote the *RTI Online* program and share institute activities, materials, and findings. Additionally, the RTI staff will continue to explore new opportunities for funding and collaboration with foundations and corporate sponsors as the project progresses.

### **ASSESSMENT**

*RTI Online* will build upon the extensive assessment practices used to evaluate the in-person RTI learning program, make adaptations for the new online format, and collect and assess evidence of the effectiveness of all aspects of the *RTI Online* model. Similar to the assessment

measures that were used and tested for the in-person RTI program, *RTI Online* assessments will be ongoing and will use both formative and summative evaluations. Some adjustments will be necessary given the new online learning environment, such as using web forms for feedback and reports and the timing of assessment surveys to correspond with the new online class schedule. Similar to the in-person RTI program, success indicators for *RTI Online* will include changes in research skills and confidence before and after the course, percentage of participants who completed research projects, changes in research behaviors after the training program, percentage of participants who published research articles, among other measures of success. *RTI Online* success indicators will be compared across all RTI cohorts. Please see supporting document Appendix 8: *RTI Online* Assessment Details.

## DISSEMINATION

The *RTI Online* leadership team and faculty will promote the *RTI Online* program nationwide to attract library staff who provide health-related information in a wide variety of work settings, including health sciences professional schools, universities, community colleges, hospitals, academic health centers and clinics, consumer health libraries, public libraries, research centers, biotechnology centers, pharmaceutical companies, and federal, state, and local government agencies. Program information will be shared on national email discussion lists, such as MEDLIB-L, NNLM, AAHSL, and ALA health and research-related, library schools, and social media outlets. The *RTI Online* program will continue to use the [RTI website](#) as the primary communication vehicle for posting program, curriculum, participant, applicant, and scholarship information. [MLAConnect](#), [RTI News](#) and social media venues will communicate program value, information, processes, outcomes, and products. A new [Dissemination and Impact](#) web page will share program assessment results, data collection instruments, and reports. This information will inform other education and research programs in the library field and educate the public about the role and value of the librarian-led research and health information research. An essential component of the *RTI Online* curriculum will be the dissemination of participants' research results. *RTI Online* participants will be expected to present their research at an RTI session at MLA annual meetings (capstone presentation), provide a news item for [RTI Research Spotlights](#), and publish their research in a peer-reviewed publication. The project director and faculty will share institute activities, experiences, and outcomes with the wider library community through national presentations and paper submissions to professional journals. Additionally, RTI information will be archived for preservation and reuse in the [MLA Archives](#), which are stored at the National Library of Medicine (NLM).

## DIVERSITY PLAN

Diversity, equity, and inclusion are [core values of MLA](#). This proposal specifically supports DEI goals in health librarianship in several ways. The online delivery format with reduced fees will open the project to an even more diverse group of library staff than the current RTI program. We will seek partnerships and scholarship support from MLA chapters located in different geographic areas of the country, AAHSL, NNLM, and other organizations to help reduce costs for library staff with limited means and to maximize the diversity of participating librarians and library professionals. We will recruit librarians via MLA caucuses and regional MLA chapters, NNLM network members, and affiliated organizations that foster and support librarian diversity, equity, and inclusivity. Additionally, special scholarships will be provided for library staff working in small libraries (two scholarships per year) and for those who propose

research projects that explore diversity, equity, or inclusion in health library services (two scholarships per year). We also expect to fund full tuition scholarships for all RTI accepted applicants with limited funds each institute year, such as early and mid-career librarians, through a combination of funding from IMLS grant, RTI partners, MLA chapters, and MLA cost sharing.

*RTI Online* will employ universal design strategies and techniques where possible to inform the design and delivery of our online curriculum/program to accommodate widely varying learner needs, including those with disabilities [19]. The project design team will explore publicly available guidelines, implementation strategies, and examples of universal design in education, including the [Cast UDL guidelines](#), curriculum self-check tools, and resources from the [CAST website](#) and the [Center for Universal Design in Education](#) at the University of Washington. We will proactively seek guidance from individuals with accessibility knowledge and expertise, including two RTI Fellow researchers in this field and NNLM's accessibility staff. RTI faculty and staff will undertake [training](#) on applying universal design to online instruction that is offered through NNLM. Applying universal design to the RTI online curriculum and learning materials will take into account the wide variability of learners in MLA. It is our intention that *RTI Online* will become a model for other digital continuing education programs in health sciences librarianship since universal design has yet to be widely adopted among health sciences libraries.

## **SUSTAINABILITY**

MLA is committed to offering ongoing training and support for health information research after the grant period ends. Similar to the previous grant, the leadership team will explore business models to continue the learning program and its attendant support activities on a cost-recovery basis once grant funding has ended. MLA's existing educational services, web and communication tools, diversity and scholarship programs, annual meeting services, and strong organizational alliances will maximize the long-term impact and sustainability of *RTI Online*. Based on our previous RTI experience, we believe that a successful *RTI Online* with reasonable costs will continue to grow and generate interest after the grant ends.

## **BROAD IMPACT**

The *RTI Online* learning program is unique and will ensure that increasing numbers of health library professionals nationwide have access to advanced research methods training and will gain high-level professional research skills and confidence to contribute meaningfully to their institutions and user communities. Like the previous RTI project, *RTI Online* will be a powerful driver of new, better, and important health information research, generating indispensable knowledge and data in the field of health sciences librarianship that practitioners require for well-informed and wise decision making to enhance health sciences library services and to improve health outcomes of patients and consumers. *RTI Online* will continue to advance MLA's vision to nurture a professional environment in which designing, conducting and using research becomes an accepted and expected part of practice [20]. These activities, supported by IMLS funding, will continue to transform that vision into reality by cultivating research learning, productivity, and collaboration throughout the profession, through broadly disseminating outcomes and products to the wider library community so others can replicate and build upon our work, and by building elements of sustainability so future libraries and library staff can benefit in coming years.





**Schedule of Completion**  
**Year 3: August 1, 2022 - July 31, 2023**

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
22 RTI Fellows begin projects											
22 RTI Post-assess survey 1											
22 RTI Module 10											
22 RTI Fellow Summer QR											
22 RTI Module 11											
22 RTI Module 12											
22 RTI Fellows Fall QR											
22 RTI Module 13											
22 RTI Module 14											
22 RTI Module 15											
22 RTI Fellows Winter QR											
22 RTI Module 16											
22 RTI Post-assess survey 2											
Capstone posters @ MLA											
22 RTI Fellows Spring QR											
22 Final Program survey											



## DIGITAL PRODUCT FORM

### INTRODUCTION

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to digital products that are created using federal funds. This includes (1) digitized and born-digital content, resources, or assets; (2) software; and (3) research data (see below for more specific examples). Excluded are preliminary analyses, drafts of papers, plans for future research, peer-review assessments, and communications with colleagues.

The digital products you create with IMLS funding require effective stewardship to protect and enhance their value, and they should be freely and readily available for use and reuse by libraries, archives, museums, and the public. 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

If you propose to create digital products in the course of your IMLS-funded project, you must first provide answers to the questions in **SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS**. Then consider which of the following types of digital products you will create in your project, and complete each section of the form that is applicable.

#### **SECTION II: DIGITAL CONTENT, RESOURCES, OR ASSETS**

Complete this section if your project will create digital content, resources, or assets. These include both digitized and born-digital products created by individuals, project teams, or through community gatherings during your project. Examples include, but are not limited to, still images, audio files, moving images, microfilm, object inventories, object catalogs, artworks, books, posters, curricula, field books, maps, notebooks, scientific labels, metadata schema, charts, tables, drawings, workflows, and teacher toolkits. Your project may involve making these materials available through public or access-controlled websites, kiosks, or live or recorded programs.

#### **SECTION III: SOFTWARE**

Complete this section if your project will create software, including any source code, algorithms, applications, and digital tools plus the accompanying documentation created by you during your project.

#### **SECTION IV: RESEARCH DATA**

Complete this section if your project will create research data, including recorded factual information and supporting documentation, commonly accepted as relevant to validating research findings and to supporting scholarly publications.

## SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS

**A.1** We expect applicants seeking federal funds for developing or creating digital products to release these files under open-source licenses to maximize access and promote reuse. What will be the intellectual property status of the digital products (i.e., digital content, resources, or assets; software; research data) you intend to create? What ownership rights will your organization assert over the files you intend to create, and what conditions will you impose on their access and use? Who will hold the copyright(s)? Explain and justify your licensing selections. Identify and explain the license under which you will release the files (e.g., a non-restrictive license such as BSD, GNU, MIT, Creative Commons licenses; RightsStatements.org statements). 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.

**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.

**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.

## **SECTION II: 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 the format(s) you will use.

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

**A.3** List all the digital file formats (e.g., XML, TIFF, MPEG, OBJ, DOC, PDF) you plan to use. If digitizing content, describe the quality standards (e.g., resolution, sampling rate, pixel dimensions) you will use for the files you will create.

### **Workflow and Asset Maintenance/Preservation**

**B.1** Describe your quality control plan. How will you monitor and evaluate your workflow and products?

**B.2** Describe your plan for preserving and maintaining digital assets during and after the award period. Your plan should 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).

## **Metadata**

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

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

**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).

### **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, delivery enabled by IIIF specifications).

**D.2.** Provide the name(s) and URL(s) (Universal Resource Locator), DOI (Digital Object Identifier), or other persistent identifier for any examples of previous digital content, resources, or assets your organization has created.

## SECTION III: SOFTWARE

### 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 or similar functions, and explain how the software you intend to create is different, and justify why those differences are significant and necessary.

### Technical Information

**B.1** List the programming languages, platforms, frameworks, 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), URL(s), and/or code repository locations for examples of any previous software your organization has created.

## Access and Use

**C.1** Describe how you will make the software and source code available to the public and/or its intended users.

**C.2** Identify where you will deposit the source code for the software you intend to develop:

Name of publicly accessible source code repository:

URL:

## SECTION IV: RESEARCH DATA

As part of the federal government's commitment to increase access to federally funded research data, Section IV represents the Data Management Plan (DMP) for research proposals and should reflect data management, dissemination, and preservation best practices in the applicant's area of research appropriate to the data that the project will generate.

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

**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?

**A.3** Will you collect any sensitive information? This may include personally identifiable information (PII), confidential information (e.g., trade secrets), or proprietary information. If so, detail the specific steps you will take to protect the information while you prepare it for public release (e.g., anonymizing individual identifiers, data aggregation). If the data will not be released publicly, explain why the data cannot be shared due to the protection of privacy, confidentiality, security, intellectual property, and other rights or requirements.

**A.4** What technical (hardware and/or software) requirements or dependencies would be necessary for understanding retrieving, displaying, processing, or otherwise reusing the data?

**A.5** What documentation (e.g., consent agreements, data documentation, codebooks, metadata, and analytical and procedural information) will you capture or create along with the data? Where will the documentation be stored and in what format(s)? How will you permanently associate and manage the documentation with the data it describes to enable future reuse?

**A.6** What is your plan for managing, disseminating, and preserving data after the completion of the award-funded project?

**A.7** Identify where you will deposit the data:

Name of repository:

URL:

**A.8** When and how frequently will you review this data management plan? How will the implementation be monitored?