

Abstract

Experience Assessment: Building User Experience and Assessment Capabilities in Libraries and Information Centers (Master's Level Project)

In today's digital environment and climate of accountability and outcome-based improvement, libraries and information agencies are increasingly being asked to demonstrate the value of their services, resources, and systems to stakeholders and to the organizations and wider communities that they serve. Assessment activities are becoming widespread as information professionals make decisions about what to change, expand, or de-emphasize now and into the future. User experience (UX) testing, closely related to the concept of assessment, can minimize users' difficulties with information systems and help create a more user-friendly, accessible environment for a diverse range of users. While many information professionals today are expected to regularly perform assessment and UX testing, few LIS programs offer specialties in these areas as part of their graduate education. In fact, most respondents to a recent survey of academic librarians with assessment responsibilities indicated that their graduate education did not prepare them adequately to perform assessment-related tasks (Fleming-May & Mays, 2015).

Experience Assessment, a project proposed to IMLS's Laura Bush 21st Century Librarian grant program and led by Dr. Carol Tenopir at the University of Tennessee's School of Information Sciences (UT-SIS), together with Co-PIs Dr. Dania Bilal and Dr. Rachel Fleming-May, will bring together an interdisciplinary team and robust facilities to provide education and experience to these future leaders in assessment and UX testing. The curriculum developed during the initial two-year project period, which will span from June 2016 through May 2018, will continue to create information professionals with assessment and UX testing expertise into the future. This project has three main goals: 1) educate twelve master's level students with an emphasis on assessment and UX; 2) bring together collaborators from a wide variety of types of information intensive environments to share ideas; and 3) build and widely disseminate a forward-looking LIS curriculum that specializes in assessment and UX.

Students in the Experience Assessment program will receive a first rate educational experience involving carefully selected coursework, hands-on assessment and UX testing experience at area science and information organizations, and one-on-one mentorship from assessment and UX experts. Students will have the option of either an academic or specialized information agency track. A course in assessment of information agencies will be developed specifically for this program. Other coursework will involve existing classes in the UT-SIS curriculum as well as courses in UX testing, research methods, statistics, and either higher education administration or organization communication depending on their chosen track. To complement their coursework, students will complete hands-on research experiences at UT UX laboratories, UT Libraries, and area organizations including Oak Ridge National Laboratory (ORNL), USGS, Information International Associates, and the Tombras Group. Students will be closely mentored by a carefully chosen group of mentors from these organizations.

Emphasis will be placed on recruiting a broadly diverse cohort of students, including students from underrepresented backgrounds and students from a variety of undergraduate backgrounds. Targeted outcomes from this project will include success in recruiting a diverse and intellectually robust cohort, high quality performance in coursework and research experiences, successful relationships with mentors that continue after the initial project, placement in professional positions that will allow them to offer their assessment and UX testing skills to the library and information field, development and testing of a UX/Assessment-focused curriculum, and wide dissemination of project products. Project personnel will evaluate project success in these areas continuously throughout the program.

Experience Assessment: Building User Experience and Assessment Capabilities in Libraries and Information Centers (Master's Level Project)

1. Statement of Need

In today's dynamic information environment and climate of outcome-based improvement, libraries and information agencies must continually examine the quality and scope of their services, resources, and systems. This examination is done both for improvement and for making decisions about what to change, expand, or de-emphasize into the future. To meet the IMLS priorities of building the national digital platform (including providing access to digital content, developing tools and services, and bridging gaps in the existing digital infrastructure) and to facilitate user-centered learning in libraries, with an emphasis on information intensive STEM environments, requires a focus on assessment, user experience (UX), and continuous improvement. **Experience Assessment**, a project proposed to IMLS's Laura Bush 21st Century Librarian grant program and led by Dr. Carol Tenopir at the University of Tennessee, has three main goals: 1) educate twelve master's level students with an emphasis on assessment and UX; 2) bring together collaborators from a wide variety of information intensive environments to share ideas; and 3) build and widely disseminate a forward-looking LIS curriculum that specializes in assessment and UX. This program will leverage an interdisciplinary team and robust facilities to provide education and experience to future leaders in assessment and UX testing, and the curriculum developed during the initial project period will continue creating these professionals into the future.

Kyrillidou and Ryan (2006) defines library assessment as "activities that seek to measure the library's impact on teaching, learning and research as well as initiatives that seek to identify user needs or gauge user perceptions or satisfaction with the overall goal being the data-based and user-centered continuous improvement of our collections and services". In practice, assessment involves measuring a library's resources (inputs), programs, and/or services (outputs) against defined goals (outcomes) (**Fig. 1**), and should focus on outcomes (Tenopir et al., 2010). Outcomes can include improved satisfaction with and

use of library services; or, in academic libraries, improved student learning, faculty teaching effectiveness, and scholarly productivity (Mezick, 2015; Oakleaf, 2010). UX testing, closely related to the concept of assessment, involves experimenting with multiple variations of a particular service and determining, based on user response, which perform best (Young, 2014). For example, librarians have conducted usability testing on academic library subject guides to minimize users' difficulties with the system and help librarians create the most user-friendly, accessible guides possible (Sonstebly & DeJonghe, 2013). According to O'Reilly (2009), in the Internet era, "Users must be treated as co-developers," and UX testing plays a central role in the ability of information professionals to achieve

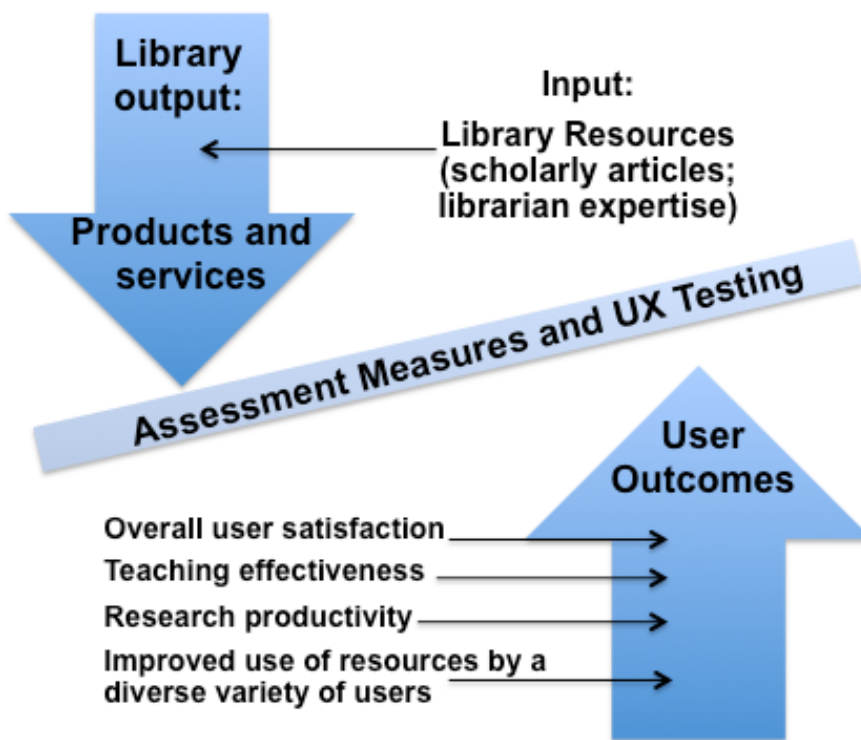


Figure 1. The relationship between input, output, user outcomes and Assessment/UX Testing.

this goal.

Assessment helps to improve the quality of library services offered, increase accountability, demonstrate the library as a key player in the institution's goals, and support the institution's missions and values (Oakleaf & Hinchcliffe, 2009). As library collections and services progressively move to an electronic environment accessible from anywhere, the library's central role in education and research is not always readily apparent even to its users, and has come under question from stakeholders in recent years. Due in part to increased demands from stakeholders for accountability, decreasing monetary resources, and lack of awareness of the library's services assessment for demonstrating value and outcomes is becoming widespread (Fleming-May, Mays & Radom, 2015; Mezick, 2015). Academic libraries and specialized information centers need to show how their services contribute to the goal of the institution as a whole. For example, many universities have focused on measuring student retention as a gauge of an institution's success that can affect rankings and funding implications. The library is a fundamental part of a university's success in this area, as library use, especially early in a student's first semester, has been positively linked with retention and students' overall GPA (Soria, Fransen & Nackerud, 2013), and library use of any kind has been strongly linked to freshmen and sophomore retention (Murray, Ireland & Hackathorn, 2015). Laird and Kuh (2005) found that participating in library-related activities, such as using library resources to find academic articles or communicating with reference librarians, were correlated with student engagement in other areas, including collaborative learning and increased engagement in academic challenges. UX testing, an important component of this proposed program, provides an opportunity for librarians to not only engage users in library services, but include them as participants in the design process, and also to display this active engagement to stakeholders in a way that goes beyond simply providing a report (Constantine et al., 2014).

Assessment has been developing as an important activity for librarians for over a century (Kyrillidou, 2008), but the past two decades have seen an exponential increase in efforts to quantify the value of library services and demonstrate this value to stakeholders. Most notably, LibQUAL+™, which went under development over 15 years ago, has been used extensively in academic libraries to solicit, track, understand, and act upon users' opinions of service quality. More than 1,200 libraries have participated in LibQUAL+™ to date, and this suite of services is continuing to expand into new environments to include special libraries, school libraries, academic, and public libraries in four different continents.

Carol Tenopir, the PI of this project, along with Co-PI Rachel Fleming-May, and senior personnel Martha Kyrillidou, led the IMLS-funded Lib-Value study, which expanded on the perspectives of return-on-investment (ROI) studies implemented in libraries and/or sponsored by vendors. This project has been highly successful in helping current librarians better articulate their value by producing models for calculating value and ROI in academic libraries, providing web-based assessment tools for assessing value and ROI, and testing alternative value methods. Experience Assessment will focus specifically on creating new LIS professionals who will be educated to perform assessment and UX research in both libraries and science-intensive information environments.

Assessment is a multifaceted activity that involves many different methods to measure both implicit and explicit value of library services, and can include usage logs and vendor reports, surveys to measure satisfaction with services and gather information on behavior not captured on usage logs, and qualitative interviews, among other activities (Tenopir et al., 2010). Information professionals need to understand the pressures and demands that are placed on institutions nationally and globally, and make connections between these priorities and the value of their own services, expertise, and resources (Oakleaf, 2014). More than just producing a compulsory report to stakeholders, librarians need a skill set that includes emphasizing their value in line with institutional priorities, using appropriate tools and data, and generating actions based on assessment results (Oakleaf, 2013). They need to know how to design and

conduct assessments and UX testing, and how to leverage results for programmatic improvement. Unfortunately, most respondents to a recent survey of academic librarians with assessment responsibilities indicated that they did not learn how to perform assessment-related tasks as part of the ALA-Accredited master's program (Fleming-May and Mays, 2015). In the study, the vast majority indicated that they learned assessment-related skills through informal means such as consultation of books and journals (85 percent), conferences and workshops (84 percent), and consultation with colleagues (79 percent), with only 11 percent responding that they took a course specifically about assessment. Some respondents indicated that they learned their assessment skills through a second master's degree in another field, such as Public Administration. UX testing, in particular, requires knowledge of a specialized set of hardware and software that is not available in all educational programs. The authors of the study found that although 40 percent of the librarians surveyed performed user experience tasks as a part of their job duties, the majority did not learn these skills in their master's program.

If students are not equipped with assessment and UX skills in their graduate education, it is difficult for them to successfully implement these important tasks once they enter the profession. In one study conducted on librarians who perform information literacy assessment, 14 percent did not know how to select or implement assessment tools, and 31 percent had only limited understanding of how to produce results (Oakleaf & Hinchliffe, 2009). Most LIS programs do not have formal library assessment and UX testing specialties; however, some programs have incorporated evaluation and assessment in at least a portion of graduate-level LIS courses (Oakleaf & Jager, 2009). For example, the University of Texas-Austin offers a tailored program in UX research. The iSchool at Syracuse has included "in-context" assessment in one of their core courses, in which students complete hands-on projects for librarians locally and nationally. This project was successful, as students and librarians both benefited from the assessment activities completed in the course. However, none of these offer a specialty in assessment and UX testing together that allows the choice of either an academic or specialized information agency track.

Collaboration is key, since the challenge of demonstrating value creates a shared goal for all libraries (Hubbard & Loos, 2013). One key aspect of this project will be developing students' collaboration skills as they work with one another and with experts in assessment and UX testing in real world assessment and user experience situations. This practical, in-context experience is important because it leads to authentic and meaningful that demonstrate through trial and error that there is not a one-size-fits-all approach, and will come to see assessment and UX research as a team activity. The University of Tennessee, with its close collaborative relationships to area science and information-intensive organizations, provides an ideal environment for these activities. The College of Communication and Information, with the collaboration of Oak Ridge National Laboratory, has built a state-of-the-art UX research laboratory run by staff and faculty, and this project will provide an opportunity to fully integrate the lab into the classroom. Through this project's carefully tailored coursework, one-to-one mentorship with experienced professionals and practical experience in organizations, students will achieve a full assessment and UX educational experience that they can then give back to the information field as they go on to help demonstrate value and improve information products in their chosen places of employment.

2. Impact

Libraries and the organizations they serve are evolving along with the digital information world. Assessment of library services and UX testing have become crucial in order to help libraries justify their operations and keep up with the changing needs of users. LIS education must reflect these evolving needs in order to continue to stay relevant to the communities they serve. Library assessment and UX testing are skills that, once provided to students in LIS programs, will continue to pay off well into the future as these professionals use these skills to gauge the satisfaction of users, test the success of different types of information services, and pinpoint areas needed for improvement.

The potential impacts of this project align with IMLS's stated priorities, facilitating learning in libraries and building the national digital platform. By working with information professionals in science-intensive organizations, which the University of Tennessee is strategically partnered with, this project also aligns with the IMLS goal of working in STEM intensive environments. The potential for change that exists in libraries is stronger than ever as library professionals need to think creatively about their space and services (IMLS, 2015). Assessment and UX testing skills give these professionals a roadmap and the ability to shine the light on specific ways services can be expanded and tailored to the learner in a 21st century information environment. In addition, the UX research skills developed in this project will contribute to information professionals' expertise in aligning software applications and technical infrastructure with users' needs in a way that is efficient, accessible, and cost-effective.

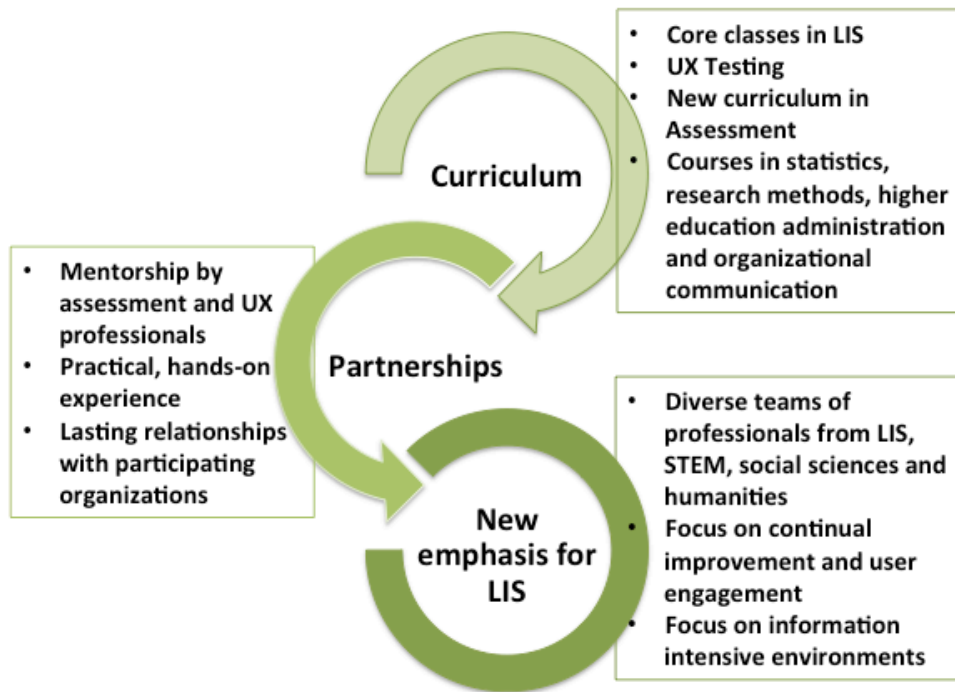


Figure 2. Experience Assessment: Building curriculum, partnerships and a new emphasis for LIS.

This project will create a template for future efforts in this area. While many LIS programs inject assessment and UX components into their existing courses, a specialty in this area is not yet commonplace. By offering concentrations in two different areas—academic libraries and specialized information agencies—this project will offer students the opportunity to tailor their educational experience to the type of organization of their choice. Additionally, the skills learned are not limited to any particular type of information

institution. Libraries of all types and sizes are in need of assessment, and the curriculum developed will be generalizable to all libraries. The benefits of the proposed project will be visible even before the first cohort graduates as students build their skills through collaborative hands-on experiences at area organizations. The potential for mutually beneficial partnerships formed by the assessment research experiences at participating organizations should be reproducible and desirable for a number of LIS schools and information organizations.

In order to ensure that the project goals are met, project personnel will evaluate and assess the project at every stage. The strong team of mentors and other project partners from a variety of information intensive settings will be involved throughout the project. Success in recruiting a diverse, intellectually robust cohort, high quality performance in coursework and research experiences, and successful relationships with mentors that continue after the project period will all be considered performance indicators for the project's success. In addition, students will be tracked for several years following their graduation to ensure their successful placement in positions that will allow them to offer their assessment and UX testing skills to the library field.

3. Project Design

We propose to fund twelve students for the master's degree program in information sciences at the University of Tennessee, with an emphasis on building skill sets in the areas of library assessment and UX in information intensive environments. Because the UX laboratory exists already as a research facility, IMLS will not be asked to fund any hardware or software development. The remaining costs of the program will be for building the collaborative curriculum, ensuring that all voices on the unique team are brought together, and widely disseminating results. Dr. Carol Tenopir of the School of Information Sciences (SIS) will lead this two-year program as PI, along with two Co-PIs, Dr. Dania Bilal and Dr. Rachel Fleming-May, both also of UT-SIS. Martha Kyrillidou of the Association of Research Libraries (ARL) and Regina Mays, an assessment librarian at UT Libraries, will lend invaluable expertise and support to the project in their roles as senior personnel. An outstanding board of mentors, including experts in assessment and UX research from UT, Oak Ridge National Laboratory (ORNL), United States Geological Survey (USGS), Information International Associates (IIa), and the TOMBRAS Group, has been formed to work one on one with students in their practical research experiences. Following are details on each of the main project activities.

Activities

i) Recruitment

The recruiting plan for this project involves not only seeking out a diverse set of students under the traditional measure of diversity (such as traditionally underrepresented ethnic groups), but seeking out diversity in disciplines and work experiences as well. We will draw from resources of students from a variety of different educational backgrounds, including STEM, social sciences, and humanities. Our strategic partners are well positioned to help us recruit a diverse group. Recruitment of students will take place immediately upon notification of the award. UT's School of Information Sciences already has a proven recruiting mechanism in place from their experiences successfully recruiting information professionals to the M.S. program, particularly through their involvement in prior IMLS funded projects and an effort to increase diversity in enrollment. Students will be recruited nationally, with special emphasis on the recruitment of underrepresented groups and diverse educational and workplace backgrounds. We will build upon existing recruiting relationships established through these programs, as well as adjust techniques to overcome potential obstacles learned from past experiences. We will also utilize the services of the University of Tennessee's Center for Career Development, which has representatives from each college, including a Career Consultant for the College of Communication and Information, who help funnel undergraduates into graduate school programs by sending targeted notification to recent graduates in specific programs, including those outside the LIS specialty. Every attempt will be made to build new relationships with colleges and universities that may be particularly rich sources of students interested in specializing in assessment and UX research. Project mentors will assist with recruiting from their unique contacts in government organizations and academic institutions. Our focus, as in previous efforts, will be on recruiting from as diverse a pool of students as possible. Our plans for addressing diversity in our recruiting strategy will be addressed in the Diversity section below.

ii) Coursework

This project will involve coursework carefully selected for its relevance to assessment and UX research, including a course in assessment of information agencies that will be developed specifically for this project. Each student in the cohort will be exposed to a combination of hands-on and educational experiences, resulting in a Master's degree in Information Sciences with a specialization in assessment and UX testing. Recognizing that the focus for assessment and UX differ somewhat by type of agency, students who participate in the program will select one of two tracks to pursue: 1) Academic Library Assessment; or 2) Specialized Information Agency Assessment. During the course of their degree (42 credit hours), each student will be provided with an enhanced curricular experience in Information Sciences and related relevant areas, including:

- Core classes in information environments, information organization, and information access and retrieval (9 credits)
- A course in statistics, selected from a cognate discipline relevant to the student's interests, such as Higher Education Administration, Business and Management, and Political Science (3 credits)
- Four courses in: 1) Human-Computer Interaction (including UX); 2) Assessment of Information Agencies (specially designed as part of this grant); 3) Specific Information Agency Settings; and 4) Research Methods (12 credits)
- Students in the Academic Library Assessment track will complete a course in the Higher Education Administration curriculum (3 credits)
- Students in the Specialized Information Agencies track will complete a course in Organizational Communication (3 credits)
- Practica in a UX and assessment-intensive environment (6 credits)
- Elective courses selected by each student (3-9 credits).

iii) Hands-on assessment and UX research experience

Each student will participate in an experiential-intensive component that sees them closely mentored by assessment and UX professionals in a variety of academic, corporate, and/or government environments. Students will gain first-hand experience with assessing library and information center operations, including presenting those assessments to administrators and peers. They will get exposure to a variety of state-of-the-art UX hardware and software at the University of Tennessee in the CCI-ORNL User Experience Laboratory (UXL) and participate in UX testing of real information systems (e.g., online catalogs, databases, library guides) under the direction of their mentors. Students will also attend an assessment or UX-focused conference in Year Two, where they will be encouraged to present their research.

iv) Evaluation of project results

This project will be evaluated and assessed at every stage, from recruitment to the students' graduation and placement. Twice each year the entire team will get together to share experiences, make suggestions for improvements, and coordinate evaluation. Each year the PI's will conduct interviews and surveys of students, mentors, and faculty advisors to identify program successes and areas needed for improvement. Upon completion of the program, the project's overall success will be measured by:

1. Success in recruiting a diverse cohort;
2. Knowledge, skills, and abilities gained by the students, measured by their success in coursework and quality of group project and electronic portfolios;
3. Successful experiences in participating organizations, measured by mentors' evaluations;
4. Graduation with a M.S. degree in Information Science; and
5. Placement in positions that will allow students to apply their assessment and UX abilities.
6. Follow-up surveys with employers to assess students' skills in designing and implementing UX testing and assessment.

4. Diversity Plan

This project will serve diverse communities in two ways. First, we will make the careful recruitment and selection of diverse students a high priority. Project personnel have already had considerable success recruiting diverse cohorts through our involvement in previous diversity-focused initiatives. We will leverage this success while forming our recruitment techniques for Experience Assessment. Project PI's will work with our contacts from two Historically Black Colleges and Universities (HBCU's), North Carolina Central University and Clark Atlanta University, among other universities with a high percentage of minority students, to recruit students to the Experience Assessment project. Focus will be given not only to recruiting students with an LIS-related background, but students from a variety of

different undergraduate programs including the STEM fields, social sciences, and humanities. Additionally, we will work with the Office for Diversity and Inclusion at UT, who has listservs and other resources in place to recruit recent diverse graduates from all types of educational backgrounds into graduate programs. We will also consult with the Student Success Center at UT, who have contact information for promising students from a number of different backgrounds, including those in the UT LEAD program who have been selected as diverse leaders in academic excellence. Finally, we will publicize the program to members of minority library organizations, who will be asked to identify potential recruits.

Second, we will focus a portion of our coursework and research experience activities specifically on serving diverse individuals and communities. Assessment and UX activities have immense potential to identify and respond to the unique service needs of disadvantaged populations, as well as identify perceptions, policies and attitudes that may impede successfully reaching out to these populations. Segments of the assessment course and projects will focus specifically on the needs of ethnic minorities, immigrants, financially disadvantaged and/or geographically isolated communities, disabled individuals, and other segments of the population that need special consideration to ensure that their needs are successfully interpreted in assessment and UX testing activities. In particular, we will focus UX testing on efforts not just to improve English language resources, but for multi-lingual resources in library and information centers. To this effect, in our recruiting phase we will concentrate our efforts on recruiting a portion of students who speak more than one language.

5. Project Resources: Time, Personnel, Budget

Key Personnel

Carol Tenopir (Principal Investigator) is a Chancellor's Professor in the School of Information Sciences (SIS) at the University of Tennessee. Dr. Tenopir was Lead Principal Investigator for the IMLS-funded Lib-Value grant and, for the last six years, the co-lead for the DataONE Usability and Assessment Working Group. Her areas of teaching and research include information access and retrieval, electronic publishing, the information industry, and the impact of technology on reference librarians and scientists. Dr. Tenopir is internationally known for her research, especially on scientific communication and scholarly journals. Dr. Tenopir will lead all aspects of the project, including recruiting students, creating course content, matching students with mentors and work experiences, and evaluating the project.

Dr. Dania Bilal (Co-Principal Investigator) is Interim Director and Professor in SIS at the University of Tennessee. An expert in UX testing, she teaches human-computer interaction, among other courses; her research focuses on children's information behavior in using and interacting with information retrieval systems. She has conducted user testing experiments with children and adult users. Dr. Bilal will assist Dr. Tenopir with all main activities, with an emphasis on building UX-related curriculum.

Dr. Rachel Fleming-May (Co-Principal Investigator) is an Associate Professor in SIS at the University of Tennessee. Dr. Fleming-May was part of the management team of Lib-Value. Her research interests include academic libraries, librarianship, and users, and evaluation and assessment of libraries and information resources. Dr. Fleming-May will assist Dr. Tenopir with all main activities, with an emphasis on building assessment-related curriculum.

Dr. Martha Kyrillidou (Senior Personnel) is Senior Director of ARL Statistics and Service Quality Programs. She is responsible for developing tools and measuring the organizational performance and effectiveness of libraries. Dr. Kyrillidou has participated in the development of assessment protocols like LibQUAL+™ and co-chairs the Library Assessment Conference. Dr. Kyrillidou led the ARL team for Lib-Value. Dr. Kyrillidou will serve as a consultant and will lend her expertise to the PI and Co-PIs as they create and deliver the curriculum and carry out all assessment-related project activities.

Regina Mays (Senior Personnel), is an Assessment Librarian at the University of Tennessee Libraries, and will lend her expertise to the PI and Co-PIs as they create and deliver the curriculum and carry out all assessment-related project activities.

A **Project Manager** will be hired to create and maintain the project website that will be designated for the project. He/She will populate the site with tools and resources relevant to UX testing and assessment. He/she will assist with recruitment efforts, assist with student placement, and coordinate meetings between project personnel.

Mentors

Dr. Suzie Allard is a Professor in SIS, Associate Dean for Research in the College of Communication and Information (CCI), and Director of the CCI Center for Information and Communication Studies at the University of Tennessee. Her research interests focus on how scientists and engineers use and communicate information. She is a co-investigator and member of the Leadership Team for DataONE.

She was a founding member and past chair of the ASIS&T Special Interest Group on Digital Libraries.

Rachel Volentine is Lab Manager for the CCI ORNL User-Experience Laboratory, and is responsible for managing and coordinating the lab's activities as well as performing usability assessments.

Mike Frame is the Research and Technology Director at USGS and a co-lead for the DataONE Usability and Assessment Working Group.

Robert Cook is Distinguished R&D Staff at ORNL, Environmental Sciences Division and a member of the DataONE Leadership Team.

Franciel Azpurua Linares is IT/IM Senior Program Manager at Information International Associates, Inc (IIa).

Teresa Walker is Associate Dean for Learning, Research, and Engagement at UT Libraries.

Mary Beth West is Director of Quality Assurance and UX Research at Tombras Group in Knoxville, TN.

Bob Conrad is the Library Director at ORNL.

Timeline

Year 1: June 2016-May 2017	
June-August 2016	Beginning of grant: meet and teleconference with partnering organizations and mentors.
	Use broad recruiting mechanisms to meet with and recruit potential students.
	Hire project manager; start project website.
	Work with participating organizations to coordinate specific opportunities for Experience Assessment students; assign each student a mentor.
	Students will apply in Spring/Early Summer 2016 to begin in August 2016.
	Assign a faculty advisor from SIS to each student.
September-December 2016	In their first semester (Fall 2016) students will take the three required courses for SIS.
	Students will begin their work experiences with their project mentors and have their first evaluation in December 2016.
	Begin development of Assessment of Information Agencies course.
January-May 2017	Students will take statistics course Human-Computer Interaction, and one elective in Spring 2017.
	Students will meet with advisors and undergo their second work experience evaluation in May 2017.
	Complete Assessment of Information Agencies course development; send to senior personnel for input.

Year 2: June 2017-May 2018	
June-August 2017	Students will finish their first year experience and meet with advisors to discuss work experiences for the next two semesters.
	Students review progress and plan for year 2.
	Make adjustments to Assessment course; complete course development.
September-December 2017	Students will take Assessment of Information Agencies course, Specific Information Agency course, and one elective.
	Students will meet with advisors and undergo their second work experience evaluation in May 2018.
January-May 2018	Students will take Research Methods course, Higher Education Administration or Specialized Information Agencies course, and one elective.
	Students will travel to submit their research at a conference.
	Students will complete their work experience practicum and undergo their final work experience evaluation.
	Students will graduate in May 2018. At the conclusion of the program, the PI's will conduct exit interviews and final job placement assessments.
	PIs will travel to conferences to disseminate project results and prepare articles for submission to academic journals.
	PI's will prepare and turn in reports to IMLS, and will track career placement of students for a year after graduation.

Facilities and Equipment

The User Experience Lab (UXL) in the College of Communication and Information has state-of-the-art hardware and software, including *Morae* and *Tobii x2 60*, which record interactions of the user with the system (clicks, visiting links, searching, browsing, selecting from retrieved results, etc.) as well as highly accurate gaze-position eye tracking. Other information intensive agencies in the region, such as ORNL, Information International Associates, and TOMBRAS are building their assessment and UX capabilities and have established a strong working relationship with UT-SIS faculty through past projects. These agencies will collaborate with the PIs to provide recruitment, training, mentorship, and ongoing research support.

Budget

The budget for Experience Assessment reflects the three main goals: 1) educate 12 master's level students with an emphasis on assessment and UX; 2) bring together collaborators from a wide variety of types of information intensive environments to share ideas; and 3) build and widely disseminate a forward-looking LIS curriculum that specializes in assessment and UX. Total estimated funds requested from IMLS are \$811,500. An additional \$494,082 will be cost shared by UT. [REDACTED]

The remaining costs will be necessary for a variety of essential tasks, including assisting with recruiting, coordinating student placements, managing student assignments, building new courses, and ensuring that goals 2 and 3 are met by coordinating and ensuring collaborations and dissemination. [REDACTED]

6. Communications Plan

Throughout the project, the PI and Co-PIs will make it a priority to document project activities and results in such a way that others may adopt it. The communication plan consists of a three-prong effort involving a variety of methods, participants, and venues:

- 1) The PI and Co-PIs, all of whom are experienced presenters, will present insights and findings at major LIS-focused conferences each year of the project. Some of these conferences are specifically focused on assessment, such as ARL Library Assessment, Northumbria Assessment, and Quantitative and Qualitative Assessment in Libraries conferences. We will also submit results to broader LIS audiences at such conferences as ALA, ALA mid-winter, ALISE and ASIS&T. Papers will be submitted to peer-reviewed journals such as College and Research Libraries, Journal of the Association for Information Science and Technology, Library and Information Science Research, and the Journal of Academic Librarianship.
- 2) At the beginning of the project, a project website will be created and actively promoted to share activities and milestones. This website will be updated regularly throughout the project and beyond (as part of the UT School of Information Sciences website), to provide information about the curriculum, research experiences, details on UX software and hardware, special projects, and student accomplishments. News about the project will be posted to appropriate library discussion lists. Findings and conclusions will also be linked via selected partners' websites. In addition, project personnel will share the curriculum, including course syllabi, with other LIS schools via the project website, and encourage their feedback in order to increase the chances that other programs will implement similar programs.
- 3) With the guidance of their mentors, in the second year each student will submit a paper or poster on the results of their assessment and UX research to an LIS-focused conference, and will be funded to attend at least one conference relevant to assessment and UX research. They will be encouraged to share their experiences and expertise with a broad information professional community.

7. Sustainability

The widespread dissemination of the curriculum, research experiences, and project results to the LIS and educational communities will ensure that other libraries and schools of information science can use this project as a model to build in-house capacity. The carefully developed and tested coursework delivered during this project will continue to be built upon to educate future information professionals, and can serve as a guide for other educational institutions who wish to create similar coursework in the future. Because assessment skills are needed by a wide variety of types and sizes of institutions, the materials developed from this project will be scalable according to the size and needs of any particular organization, and will be easily adaptable. No restrictions will be placed on the use of the course or course content during or after the grant period. The curriculum and related materials will remain indefinitely on the project website, and will continue to be updated and maintained well after the grant period.

Original Preliminary Proposal

Experience Assessment: Building User Experience and Assessment Capabilities in Libraries and Information Centers (Master's Level Project)

PI: Carol Tenopir, Professor, University of Tennessee School of Information Sciences (UT-SIS)

Co-PIs: Dania Bilal, Professor, and Rachel Fleming-May, Associate Professor, UT-SIS

Senior Personnel: Martha Kyrillidou, Association of Research Libraries; Regina Mays, Assessment Librarian, UT Libraries

Mentors: Suzie Allard, UT, Director of the Center for Information and Communication Studies (CICS); Rachel Volentine, UT, UX lab supervisor, CICS; Robert Cook, Director, Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center; Bob Conrad, Director, ORNL library; Mike Frame, Chief of Scientific Data Integration and Visualization, USGS; Franciel Azpurua Linares, Group Leader, Information International Associates; Teresa Walker, Associate Dean for Learning, Research, and Engagement, UT Libraries; Mary Beth West, Director of Quality Assurance and UX Research, The TOMBRAS Group

In today's dynamic information environment and climate of outcome based improvement, libraries and information agencies must continually examine the quality and scope of their services, resources, and systems for improvement and making decisions about what to change, expand, or de-emphasize into the future. To meet the IMLS priorities of improving libraries' digital services (including content curation, user services, and infrastructure design & management) and to build user-centered libraries requires a focus on assessment, user experience, and continuous improvement. Doing so requires the leadership of information professionals who have expertise in the principles and practices of assessment, including user experience testing. This proposed project, submitted as a preliminary proposal to the IMLS Laura Bush 21st Century Librarian grant program, is a master's level degree project that will bring together an interdisciplinary team and robust facilities to provide education and experience to create 12 leaders in user experience and assessment and build a program to continue creating these professionals into the future.

Ryan (2006) defines library assessment as "any activities that seek to measure the library's impact on teaching, learning and research as well as initiatives that seek to identify user needs or gauge user perceptions or satisfaction with the overall goal being the data-based and user-centered continuous improvement of our collections and services". In practice, assessment involves measuring a library's resources (inputs), programs, and/or services (outputs) against defined goals (outcomes) and should focus on outcomes (Tenopir, et al 2010). These outcomes can include improved satisfaction with and use of library services, or, in academic libraries, improved student learning, faculty teaching effectiveness, and scholarly productivity (Mezick, 2015; Oakleaf, 2010). User experience testing involves experimenting with multiple variations of a particular service and determining, based on user response, which perform best (Young, 2014). For example, usability testing has been performed on subject guides in academic libraries in order to minimize users' difficulties with the system and help librarians create the most user-friendly, accessible guides possible (Sonstebly & DeJonghe, 2013). According to O'Reilly (2009), in the Internet era, "Users must be treated as co-developers," and user experience testing plays a central role in the ability of information professionals to achieve this goal.

Information professionals need assessment and user experience skills in order to determine which outcomes they wish to achieve for their library services and why, and to effectively communicate these desired outcomes to stakeholders (Tenopir, et al 2010; Oakleaf, 2011). They need to know how to design and conduct assessments and user experience testing, and how to leverage results for programmatic improvement. Unfortunately, most respondents to a recent survey of academic librarians with assessment responsibilities indicated that they did not learn how to perform assessment-related tasks as part of the ALA-Accredited master's program (Fleming-May and Mays, 2015) and user experience testing requires knowledge of a specialized set of hardware and software that is not available in all educational programs.

These two skill sets—assessment and user experience—in information intensive environments are the focus of this proposed Laura Bush Librarians for the 21st Century grant "Experience Assessment." The University of

Tennessee's School of Information Sciences, with the partnership of Martha Kyrillidou of the Association of Research Libraries (ARL), assessment librarians at UT Libraries, a data manager and librarian at Oak Ridge National Laboratory, UX experts at corporations such as Information International Associates and the TOMBRAS Group, will educate a cohort of 12 future assessment and user experience information professionals. Each student in the cohort will be exposed to a combination of hands-on and educational experiences, resulting in a Master's degree in Information Sciences with a specialization in assessment and user experience. Recognizing that assessment and user experience needs differ by type of agency, students who participate in the program will select one of two tracks to pursue: 1) Academic Library Assessment; or 2) Specialized Information Agency Assessment. Each student will be provided with an enhanced curricular experience of a total of 42 graduate credits in Information Sciences and related relevant areas, including:

- Core classes in information environments, information organization, and information access and retrieval (9 credits)
- A course in statistics, selected from a cognate discipline relevant to the student's interests (3 credits)
- Courses in user experience testing; assessment of information agencies (specially designed as part of this grant); specific information agency settings; and research methods (12 credits)
- Students in the Academic Library Assessment track will complete a course in the Higher Education Administration curriculum (3 credits)
- Students in the Specialized Information Agencies track will complete a course in Organizational Communication (3 credits)

In addition, each student will participate in an invaluable experiential-intensive component that sees them closely mentored by assessment and user experience professionals in a variety of academic, corporate, and/or government environments. Students will gain first-hand experience with assessing library and information center operations, including presenting those assessments to administrators and peers. They will get exposure to a variety of state-of-the-art user experience hardware and software in the University of Tennessee, College of Communication and Information User Experience Laboratory and participate in UX testing of real information systems under the direction of their mentors. Students will also attend an assessment or UX-focused conference in Year Two, where they will be encouraged to present their research.

The University of Tennessee-led team is ideally positioned to lead an Experience Assessment project. PI Carol Tenopir, Co-PI Rachel Fleming-May, and Senior Personnel Regina Mays and Martha Kyrillidou all participated in the LibValue National Leadership grant. Co-PI Dania Bilal is an expert in user experience testing. Carol Tenopir and mentor Mike Frame of USGS have been the co-leads of the DataONE Usability and Assessment Working Group for the past six years. The User Experience Lab in the College of Communication and Information has state-of-the-art hardware and software, including *Morae* and *Tobii x2 60*, which record interactions of the user with the system (clicks, visiting links, searching, browsing, selecting from retrieved results, etc.) as well as highly accurate gaze-position eye tracking. Other information intensive agencies in the region, such as ORNL, Information International Associates, and TOMBRAS are building their assessment and UX capabilities and have established a strong working relationship with UT-SIS faculty through past projects. These agencies will collaborate with the PIs to provide recruitment, training, mentorship, and ongoing research support.

Budget

The estimated funds requested from IMLS are \$811,500. An additional \$494,082 will be cost shared by UT. Funds requested from IMLS include: 1) Salaries-- \$145,720; 2) Fringe-- \$46,560; 3) Travel and registration fees -- \$15,400 for student support and dissemination at conferences; 4) Supplies-- \$500; 4) Student support (12 students) -- \$471,566; 6) Consultant -- \$10,000 fee/\$4,000 travel for face to face meetings.

The project cost (minus student costs) to IMLS is \$339,934 and UT's cost-share is \$494,082.