

Online Ready: Designing Culturally Competent and Impactful K-12 Online Learning

In this **Research in Service to Practice** proposal, Dr. Lucy Santos Green at the School of Information Science, University of South Carolina, in partnership with Kristin Fontichiaro, University of Michigan, and Dr. Melissa Johnston, University of West Georgia, request **\$487,688** from the Laura Bush 21st Century Librarian program for a three-year design-based exploratory study to examine, assess, and address school librarianship knowledge gaps in the design and delivery of targeted and culturally competent online learning. This study employs a mixed-methodology approach where a robust qualitative design is supported by in-depth quantitative data. The application of this design has intentionally been selected to more thoroughly capture and assess the institutional structures, pedagogical practices, and learner needs found in iterative design, development, and testing of professional development (PD) learning products for school librarians.¹ This research project supports IMLS's Goal 2, Objective 1, to **Build Capacity**, supporting "the recruitment, training, and development of library and museum staff, boards, and volunteers, helping to grow a skilled, professional workforce."² It will contribute to theoretical and practical knowledge on school librarian online pedagogical practices, using initial findings to design a fully online, asynchronous, **6 week, three-module professional development experience**. It will then test this intervention to determine its effectiveness in equipping school librarians to **design targeted online learning products and resources** that are tailored to learner needs^{3,4} and advance "positive and effective interactions with diverse cultures."⁵

Statement of Broad Need

This project is designed to investigate two critical needs in school library research: a) **a need to design, test, evaluate, and share rigorous and impactful online pedagogy techniques** with practitioners; and b) **a need to identify training models that help practitioners infuse online teaching techniques with cultural competence**, a set of skills and abilities to effectively research, understand, and connect with diverse learners. We define diversity broadly in this proposal to include race (e.g., BIPOC: Black, Indigenous, People of Color), ethnicity, gender identity (LGBTQIA+), socioeconomic strata, learning abilities, language of origin, and geographical density, where school librarians employ targeted strategies according to the unique composition of their schools and communities.

Challenge 1: Shifting from Crisis to Sustainable Online Instruction. Despite the school library profession's long-standing and prominent role in technology leadership and technology-enabled learning, as well as pre-pandemic growth in K-12 online education, the ability to design and facilitate fully online K-12 instruction is not an integral component of school library preparation programs.⁶ The nation's abrupt pivot to remote schooling due to COVID-19 highlighted this knowledge gap: school librarians had little time, support, or energy to acquire or deploy effective practices for culturally competent and inclusive online instruction (e.g. differently abled learners; limited English proficiency), or digital environment development,⁷ despite having unique skills in technology tools and information literacy skills that help online learning flourish.⁸ Some have posited that 2020's online education is distinct from other online instruction initiatives, describing it as emergency remote teaching, in which teachers are improvisational "MacGyvers" making do.⁹ Thus, it is critical to distinguish "current crisis pedagogy from research-informed, high-quality online practices,"¹⁰ the goal of this proposal. While vaccines may ameliorate the negative impacts of COVID-19, variants and new pandemic flareups based on SARS-CoV-2 (the COVID-causing virus) are likely to persist for the next several years,

resulting in a rolling series of outbreaks or shutdowns.¹¹⁻¹³ Additionally, some parents and students have found that online school is preferable to their family’s lifestyle, learning preferences or abilities, safety, or health needs, leading to a demand for a hybrid or virtual option even after America’s schools reopen.^{14,13} In 2020, almost 20% of U.S. districts indicated that they would maintain some form of online school post-pandemic.¹⁴ More recently, some of the largest school systems in the US have announced intentions to provide virtual instruction options for the foreseeable future.¹⁵ The profession needs to move away from emergency remote teaching and toward a more sustainable, flourishing, and responsive vision for online K-12 librarianship.

Challenge 2: Culturally Responsive Pedagogy. Emergency remote teaching has reminded society that high-quality online instruction is more than content and access but also a need for the “humanization of the digital classroom.”¹⁶ Culturally responsive practice is not new,¹⁷⁻¹⁹ but it is understudied in online contexts. Scholars use words like anthropologist²⁰ or cultural broker¹⁷ to define this emerging role for educators who decipher the needs of their learners and plan appropriate interventions and strategies. Librarians, by nature, are connectors and thus well-suited to do this work, connecting school culture, student needs, and learning goals. There is emerging evidence that school librarians, with training, can improve their cultural competencies when protocols or coursework are deployed.²¹⁻²³ The work of “brokering” culturally responsive connections between home and school is particularly salient given the numerous indications that non-white students are not returning to face-to-face classrooms at the same rate as whites, attributed to a combination of the disproportionate impact of COVID-19 on Black families, increased distrust in government and growing worries about their children’s physical and emotional safety in school.¹³ For example, in Chicago Public Schools’ first two reopening waves in 2021, 67% of white students opted to return, as compared to 55% of multiracial students, 36% of students with special needs, 34% of Black students, 33% of Asian students, 32% of economically disadvantaged students, and 31% of Latino students.²⁴ Similar trends have been reported in Nashville, Washington DC, Dallas, and elsewhere.^{13,25-26} Complicating the issue are the racial and economic disparities between librarians and those they serve. School librarianship is 86.7% white²⁷, while only 60.1% of Americans identify as white (non-Latino or Hispanic).²⁸ School librarians are often socioeconomically distinct from those they serve: most have advanced degrees, compared to 13.1% of all Americans,²⁹ and their median income is above the national median.³⁰⁻³¹ Given that videoconference-based online schooling necessarily inserts school culture into the once-sacrosanct home,³² it is critical that online school librarians gain more understanding about their students’ diverse backgrounds. Thus, for school librarians to build thriving online library portals and services, they need not only more pedagogical fluency but more cultural competency in serving others.

Project Design

Project Goals and Alignment to IMLS Goals: The overarching project goal is to conduct research on the needs and abilities of K-12 school librarians to deliver culturally competent online instruction and to use those findings to prototype, test, refine, and evaluate the impact of professional development materials. Thus, the project aligns with IMLS’s **Build Capacity** goal, “the recruitment, training, and development of library and museum staff, boards, and volunteers, helping to grow a skilled, professional workforce.”² To achieve this goal, the project will 1) **Convene a series of national webinars/online focus groups** introducing current best practices on online pedagogy for diverse learners, while also gaining insight into practitioner understanding and deployment of culturally competent instructional

strategies in online spaces, as well as on professional development modalities preferred by practitioners; 2) Use those insights alongside known scholarly research and practitioner best practices to **design, pilot, evaluate, refine, and retest three two-week online PD course modules** and accompanying materials for K-12 school librarians on community needs assessment, high-impact online instructional strategies, and culturally-competent practice; 3) **engage in continuous evaluation** throughout in order to assess the PD courses and materials, including post-course implementation of course content by participants in their schools, resulting in a publicly-available dataset to encourage continued future examination of school librarian online design and pedagogical practices; 4) Provide **Online Ready course modules as free, Creative Commons-licensed stand-alone training** for the broader profession on knowledge, skills, and dispositions for connecting community needs to digital learning environments. 5) **Disseminate lessons learned via scholarly and practitioner outlets**, including a standalone virtual conference.

Research Question and Theoretical Framework: While there is significant research exploring the school librarian's role in technology integration,³³ as well as K-12 online teacher preparation,³⁴ there is a paucity of research examining the link between school librarian preparation and online pedagogical training, beliefs, and practices as informed by community demographics and needs analysis. Building on recent IMLS funded efforts to improve school librarian professional practice, such as the [Supporting Librarians in Adding Data Literacy Skills to Information Literacy Instruction](#), [EQuIP](#), and [REALISD](#) projects, the proposed research study will examine, assess, and address the school librarianship knowledge gap on the design and delivery of targeted and culturally responsive online learning. Findings will inform the development and testing of a professional development (PD) on culturally competent online learning for K-12. **Research Questions:** 1) How do school librarians define and actualize their role in virtual learning? 2) What are the characteristics of school librarianship knowledge gap on culturally competent online pedagogy? 3) How does completion of professional development affect school librarian mastery of culturally competent online learning design?

Theoretical Framework. The research will employ a transformative learning theoretical framework, a sociocultural perspective of the learning process where "we call into question our taken-for-granted habits of mind ... to make them more inclusive, open, and reflective in order to guide our actions."³⁵ This type of learning challenges educators' value systems and world views, leading to new mental frameworks and substantive changes in practice, necessary for effective, culturally competent and inclusive instructional practices.³⁶ Transformative learning in the area of professional development is learning that challenges educators' value systems and world views, leading to a significant change in practice.³⁷ Transformative learning categorizes knowledge in two ways: *schemes*, explicit knowledge, skills, beliefs, and articulated values,³⁸ and *meaning perspectives*, "the structure of cultural and psychological assumptions within which our past experience assimilates and transforms new experience."³⁹ Transformative learning takes place when this process leads us to open up our frame of reference, discard a habit of mind, see alternatives, and thereby act differently in the world.⁴⁰ Adult learning is "shaped by the context of adult life and the society in which one lives."⁴¹ Transformative learning is an effective lens for examining the unique learning process of adult learning, particularly useful in capturing negotiation of large paradigmatic shifts.⁴²

Methodology. Both qualitative and quantitative data highlighting complex and interdisciplinary phenomena present in educational settings will be collected using mixed methods so that results further

inform each type of data set.⁴³ Data collection will occur in **three phases**: 1) examination of school librarian online pedagogical knowledge gap through national data collection; 2) participant data collected throughout delivery of PD; and 3) data collected during the school years immediately following PD as participants deploy their designs, apply what they learned, and submit reflections on the experience of implementation. Figure 1 displays the data collection phases of the study:

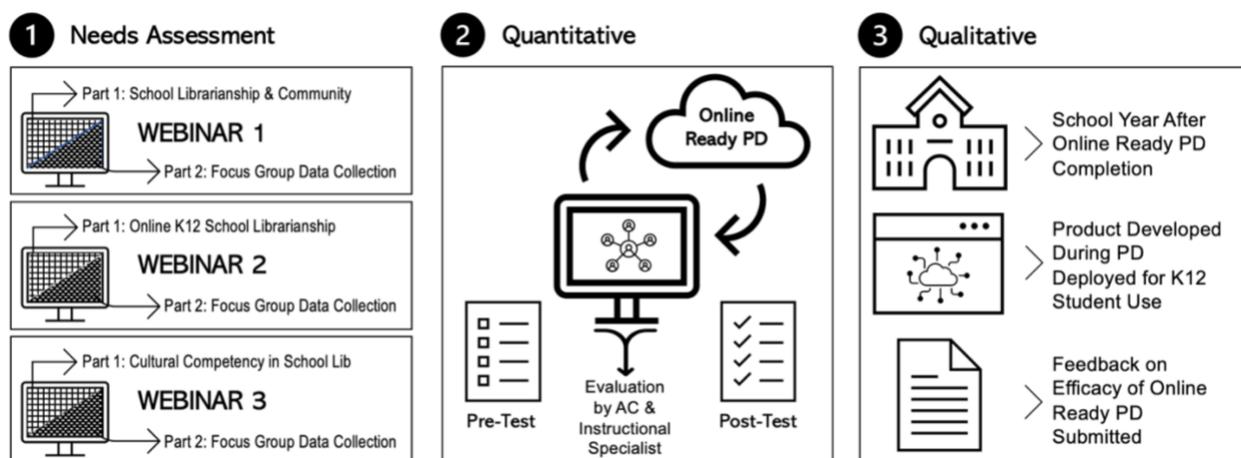


Figure 1. Data Collection Phases, Sequence of Events, and Data Types

Phase 1: National Needs Assessment. Needs assessment research will be conducted to examine the knowledge gap. A needs assessment is a systematic approach to studying the knowledge, ability, interest, or attitude of a defined group about a specific subject.⁴⁴ Researchers will collect national data on school librarian online competency via a series of webinars that will double as both informative presentations and virtual focus groups. Analysis in needs assessment research is about looking for trends and patterns. Thematic analysis provides a method for identifying, analyzing, and reporting patterns (themes) within data.⁴⁴⁻⁴⁵ All recorded data will be transcribed and uploaded to NVivo. Analysis will be performed to identify and synthesize recurring themes emerging from the data. This analysis will utilize an inductive approach, including content analysis and open-coding, to determine the significant themes from the data.⁴⁵

Phase 2: Quantitative Data. The proposed research will utilize a one-group pre/post-test quasi-experimental design to determine the influences of Online Ready PD on participant understanding.⁴⁶ The one-group pre/post-test design is utilized by researchers to determine the effect of an intervention.⁴⁷ Pre-test results will provide a starting point for the amount of pre-existing knowledge, skills, and abilities, while post-test results will measure the learning as a result of the implementation of the PD. Participants will complete a pre-test questionnaire (developed and tested by the researchers) online through Qualtrics prior to attending PD and then complete the post-test once PD has concluded. The quantitative data will be analyzed using SPSS with a paired sample t-test.

Phase 3: Qualitative data. Qualitative data collection methods will include participant reflections on the experience of design deployment and effectiveness of Online Ready. Qualitative data helps access the thoughts and feelings of participants and the meaning that people credit to their experiences.⁴⁸ Gathering context-dependent qualitative data will help clarify how PD experiences affected the participants' mastery of culturally competent online learning design. This research will utilize an inductive approach to determine the significant themes from the data.⁴⁵ All recorded data will be

transcribed and along with written documents will be uploaded to NVivo. Analysis will be performed to identify and synthesize recurring themes emerging from the data.

Recruitment & Participants: 30 school librarians (15 each year) will be recruited nationally through a competitive process designed to diversify the participant pool as well as the demographics of schools they represent. Cohort size was determined by research on best practices for project-based online instruction and for testing instructional design.⁴⁹⁻⁵⁰ Each participant will receive an honorarium of \$800 to further support a diverse participant roster, with \$450 disbursed at the end of Online Ready PD completion, and the remaining \$350 disbursed when participant feedback on product implementation is submitted. In addition, each participant will receive a transcript of PD hours completed and a PD certificate from the University of South Carolina. Recruitment efforts will also include professional organization contacts and listservs to reach a diverse mix of school librarian participants across the US. Additionally, recruitment efforts will involve direct contact with school systems, school library system coordinators, leveraging pre-existing contacts held by Co-PIs and Advisory Council members. Applications will be reviewed by the Advisory Council (AC) via a rubric that follows a list of participant criteria described in the work plan section of this document.

Potential Risk to Project Participants: Potential risks to participants will be minimal and largely mitigated by a rigorous IRB process following UofSC protocols. All potentially identifying information will be removed from public-access documents, as well as presentations and publications, and all individuals will be anonymized to ensure privacy and confidentiality.

Evaluation of Research Project Success. Each participant will complete pre- and post-tests during Online Ready PD to measure learning gains; as well as a reflection form that evaluates the PD experience and materials, and the experience of deploying their Online Ready designs during the school year post-PD. Advisory Council feedback will also be collected during each iteration of Online Ready PD. This continuous cycle of feedback and revision enables the project team to track progress, validate the process to stakeholders, and improve our design efforts over time. All data collected will inform any adjustments needed to Online Ready PD before it is made available to the public post-grant.

Proposed Work Plan: Over 3 years, the Co-PIs will use mixed-method data collection and analysis to develop a detailed picture of school librarians' culturally competent online pedagogy knowledge gap and use that data to iteratively develop the Online Ready PD package.

Year 1(2021- 2022): (Fall 2021): The research team develops, tests, and validates all data collection instruments; IRB approval is obtained through UofSC; Phase 1 of data collection begins with needs assessment conducted on the national state of school librarian online pedagogy and cultural competency via webinars/focus groups. Webinars/focus groups are publicized by the Project Manager and UofSC marketing and are hosted by Co-PIs and Advisory Council (AC) members. Webinars are used to raise grant project awareness, elicit information from attendees, and recruit study participants. Webinars begin with presentations serving as a "carrot" to incentivize attendance of larger groups that can then choose to participate in focus group questioning during the second half of each webinar. AC develops an applicant evaluation rubric that prioritizes diverse participant recruitment and selects 15 participants. (Spring 2022): Using data collected and analyzed in Fall, Co PIs and the Instructional Specialist design Online Ready PD: a series of three two-week courses, delivered through UofSC's learning management system, as shown in Table 1 below.

Timeline	Weeks 1-2	Weeks 3-4	Weeks 5-6
Title	<i>Community Needs Assessment</i>	<i>Design for Online Spaces</i>	<i>Culturally Competent Design</i>
Sample Content	<ul style="list-style-type: none"> Defining community in the school library context Identifying strengths, resources, capacity Prioritizing need identification over school library interests Equitable solution-seeking 	<ul style="list-style-type: none"> Accessible and consistent design Scaffolding tools, techniques, and resources Building trust through engagement Authentic assessments 	<ul style="list-style-type: none"> Facilitating critical reflection Inter-cultural communication Prioritizing student voice Individualized instruction Structure
Instructor	Fontichiaro	Green	Romero-Hall

Table 1. Online Ready PD Course Structure

Demographic participant data collected prior to PD launch. (Summer 2022): 1st iteration of Online Ready PD is delivered; data collected and analyzed on school librarian understanding of PD content pre- and post-training; evaluation of 1st iteration by participants and AC completed. Dissemination of preliminary findings begins.

Year 2 (2022-2023): (Fall 2022): The research team analyzes qualitative data collected during Summer 2022 in Year 1. Online Ready PD is revised based on Year 1 participant pre/post-tests and all feedback collected. (Spring 2023): UofSC learning management system (LMS) utilized as a feedback mechanism for cohort 1 participant reflections on application of their online products during the 2022-2023 school year. Recruitment efforts will use professional organization contacts and listservs to reach a diverse mix of school librarian participants across the US. The AC selects 15 new participants for Cohort 2 and demographic participant data is collected. (Summer 2023): 2nd iteration of Online Ready PD; pre- and post- data collected and analyzed on participants' understanding of PD content. Evaluation of 2nd iteration by participants and AC completed. Dissemination of preliminary findings continues.

Year 3 (2023-2024): (Fall 2023): Online Ready PD is revised based on Year 2 participant pre/post-tests, and feedback collected. UofSC LMS utilized as a feedback mechanism for participants evaluating their online products during the 2023-2024 school year. Online Ready PD finalized as a free, stand-alone, CC-licensed product for post-grant use and turned over to UofSC for lifetime hosting according to the two-tier model shown in Table 2.

	Tier 1	Tier 2
Access and Cost	Free	\$100 per course
Platform and Schedule	Course materials openly hosted at all times on the project website including reading lists, notes, media, and resources. Automated quizzes available with option to print a record of completion. No instructor oversight, no formative assessments, no summative assessments. Project workbook and guidelines will also be available.	Professional development courses designed by Dr. Lucy Santos Green, Kristin Fontichiaro, and Dr. Enilda Romero-Hall taught by instructors under SC faculty supervision. Participants engaged in hands-on experiential learning, conduct a community-needs analysis and develop a targeted online resource or program.
Evidence of Completion	Printable Record of Completion	Transcript and U of SC iSchool Professional Development Certificate

Table 2. Post-Grant Financial Tiers for Online Ready Professional Development

Website with all project materials finalized and published. (Spring 2024): Online Ready virtual conference led by project personnel, participants, and AC members to amplify awareness of grant products and findings. Research data uploaded to the Inter-University Consortium for Political and Social Science Research Data Repository through UofSC. (Summer 2024): Virtual conference presentation recordings archived and uploaded to grant website. Dissemination of findings continues.

Personnel for Planning, Implementing, and Managing: The personnel for Online Ready have the necessary experience in research methods, instructional design, culturally competent education, online pedagogy, school library training, school library research, school library practice, grant administration, large scale data collection and analysis, and academic writing related to the goals and outcomes for the proposed research study. The Co-PIs, Instructional Specialist, Project Manager, and Advisory Council will work closely and collaboratively throughout the lifetime of Online Ready so that all study components align and support each other appropriately. Percentages of effort for project personnel are detailed in the budget narrative:

[Lucy Santos Green, Ed. D.](#) (Co-PI): Professor of Information Science at the University of South Carolina, Green has over twenty years of experience as a classroom teacher, school librarian, school library educator, and internationally recognized researcher in mixed methodology with publications in technology-integration for K-12 settings, instructional design, online pedagogy in higher education and K-12, online learning communities, and culturally competent school librarianship. She is currently PI of IMLS-funded "[Educational Quality through Instructional Partnerships \(EQuIP\): Assessing the Efficacy of Collaboratively Implemented Guided Inquiry Design on K-12 Student Learning](#)." Green is past chair of the Educators of School Librarians Section for the American Association of School Librarians, and a research mentor for the National Science Foundation Sponsored Early Career Symposium, through the Association for Educational Communications & Technology. Green will be responsible for: project leadership, coordination of the research team, Online Ready PD design, delivery, and revision, data collection, project budget management, expenditure approvals, yearly grant reports, IRB completion, and disseminating research findings through publication and presentation venues.

[Kristin Fontichiaro](#) (Co-PI): Clinical Associate Professor at the University of Michigan School of Information, has extensive experience in school librarian education; information and data literacy; online professional development; programming for diverse communities; community needs analysis; large-scale asynchronous courses (MOOCs); and data communication. She was PI for IMLS-funded [Supporting Librarians in Adding Data Literacy Skills to Information Literacy Instruction](#) and [Making in Michigan Libraries](#). Fontichiaro will be responsible for: Year 1 webinar content development in collaboration with the Advisory Council, PD design, delivery, and revision of the community needs assessment module, and data collection.

[Melissa Johnston, Ph. D.](#) (Co-PI): Associate Professor of Education at the University of West Georgia, is an internationally renowned school library researcher with extensive publications on the application of research methods in library and information science, and over twenty years' experience as a school librarian and school library educator. A former research fellow for The Partnerships Advancing Library Media (PALM) Center at Florida State University, she currently serves as PI for the [REALISD Project](#), an IMLS funded grant, and formerly served on IMLS funded projects [Supporting Librarians in Adding Data Literacy Skills to Information Literacy Instruction](#) (grant evaluator) and [Media Smart Libraries](#) (curriculum designer). Johnston will be responsible for: design and testing of all data collection

instruments including needs assessment, focus group questionnaires, pre/post-tests, data analysis, and disseminating research findings through publication and presentation venues.

[Enilda Romero-Hall, Ph. D.](#) (Instructional Specialist): As an Associate Professor and Graduate Program Director of Instructional Technology at the University of Tampa, brings an Afro-Latinx perspective to the project. Romero-Hall, current president of the Research and Theory Division, Association for Educational Communications and Technology, is an internationally renowned expert on culturally competent online pedagogy, having extensively presented and published on instructional design, social justice in education, and the intersection of culture, technology, and education. Romero-Hall will be responsible for: Online Ready PD design and delivery, testing, evaluation, and re-design of Online Ready PD, and examination of all research study materials for cultural competency, and accessibility, and disseminating research findings through publication and presentation venues.

[Liz Hartnett, Ph. D.](#) (Project Manager): Program Coordinator for the South Carolina Center for Community Literacy, Hartnett develops and manages an array of continuing education opportunities, including a 9-month Certificate in Library Studies program for public library staff. In addition to her duties at SCCCL, Hartnett teaches in the MLIS program for UofSC, leveraging her extensive experience as a former school librarian. She will be responsible for: oversight of project logistics, coordination of participant recruitment and registration, web-based communications and marketing, oversight of advisory council logistics, and infrastructure and registration for grant-related focus groups, virtual conference events, and webinars.

The Advisory Council includes five professionals who bring a wealth of experience in school librarianship, teacher training, culturally competent education, social justice in education, and technology-enabled learning. Council members were purposefully selected as individuals who model leadership and professional excellence in school librarianship while also representing the broadest level of diversity in the United States K-12 student population. The Advisory Council will be responsible for: aiding in participant recruitment, evaluating and selecting a diverse group of participants, providing continued feedback on content, quality, applicability and cultural competency of Online Ready PD, and presenting on specific cultural competence and social justice in education issues related to their areas of expertise at the grant's webinars and culminating virtual conference. They are: 1. [Erika Long](#), chair of the AASL Presidential Initiative Taskforce on Diversity, Equity, and Inclusion, middle school librarian 2. [Becky Calzada](#), AASL Division 6 Chapter Director, co-moderator of #TXLCHAT, and Library Services Coordinator 3. [Carolyn Kirio](#), 2015 AASL Technology Pathfinder Awardee, and middle school librarian 4. [Rachel Altobelli](#), LILEAD fellow, Chair of NM State Library's LSTA Advisory Committee, and Director of Library Services and Instructional Materials; and 5. [Amanda Jones](#), 2020 Louisiana School Librarian of the Year, chair of the Louisiana Association of School Librarians, and middle school librarian.

Diversity Plan

Strategic recruitment is a key element to ensure a diverse participant pool, resulting in broad viability and applicability of the data collected and analyzed for the proposed research project, as well as the strength of the final data-informed Online Ready PD design. Successful participant recruitment will result in the selection of 30 school librarians from varying grade bands (elementary, middle, and high school) representing racially, ethnically, socioeconomically, and culturally diverse school sites. Advisory Council members, chosen for diverse professional representation, viewpoints, experiences,

geographical networks, and service populations, will oversee and approve participant applications to ensure broadly diverse participants and communities are represented. Table 3 breaks down the unique recruitment focus and representation of each Advisory Council member:

AC Member	Geographical Homebase	Representations/ Expertise
Erika Long	Nashville, Tennessee	Urban, Black, Low & Mid SES
Becky Calzada	Leander, Texas	Suburban, Hispanic, High SES
Carolyn Kirio	Kapolei, Hawaii	Urban & Suburban, Pacific Islander, ELL, Mid SES
Rachel Altobelli	Albuquerque, New Mexico	Urban, LGBTQIA+, Low-High SES
Amanda Jones	Denham Springs, Louisiana	Rural, White, Low & Mid SES

Table 3: Diversity in Advisory Council Representation and Perspective

Each participant will receive an honorarium of \$800 to further support a diverse participant roster. Recruitment efforts will also involve direct contact with school systems, school library system coordinators, and state-level AASL affiliates, leveraging pre-existing contacts held by Co-PIs and Advisory Council members. The application process will contain a commitment document, as well as a requirement for support letters from administration, to ensure that selected participants receiving financial support from Online Ready are educators who participate in all aspects of the research project and have the full cooperation of their local administration for the lifetime of the study. Finally, throughout the Online Ready PD, participants will work closely with instructors to develop online learning products immediately applicable to local school curricular goals. This alignment between Online Ready efforts and study participants' curricular goals ensures the unique and diverse instructional needs of each learning community impacted by school librarian involvement in this research project are addressed.

Dissemination and Communication Plan: The proposed study will generate two research products. 1) **The Online Ready PD** offered post-grant both as a free option and as a low-cost certificate through UofSC. A virtual conference, hosted during Year 3, will include webinars on accessing and applying the Online Ready PD, as well as presentations by leading scholars and practitioners on culturally competent online design, pedagogy and technology-enabled learning in K12 settings. The Online Ready PD website, and recorded presentations from the virtual conference will be accessible through a permanent portal hosted by UofSC's College of Information and Communications (CIC) on a stable URL at sc.edu. The portal will be designed and maintained by the CIC webmaster using a custom management system. 2) **A publicly available dataset** that encourages continued examination of school librarian online design and pedagogical practices. Data made available will include focus group manuscripts (pending participant permission), aggregate participant test scores, and anonymized course transcriptions. The University of South Carolina is an institutional member of various external disciplinary and general data repositories. Because of its focus on social science research, ICPSR, the Inter-University Consortium for Political and Social Science Research has been deemed the best fit for this proposal. It will provide public-use study data: data citations; compliance and utilization reporting; professional metadata review and enhancement; long-term electronic storage of published files; continuous computing/cloud capabilities; immediate availability of published bit-level data; and dissemination of restricted-use data via ICPSR's Virtual Data Enclave. To maximize access, all

datasets will also be made available through University of Michigan's [Deep Blue Data](#) service, a free public resource hosting UofM affiliated datasets.

Throughout the lifetime of the proposed research project, study progress, preliminary results, and final research conclusions will be shared through national efforts such as [LILEAD](#), submission to peer-reviewed journals such as *School Library Research* and *The Journal of the Association for Information Science and Technology*; submission to practitioner friendly publications such as *School Library Connection*, *Knowledge Quest*, and *Teacher Librarian*; as well as presentations and pre-conferences (pending post-pandemic university travel regulations and funding availability) at annual and biannual conferences such as the South Carolina Association of School Librarians (SCASL), Georgia Library Media Association (GLMA), Michigan Association for Media Education (MEMA), American Association of School Librarians (AASL), and the Association for Library and Information Science Education (ALISE). Leveraging the large, interconnected professional network and national leadership standing of the core and advisory team, findings will also be shared via social media, additional state conferences, state organization newsletters, and library information schools.

Broad Impact

Online Ready will establish **foundational research** on culturally competent school librarianship in K-12 online settings. As a research into practice initiative, this project will have impact in both the scholarly and practitioner communities. **Research:** the project will develop, test, and publish/present on impactful strategies for preparing and delivering professional development (PD) for K-12 school librarians as well as report on the degree to which PD translates into implementation and practice. Archiving the project data sets with ISPCR and Deep Blue Data will facilitate access for future secondary data analysis research. Growth in this area of school library research is sorely needed, and the results of this study will further incentivize this effort. School library educators will benefit from research that informs the types of online pedagogical and cultural competency practices that should be part of preservice school library candidate preparation. Sharing the results of data collected and analyzed in peer-reviewed journals, practitioner publications, conference presentations, and social media, emphasizing communication to stakeholders outside of the library profession will help to make a compelling case for administrative and financial support of school librarianship in K-12 online settings, prioritizing the school librarian's role as a culturally competent instructional designer and connector. **Practice:** The testing of our courses will equip the 30 participants with in-depth experiences in acquisition and deployment of new knowledge. However, they are not the sole practitioners that will benefit. The Year 1 webinars, designed both as initial data collection instruments and as informational sessions about effectively serving various diverse groups, will be open to a national audience (estimated attendance: 50 at each of 5 sessions), as will the Year 3 culminating virtual conference. Based on attendance at previous IMLS-funded virtual conferences hosted by the Co-PI team, registration would range from 100 to 650 attendees. Permanently archiving virtual conference sessions for public access through UofSC's stable network will further expand the reach and impact of the information shared. Finally, via our outreach to individual districts, particularly [LILEAD fellows](#) who are district coordinators, our PD materials will likely be adopted for local PD events at the district level. Ultimately, Online Ready will contribute to the body of research and practice on **embedded librarianship**, further defining the **instructional role of the school librarian**, and the profession's **impact on student learning outcomes in virtual learning settings**.⁵¹



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.

The main project products can be divided into three categories: 1) **Instructional materials**, including the design planning guide, instructional modules and materials, and website; 2) **qualitative and quantitative** datasets; and 3) project publications and presentations.

Instructional materials will be open access and hosted on the project website. The website will be hosted and maintained by USC's College of Information and Communications (CIC) – the larger college that houses the School of Information Science. Instructional materials will be published under a Creative Commons Attribution-NonCommercial-NoDerivs 4.0 (CC BY-NC-ND) license so as to maximize availability and maintain the integrity of the work. These products will include attribution to the Project Team, all relevant stakeholders, and IMLS for supporting the project. Should participant-made materials be included in project outcomes, appropriate permissions and licensing will be sought by the Project Director, who will provide a clear overview of the license details including attribution and how the project products can be re-used. Curriculum materials will also be added to the U of SC's Scholar Commons repository. Any previously made materials brought by the project team for use in this project will retain the copyright of the original creator but will be licensed at no charge for use by the University of South Carolina to achieve project goals.

The dataset of qualitative and quantitative data will be submitted to two data repositories for future re-use by other scholars. The Project Director will seek consent for all data; in cases where consent is not given, the Project Director will note the data is not available. Neither repository has costs associated; however, one provides the advantage of open-access, and the other provides the opportunity for deeper integration and discoverability with other social science datasets, which promotes re-use. To meet IMLS's requirement for open access, we will deposit the data sets with appropriate anonymization and de identification into Deep Blue Data, the University of Michigan's open-access data repository. However, we believe there is value in integrating this education and librarianship data into broader datasets in hopes of attracting re-use by interdisciplinary researchers. This broader reach is possible via inclusion in ICPSR (formerly Inter-University for Political and Social Science Data) in its members-only datasets

category. The U of SC and the University of Michigan are among the nearly 800 institutions with membership privileges. Existing institutional membership fees cover the cost to have the data cleaned, curation practices applied to make the data discoverable, and metadata standardized. and usage tracked. Additionally, Qualitative data will be housed in the U of SC's Scholar Commons repository and will be available pending access protocols for protection of participant confidentiality from U of SC's IRB office.

Project publications and presentations will be published in open access venues when possible, with a copy of each placed in the U of SC's Scholar Commons repository. When open access is not possible, the Project Team will pursue agreements to publish pre-print versions.

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.

Each participating university holds intellectual property in materials created by its personnel. The University of Michigan's Standard Practice Guide auto-grants its faculty members intellectual property of their creations, so co-PI Fontichiaro holds copyright for materials brought into the project (see above). Therefore, incoming materials created by co-PI Fontichiaro are copyrighted in her name. Materials and website content created specifically for this project will be Creative Commons Attribution-NonCommercial-NoDerivs 4.0 (CC BY-NC-ND) unless otherwise stated above. Copyright of webinar content created by Advisory Board members will remain with the Advisory Board and either released with a Creative Commons license or licensed to the U of SC for use throughout and after the project. Data products that participants consent to being accessible, including primary data (exclusive of audio recordings) and other supporting materials, will follow access protocols set by U of SC's IRB office to protect participant confidentiality. Finally, publication and presentation ownership will vary based on agreements with various publishing venues. The Project Team and stakeholders will promote access to project resources via meetings, conferences, and other channels, such as social media.

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.

Participant data collection will be guided by the policies and approvals of the University of South Carolina's Institutional Review Board (IRB). Participants will be assured that their data will be used only if de-identified as well as informed about the limited scope and minimal risks associated with data collection. Given the small number of seats available to each cohort and the research nature of Online Ready, opt-in is required for participation in the cohorts. If participants consent to having their data made available, it will be de-identified, meaning that the content of their work and comments will be shared, pseudonyms will be used and all potentially identifying information will remain redacted. In addition, the Project Director will limit access to data products following University of South Carolina IRB access protocols and require a confidentiality agreement from re-users. The PD will share more widely aggregate data and project materials that contain no sensitive information. ICPSR will serve as a post-product check

on the de-identification of the data. Other products (guide, exemplars, PD materials, project website, publications and presentations) will contain no sensitive information, though authorship of discrete pieces of content will be credited as appropriate.

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.

Due to the nature of this research project, we cannot predict in advance all materials that will be created. However, we anticipate creation of the following:

- **2 webinars hosted by Advisory Council** (likely to include live transcript; chat transcript; slide decks; video and audio archival recordings)
- **3 instructional modules** (likely to include slide decks; live transcript; chat transcript; video and audio archival recordings; Google Drive or other digital documents; population of U of SC's Blackboard learning management system; PDF handouts)
- **Project Guide** (repurposed from materials above)
- **Web site** (populated with materials above)
- **Dataset** (proprietary file types from qualitative and quantitative analysis software, spreadsheets, supporting documentation)
- **Presentations** (slide decks and digital artifacts described above) and **publications** (papers and appendices)

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.

- Software already provided to project team by home institutions or freely available online (Zoom, Microsoft Teams, Google Drive, Microsoft Office, VidGrid, Adobe Acrobat, Canva, slide deck templates).
- The project website will be hosted by the University of South Carolina's College of Information and Communications on the University domain (sc.edu). University of South Carolina webpages are created using a custom CMS.

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.

- Sample file formats include HTML, PDF, PNG, MP3 etc. Every effort will be made to convert proprietary file formats (DOC, DOCX) into accessible ones (Google Drive, HTML, PDF).

Workflow and Asset Maintenance/Preservation

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

The Project Director will manage all project deliverables and the Project Team will review products before publication. The Project Team will also review products as they are synthesized. The Project Director and Project Team will work in tandem to ensure quality of data transcription and anonymization of collected data; as well as quality of work products produced.

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).

University of South Carolina's College of Information and Communications will permanently host the project website on a stable sc.edu URL. The planning guide, exemplars, publications, and presentations will be permanently hosted in U of SC's Scholar Commons repository. U of SC's Scholar Commons, Michigan's Deep Blue Data, and ICPSR's members-only dataset repository will support metadata for both data and project products after the award period.

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).

The team will work with the U of SC Scholar Commons, Deep Blue Data, and ICPSR will assign metadata to data products. The metadata is flexible and customizable based on dissemination needs. All of the metadata fields, whether or not they are patron-facing, are targeted to promote search discoverability. The Project Team will consult with the U of SC librarians who maintain appropriate metadata standards and content based on the goals for dissemination, which will be established throughout the duration of the project.

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

This will be the responsibility of the institutional repositories discussed above.

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).

UofSC Scholar Commons works with all of the highly used regular and academic search engines to push repository content to the top of result lists. Scholar Commons is also part of Digital Commons, the institutional repository provider of over 500 institutions, and allows for easy cross-searching from within the platform. PlumX metrics are automatically added to most items.

The Commons also will be promoted by the Project Team during dissemination of work products, including at conferences, meetings, and via other communication channels. To facilitate attribution, ICPSR and UofM Deep Blue Dat will create a DOI for all project products; tag variable-level information in DDI format for inclusion, allowing users to identify relevant articles of interest; periodically search for publications based on project deliverables, providing a two-way link between these and publications.

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).

Access will be available via the project website, accessible using standard web browsers, as well as deposited in UofSC's Scholar Commons repository, ICPSR, and University of Michigan's Deep Blue Data Service.

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.

Example of two project sites created by project web developer, Patty Hall:

<http://bit.ly/hiplgbtq>

<http://scloccivilrights.com/>

Example of project website hosted by University of South Carolina's College of Information and Communications:

https://www.sc.edu/study/colleges_schools/cic/research/sponsored_awards/hiplgbtq_communities/index.php

University of South Carolina's Scholar Commons: <https://scholarcommons.sc.edu/>

SECTION III: SOFTWARE – Not applicable

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.

Not applicable

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.

Not applicable

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.

Not applicable

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

Not applicable

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

Not applicable

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

Not applicable

B.5 Provide the name(s), URL(s), and/or code repository locations for examples of any previous software your organization has created.

Not applicable

Access and Use

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

Not applicable

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

Not applicable

Name of publicly accessible source code repository: Not applicable

URL: Not applicable

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.

Please note timeline and narrative for dates.

During Year 1 public webinars: data collected via online registration survey and collaborative notes made during session. Collected once at each of two webinars. Will be used to gauge needed foci and approaches to the instructional modules.

2 Summer Cohorts: Pre- and post-test assessments at start and conclusion of six-week module sequence to measure prior knowledge, qualitative data collection during school year following cohort experience via interviews, focus groups, surveys, or online diaries.

Year 3 Virtual conference: Data collected via online registration survey and individual session evaluations. Will be used to gauge quality of presentations, applicability to workplace, and readiness for implementation.

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?

Each proposing institution has a robust institutional review board that will evaluate all proposed research instruments prior to deployment. In some cases, registration surveys may be determined to be exempt from IRB monitoring and review.

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.

With regards to the Year 1 webinars and Year 3 virtual conference, we will collect names and contact information as part of the registration process but remove that identifiable information from the dataset prior to analysis. This will be done according to institutional IRB requirements. Cohort members will be known to the researchers, but data collection (both qualitative and quantitative) will be de-anonymized prior to analysis.

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

The three applicant institutions have existing faculty access to Qualtrics, NVIVO, SPSS, and other data collection and qualitative analysis tools as needed.

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?

As part of the institutional repository deposits described above, we will include codebooks and metadata consistent with the needs of the given repositories. Existing institutional repository services include management and curation of data for reuse.

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

As part of the institutional repository deposits described above, we will include codebooks and metadata consistent with the needs of the given repositories. Existing institutional repository services include management and curation of data for reuse.

A.7 Identify where you will deposit the data:

Name of repository: Deep Blue Data, University of Michigan; ICPSR; University of South Carolina Scholar Commons | URL: deepblue.lib.umich.edu/data; icpsr.umich.edu; <https://scholarcommons.sc.edu/>

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

The project team will evaluate the data management plan in consultation with the UofSC and UofM librarians on an annual basis. Implementation will be monitored by UofSC and UofM university library system standards for data management.