Institute for the Study of Knowledge Management in Education (ISKME)
Exploring OER Curation and the Role of School Librarians
IMLS-National Leadership Grants For Libraries Program (NLG)

Abstract

Founded in 2002, the Institute for Knowledge Management in Education (ISKME) is a nonprofit leader in advancing open educational resources (OER)—freely available and adaptable teaching and learning resources that remove cost and accessibility as obstacles to high-quality instructional materials, and that enable deeper, more personalized learning opportunities for all students. As educational needs evolve in the 21st century, K-12 librarians will assume increased responsibilities in curating these adaptable digital resources to maximize their availability and effectiveness for schools in urban and rural areas alike.

ISKME proposes a two-year National Leadership Grant Curating Collections Research project (May 2017-April 2019) to create a framework for facilitating K-12 librarians in curating and promoting OER to enhance teaching and learning. Through in-depth case studies with school librarian leaders in OER across a broad spectrum of school districts, the project will document OER digital curation practices and workflows, identify how librarians can lead in all aspects of OER use to align with school district goals and fulfill student needs, and create and disseminate practical recommendations that address IMLS priorities for advancing open digital resource collections for the benefit of students, educators, and communities. The project will recruit 50 school librarians as research participants, as well as 50 of their teacher peers and 20 of their district leaders, and utilize ISKME's full range of professional networks to ensure the validity and effectiveness of its findings, the resulting framework, and strategies.

ISKME will join with longstanding partner the Florida State University School of Information, a national Advisory Board of stakeholders and leading experts in library practice and continuing education, and Dissemination Partners from institutions including the American Association of School Librarians, the Michigan School Librarian Association, the Council of State School Library Consultants, and Granite State College. The Advisory Board will consult on the project's design, review its findings and outputs, help recruit librarians, and communicate project findings. Dissemination Partners will employ their organizations' outreach capacities to spread awareness of the project's findings, ideas, and impact. The project will leverage these and other alliances and networks to expand understanding about the practice and importance of digital curation and OER in school libraries, and to find ways of enabling OER curation in school libraries across the nation. By working directly with librarians and educators across five states, the project will document, test, and iterate on OER curation workflows to inform their future development.

The findings will be widely disseminated to the target audiences of school and district leaders, librarians, researchers, teachers, professional networks, and policymakers at the local, state, and federal levels to serve the diverse needs of communities across the nation. The project's results will be published online and in print, presented at conferences and webinars, and shared through the extensive networks of ISKME and its partners. OER use has the potential for far-reaching impact as it is designed to be easily adaptable to the individual learning needs of students. Ultimately, the project will help propel K-12 education forward by meeting the crucial need for invaluable instructional content that carries no or low cost.

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Exploring OER Curation and the Role of School Librarians

ISKME proposes a two-year National Leadership Grant Curating Collections Research project (May 2017-April 2019) to examine and facilitate the role of school librarians in the curation (i.e., selection, description, organization, and promotion) and use of open educational resources (OER). ISKME will leverage its established expertise in research and thought leadership in OER and digital librarianship, and its existing partnership with Florida State University (FSU) School of Library Media, home of the nation's #1 ranked school librarian preparation program (USNWR, 2015). The overarching goal is to explore school librarians' roles in digital curation in the K-12 environment, and specifically with OER, and to create a framework and set of practical recommendations that can address IMLS priorities for advancing effective use of digital resource collections to enhance teaching and learning. The project's findings and framework will be widely disseminated among school and district leaders, librarians, teachers, and policymakers to validate and to serve diverse local needs.

1. Statement of Need

K-12 librarians must be prepared to take on key leadership roles to address informational and instructional resource needs in schools and communities. School librarians play many roles, but a primary duty in today's 21st century learning environment is building, maintaining, and sharing a digital resource base for teaching and learning. As digital curators, K-12 librarians research, locate, and organize digital materials to support teaching and learning goals and foment student interest. They also ensure accessibility and effective use of those resources through local catalogs and classification strategies, as well as through collaborating, connecting, and sharing with teachers and learners around those resources (cf. Small, Shanahan, & Stasak, 2010; Subramaniam, Ahn, Fleischmann, & Druin, 2012; Deschaine & Sharma, 2015; Valenza, Boyer, & Curtis, 2014). As Valenza et al. (2014) found through their study of school librarians' digital curation practices, when librarians successfully model and guide digital curation, they save teachers instructional time, open up possibilities for new pedagogical approaches, and help to build more independent, engaged learners. Yet despite the value of their expertise, K-12 librarians are often left out of strategies, planning, or professional learning to meet their districts' content curation, use, and implementation needs (Mardis, ElBasri, Norton, & Newsum 2012; Heidorn, 2011).

Spurred by timely federal initiatives such as #GoOpen, many school districts are looking to infuse their curricula with OER to meet instructional requirements for the college-ready shifts and the deeper, personalized learning requirements embedded within their new learning standards. OER are unique in that adaptations are encouraged so that the resources can meet the contextual and individual learning needs of students. They also foster collaborative practices that allow teachers to critique and continuously add to and improve educational content for others (Petrides & Jimes, 2006; Frydenberg & Matkin, 2007; Huberman & Wilkinson, 2007; Petrides, Jimes, Karaglani, Middleton-Detzner, 2008; Casserly & Smith, 2008). As resources that reside in the public domain or have been released under a license that permits free use, reuse, modification, and sharing with others (DOE, 2015), OER can include complete online courses and modular digital textbooks, as well as more granular resources such as images, videos, and assessment items. Although OER provide more dynamic curricula and access to resources from a

much wider variety of sources than traditional textbooks or other materials could provide, many educators, while aware of the existence and potential benefits of OER, find it difficult to effectively identify and use OER to meet local classroom needs (Boston Consulting Group, 2013). According to a recent national survey of 1,100 math and ELA teachers in Common Core states, educators are, however, utilizing materials they find or create themselves to a much greater extent than the proprietary materials offered by prevalent publishing companies (RAND, 2016). In this regard, they are well-positioned to utilize OER.

Education leaders and policymakers at both the state and national level, including the U.S. Department of Education's Office of Educational Technology, have pointed to school librarians as key potential players in digital and OER curation, and in professional learning relating to OER implementation (see, for example, Valenza, 2016). Yet, while researchers have suggested facilitating factors for OER use, no comprehensive effort has been undertaken to assess district readiness to deploy school librarians to acquire, describe, manage, and provide (i.e., curate) OER, or to foster educators' readiness to use OER. Empirical research is needed to identify best practices, enablers, barriers, and policies for districts, educators, and school librarians toward broad, sustainable, effective OER curation, and to identify the impact and potential indicators of success relating to K-12 OER usage. The project's design will center on understanding the essential practices and competencies of school librarians as instructional experts and information specialists through OER curation, acknowledging the new ideas and institutional change they can bring to the school and the greater community. By working directly with school librarians, as well as with school leaders across five states, the project seeks to document, test, and iterate on OER curation workflows to inform their development and use in the broader, national K-12 context. By identifying a committed set of expert partners and supporters who are recognized authorities in the librarian landscape, the project will leverage established and sustainable alliances and networks toward broadening the understanding of the need for digital curation and OER in the school library.

The project builds on learnings from ISKME's current three-year IMLS NLG project, *School Librarians Advancing STEM Learning* (2014-2017), which is developing a model and articulating the competencies for elevating the school librarian role as an instructional leader through the curation and use of OER. Findings from this project to date have revealed a concrete set of professional learning impacts from the OER curation and implementation activities that school librarians facilitated through the project, including increased understanding on how librarians and teachers can effectively collaborate in creating curriculum materials, and the development of strategies for building student knowledge and skills called for in their state learning standards. The findings have also unveiled challenges to expanding the role of librarians in schools, including a lack of common planning time with teachers, and traditional perspectives about the role of school librarians that hinder partnerships with teachers in the design and implementation of learning resources. Given the growing demand for equitable access to high quality, no- and low-cost, flexible digital content, understanding the role of school librarians around OER curation, and how to best model and support their efforts, has never been more urgently needed.

2. Project Design

Project Objectives and Research Questions

The key objectives of this project are to: 1) document and describe existing workflows of digital OER curation — from identification to implementation — by K-12 librarian leaders across five states and across both urban and rural school districts; 2) identify ways in which future school librarians can take on leadership roles in collaborating, curating, implementing, and promoting OER that align with their districts' curation strategies and student learning goals; and 3) create and disseminate an OER Curation Framework and set of practical recommendations that address IMLS priorities for advancing effective curation and use of open digital resource collections to enhance teaching and learning.

The research questions guiding this study include:

- RQ1: What does OER curation look like for participating school librarians? What workflows and practices help us to understand how school librarians are using OER as part of their digital curation efforts?
- RQ2: What is the relationship between school librarians' OER curation practices and classroom teaching practices in their schools?
- RQ3: What core competencies and values for school librarianship are emerging related to OER curation?
- RQ4: How are participating school districts defining their digital curation approaches and practices? What district and school contextual factors support and promote the role of librarian as a digital curator, and as OER curator?

In answering the project's research questions, ISKME will conduct in-depth case studies with 30 school librarians across five states who are identified leaders in OER collection building to document, test, and iterate on a framework for OER curation and curation workflows that can be leveraged nationally in future contexts. The study will further solicit ongoing feedback on the emerging curation framework from the 30 case study librarians, as well as from 20 additional school librarians and 50 teacher peers, and a wider set of field experts and stakeholders, to iteratively refine and validate the framework. Interviews and site visits with 15-20 district leaders in each state will also be conducted as part of this study to assess the ways that district and school contextual factors support and promote the role of school librarians as digital curators, and to inform the relationship and interdependencies between local curation practices and district-level policies.

The following sections outline the project's primary components, from the establishment of research and outreach partners, to the methods that will be used, to the dissemination of project outputs. **See supporting document titled, *Map of Core Project Participants and Activities*, for a visual summary of the project components. See document titled, *Schedule of Completion*, for a completion timeline of core project activities.**

Project Components

Convene Project Partners

The project will leverage a partnership model providing multiple levels of participation and input. ISKME and FSU iSchool's Marcia Mardis will convene a project Advisory Board and a set of Dissemination Partners.

The Advisory Board will consist of partners who are national stakeholders and leading experts in the realm of school librarian practice and continuing education. The following have expressed commitment to be Advisory Board members: Joyce Valenza, Rutgers University; Barbara Schultz-Jones, University of North Texas; Mega Subramaniam, University of Maryland; Sue Kimmel, Old Dominion University (ODU); Erin English, Vista Unified School District, CA. The panel will confer on project design and have the following responsibilities: 1) review/advise on the project's research instruments and data analysis; 2) participate in bi-annual, web-based meetings to discuss project progress and iterate on deliverables; 3) support recruitment of school librarians in their regions; and 4) communicate with stakeholders across their professional networks to disseminate project findings, draw out feedback, and discuss ongoing impacts from the work. Advisory Board members will receive a stipend of $1,200 per year for their contributions.

The Dissemination Partners will leverage their organizations' outreach capacities to communicate with stakeholders in their networks toward the dissemination of project findings and more widespread awareness and impact—especially in state and local awareness building. Key dissemination partners will include: Sylvia Norton, American Association of School Librarians (AASL); Lisa Kelley, Michigan Association for Media in Education (MAME); Susan Ballard, Granite State College (GSU). Other dissemination partners will serve to endorse the project work and will offer ways to communicate to their professional networks through social media to further the sharing of the project's learnings, presentations, and publications nationally. These will include: Educators of School Librarians Section (ESLS) (Karla Collins and Audrey Church, Longwood University; Karen Gavigan, University of South Carolina) and the Council of State School Library Consultants (Cassandra Barnett, Arkansas Department of Education; Kathy Parker, North Carolina Department of Public Instruction); and Katrina Figgett, Florida Department of Education. Dissemination partners will offer their contributions to the project at no cost.

Recruit School Librarian Participants

During the early months of the project (June-August 2017), ISKME will work with Advisory Board members to identify and recruit 50 school librarian participants from Florida, Wisconsin, New Hampshire, Washington, and California (10 in each state). ISKME will seek to draw participants from #GoOpen districts. In Florida, for example, these include the Orange/Orlando area; Hillsborough/Tampa area; Broward/Ft. Lauderdale area. In California, Huntington Beach, Vista, Grossmont, and several others in the San Diego region will target districts. ISKME will also leverage its partnership with Washington State's #GoOpen initiative, and with GSU and 15 New Hampshire districts participating in ISKME's current IMLS-funded project. With input from the Advisory Board, ISKME will establish a set of selection criteria will to guide the recruitment process, ensuring that librarians with leadership roles in their schools and OER

experience are included. Selection criteria will also require representation from a range of school types (urban and rural), school levels (elementary, middle, and high), and, where feasible, a mix of curation expertise in different subject areas.

In September 2017, ISKME will administer a brief survey to all 50 recruited school librarians from which to select the 30 who will participate in in-depth case studies. Those chosen will best meet the project criteria in terms of willingness and availability to participate in the case studies, in having extensive OER experience and expertise, and who represent districts with policies supporting their curation roles. The survey will also aim to capture a snapshot of school librarians' background and professional experiences and interests such as past teaching experience, formal education, perceptions of main role responsibilities, extent of involvement to instructional design activities, professional learning trainings/activities, and familiarity with state learning standards.

All 50 school librarians will receive a stipend of either $750 or $250, based on full or partial participation. Full participants will take part in the survey, in-depth case studies, a webinar to provide feedback on the emerging curation framework, and the recruitment of one teacher colleague in their schools who is able to provide written feedback on the framework from their perspective (using a simple feedback form created by ISKME). Partial participants will join in all activities except the in-depth case studies. Both sets of participants will be included in outreach and dissemination efforts on project progress and study findings throughout the course of the project. Table 1 outlines a list of research activities by level of participation for the 50 school librarians.

Table 1. Research Activities by Level of Participation for School Librarians

Total N=50	**Full Participants (N=30)**	**Partial Participants (N=20)**
Survey	X	X
In-Depth Case Study	X	
Feedback Webinar	X	X
Teacher Recruitment	X	X

Conduct In-Depth Case Studies

The in-depth case studies will include face-to-face interviews and field observations of curation practices, followed by web-based focus groups with the 30 full-participant librarians, and interviews with 15-20 of their district leaders. The aim will be to collect data for the creation of the project's framework that outlines workflows and the ecosystem for successful OER curation by school librarians.

Field Observations and Interviews with School Librarians

In January-March 2018, ISKME will conduct field observations of curation practices and post-observation interviews with each of the 30 selected school librarians. Leveraging the "Rapid Contextual Design" approach to understanding user workflows and behaviors in online

environments (Holtzblatt & Beyer, 2016), the aim of each two-hour session will be to identify the *in-situ* practices school librarians engage in to find, use, adapt, and share OER; the main challenges and successes they experience during the OER curation process; and the quality criteria they use in their selection of OER. Each one-on-one session between the ISKME researcher and the school librarian will last two hours, and will be initiated by a concrete prompt from the researcher, such as: "What is the most recent curation project you have worked on using OER? Can you walk me through that project, or show me where you left off, and speak aloud while you work?" The observational component will be directly followed by a post-observation interview to flesh out the researcher's observations. The post-observation interviews will also explore school librarians' perceptions of existing supports by teachers, students, and administrators of their role as curators and perceptions of barriers hindering that role. Finally, the post-observation interviews will investigate needed supports and potential gaps related to OER and open education practice—including the extent to which school librarians are or are not instilling curation practices that align with the project's departing definition of OER curation and open education practice, which includes not only the selection and categorization of resources, but also sharing and collaborating with teachers around the curation and implementation of those resources.

District Leader Interviews

Timed alongside the school librarian interviews (January-March 2018), ISKME will conduct in-depth interviews with 15-20 district leaders with knowledge of their district-level policies and supports around digital curation, and OER curation in particular. The precise role of the district-level individuals and number interviewed will be selected with support from the project's Advisory Board and through recommendations from ISKME's existing partnerships, including those with #GoOpen experts and districts, as well as through information obtained by the project's screening surveys. The aim of the district leader interviews will be to identify perceptions of the importance of OER curation for teaching and learning, definitions of curation practices, and specific criteria and review processes that are in place to ensure high-quality of OER curation. The interviews will also seek to identify policies, procedures, and programs that support and promote the role of the school librarian as curator, barriers or constraining factors that prevent or hinder that role, and district vision/plans/goals for expanding available curriculum resources through OER curation. The district leaders will be identified from the participating school librarian districts.

Web-based Focus Groups

In September-November 2017 (after analyzing the field observation/interview data), ISKME will facilitate web-based focus groups comprised of six to eight school librarians each, aiming to include all 30 full-project participants. Each focus group will follow an identical protocol and will be led by the same ISKME facilitator/researcher. The focus groups will clarify, expand, challenge, and build upon earlier findings and themes that emerged from the field observations and interviews. The criteria for forming the focus groups will be determined based on the analysis of the field observation/interview data. Depending on the emergent findings, focus groups may be state-based, theme-based, or subject- or grade level-specific to obtain the most fruitful data that will expand the emergent findings.

Create Version 1 of the OER Curation Framework

Based on the analysis of the in-depth case study data, ISKME, with input from the Advisory Board, will draft the project's early OER curation framework in October-November 2018. In alignment with the project's research questions and the goals of Contextual Design Research, the framework's initial components will focus on identifying and mapping: 1) the school librarians' concrete curation activities and the sequence of those activities; 2) the artifacts and technology used in completing those activities; 3) the interactions they engage in with other individuals along the way (the relational components of their curation work); and 4) the school- and district-level policies and supports that intersect with or enable their curation activities.

Based on the emergent data falling into the above categories of findings, the initial framework may take several forms but will likely include one or more *annotated workflows,* with inputs, outputs, and process steps that present an understanding of typical OER curation processes. The workflow will also depict the a) artifacts/technology, b) people, and c) policy supports that facilitate the workflow process, as well as pain points or blockers. A simple model of relationships, or a relationship model, will likely also be included as part of the framework, if the data reveal multiple actors that support the curation workflows represented.

Refine the OER Curation Framework

Beginning in November 2018, ISKME will share the initial framework with key stakeholders to solicit feedback toward iterative refinement of the framework. The first feedback cycle will be conducted via interactive webinars with all 50 of the originally recruited school librarians. After the framework is revised based on this initial feedback, ISKME and partners will use extended peer review to affirm and validate the findings. For this feedback cycle, each of the 50 original school librarians will recruit one teacher colleague from each of their schools, whom they deem to have knowledge of OER and digital curation, and who can provide input on the framework from the classroom implementation perspective. The additional set of 50 recruited teachers will be asked to provide written feedback on the framework utilizing a simple Google Form created by ISKME. Each of the 50 recruited teachers will receive a $50 stipend for their participation in providing feedback on the framework. Leveraging the project's existing networks, ISKME will also utilize an adapted version of the form to solicit feedback from participating school districts, as well as other librarians and researchers in the field to identify the extent to which the findings and framework meet with general consensus of the wider practitioner community. This phase will improve the quality of the results and prepare researchers to further develop findings through subsequent exploratory research.

Disseminate Research Findings

Target Audiences

There are six key audiences for this research:

- School librarian professional network stakeholders and researchers
- State, local, and federal agencies and policymakers with school librarian and open practice priorities
- OER, open education, and open access network stakeholders and researchers
- Faculty at higher education institutions with librarian preparation programs
- School librarians and teachers at all levels and in all settings

- School leaders, including curriculum and library resources decision-makers

Dissemination Activities
The project will utilize a proactive dissemination strategy with the breadth to reach multiple audiences, and the depth to provide interactive engagement with key stakeholders to solicit input on the emerging project findings, and to influence changes in practice around OER curation. In Year 1 of the project, a concrete dissemination plan will be developed, which outlines and aligns channels, specific targeted audiences, and timing for each dissemination product, as well as the partners and collaborators responsible for each dissemination activity. Key categories of activities to be addressed include:

- *Ongoing Sharing with Research Participants*
  Dissemination of project progress, activities, and findings will occur via email lists throughout the course of the project, targeted toward the 50 recruited school librarian participants and the 50 recruited teacher peers. The email list and updates will serve as ongoing touchpoints to continuously inform research participants on upcoming activities, as well as provide links to emerging project outputs and summaries of findings.

- *Formal Publication of Project Findings and Outputs*
  At the end of Year 1 and continuing through Year 2, progress and findings will be published on the ISKME and FSU iSchool websites, both of which will feature a dedicated project page with links to project assets, including a project summary, the emerging OER curation framework, and a short blog and a lay version of the final report on findings. Further, ISKME will seek publication of the research findings in at least one high impact, peer-reviewed academic journal. Potential outlets include *School Library Research*, *Journal of Educators in Library and Information Studies (JELIS*), *Library & Information Science Research*, *Journal of Research on Technology in Education*, and *Educational Technology Research and Development*.

- *Outreach to Partner Networks Through Social Media*
  In Year 2 of the project, the findings will be shared extensively by leveraging existing networks of stakeholders, including ISKME's OER Commons online network of 80,000 registered members; FSU iSchool's broad contact base; #GoOpen and Future Ready state and district stakeholders, and associated networks of school librarians engaged in digital curation and OER implementation; the William and Flora Hewlett Foundation OER grantee community, which ISKME, as a grantee, co-convenes annually; project Advisory Board and Dissemination Partner networks, including AASL/ALA, the AASL eCOLLAB, CoSSLC, ESLS, state school librarian associations, and school librarian certification programs such as FSU, GSU, and ODU. Specific outreach vehicles include Joyce Valenza's blog, KQ Blog, *School Library Journal* blog and magazine, and *School Library Monthly* blog and magazine, in addition to the ISKME.org blog. ISKME will also identify an additional list of key organizations and higher education institutions as part of our dissemination plan, in order to capitalize on their networks. Social media will be utilized by Dissemination Partners to post links to project outputs in e-newsletters, email lists, and other social media campaigns. The project will also utilize ISKME and OER Commons and partners' Twitter campaigns under

such hashtags as #GoOpen, #OER, #oerlib, #edtech, and others popular with educators and librarians.

- *Presentations at Conferences and within Webinar Series*
  ISKME and partners will identify and target four to five high-profile national and regional conferences for presentations and opportunities to co-present/co-facilitate, including for example: the Joint Conference on Digital Libraries (JCDL) 2018; OpenEd Conference 2018; Association for Library and Information Science Education (ALISE) 2019; and at least one AACE Conference (Ed-Media, eLearn, or SITE). ISKME also intends to share end-of-project findings, both informally and formally, at conferences such as the ALA Annual Conference 2019, AASL Annual Conference 2019, and OpenEd Conference 2019 to continue disseminating project learnings. Finally, a virtual presentation will be offered through *ISKME's OER Commons Webinar Series* and other Open Education virtual convenings that occur in spring 2019. These webinars will be recorded and made available on YouTube and ISKME's OER Commons digital library of open teaching and learning content.

Project Personnel and Oversight

The project staff will comprise ISKME Founder and CEO Lisa Petrides, PhD, who will be Principal Investigator, overseeing research as well as financial and human resources; Co-Principal Investigator and Project Lead Cynthia Jimes, PhD, ISKME Director of Research & Learning; Amee Evans Godwin, ISKME Director, Innovation, who will manage project outreach activities; and ISKME Research Assistant Nick Lobaito, who will aid in the project's field observation data collection and analysis activities.

Project consultants will include Co-Principal Investigator Marcia A. Mardis, assistant dean for Interdisciplinary Research and Education and coordinator for Educational Informatics at Florida State University; and Pat A. Erwin-Ploog, assistant dean of Library Services at Granite State University. ISKME Research Associate Anastasia Karaglani will facilitate quantitative and qualitative data collection and analysis activities; and ISKME Research Consultant Cheryl Richardson will support the analysis and synthesis of research data.

The Advisory Board will feature Joyce Valenza, associate professor at the Rutgers University School of Communication and Information; Barbara Schultz-Jones, director of the School Library Program at the University of North Texas; Sue Kimmel, graduate program director of Library Science at Old Dominion University; Erin English, principal of Vista Visions Academy; and Mega Subramaniam, associate director of the Information Policy and Access Center (iPAC) at the University of Maryland.

Project Oversight

Leveraging Brinkerhoff's (2002) framework for assessing and improving outcomes on cross-team projects, the ISKME-FSU partnership will be tracked collaboratively. Based on the research framework and associated milestones and outputs, the project team will develop a clear partnership agreement and monitoring template. The spreadsheet will include milestones or

expected outputs, organization and person(s) responsible, contact information, expected date of delivery, actual date of delivery, and notes from each partner on how well expectations were met.

ISKME will use internal systems to manage change relating to scope, cost, and schedule, as well as mitigating variances to approved scope, cost, or schedule. The project approach is a continuous quality assurance model where these are assessed and optimized throughout rather than retrospectively. The ISKME and FSU principal investigators will provide the needed oversight to link the project resources and expertise directly to the ongoing monitoring and management process. This will ensure that problems and risks are identified early so that solutions can quickly found that are practical and do not adversely affect the overall research and partnership objectives.

3. National Impact

With growing calls for OER and open education practices, this timely project will produce a framework for OER curation and curation workflows nationally—for now and for the future. The project's outcomes will specifically address our performance goal of broadening access and expanding use of the nation's OER content and collections in the following ways:

- Increase understanding in the field around successful, replicable OER curation practices/models that librarian leaders utilize, as well as curation challenges
- Increase the capacity of districts to assess and integrate evidence-based practices into their OER strategic planning and supports offered to school librarians and educators
- Increase understanding on which steps might be taken to help educators in their efforts to find and utilize high-quality OER resources in their local classrooms
- Enable the identification of measures to assess the relationships among successful OER curation practices, school librarian instructional leadership, and the diverse needs for teachers and learners nationwide, which can inform policy and practice, including in continuing education and pre-service programs

The project's research findings and in-depth engagement with key stakeholders will contribute to the national conversation on digital resource curation and inform future guidance for OER use so that schools, libraries, other K-12 initiatives, and institutions of higher education can better gauge and realize their goals for OER implementation, digital curriculum adoption and improvement, and continued professional learning for and by school librarians. In propelling understanding and improvements for OER curation and use nationally, the project seeks to address issues of equity and access to high-quality digital teaching and learning content to users at scale.

4. References

See attached supporting document titled, *References*.

Schedule of Completion

Year One: May 2017 - April 2018

	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Project Kick Off and Planning												
Finalize Project Partner Agreements												
Identify/Recruit 50 SL Participants												
Design Y1 Research Instruments												
Administer/Analyze SL Survey												
Select 30 SLs for In-Depth Case Studies												
Identify/Recruit District Leaders												
Conduct District Leader Interviews												
Conduct Field Observations												
Y1 Data Analysis/Synthesis												
Disseminate Early Insights/Approach												

Note: SL=School Librarian

Schedule of Completion

Year Two: May 2018-April 2019

	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Y1 Data Analysis/ Synthesis, Cont.												
Write/Submit Interim Report												
Design Y2 Research Instruments												
Conduct/Analyze SL Focus Groups												
Create v1 OER Curation Framework												
Facilitate Feedback Webinars with 50 SLs												
Collect Feedback from Recruited Teachers & Field												
Revise Framework (Iterative)												
Disseminate Findings												
Write/Submit Final Report												

Note: SL=School Librarian

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DIGITAL PRODUCT FORM

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

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

PART I: Intellectual Property Rights and Permissions

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

The copyright on the project's research summaries (blogs and web-based articles) and recorded webinars that are shared during the project will be held by the Institute for the Study of Knowledge Management in Education (ISKME) and will be assigned an open license using Creative Commons. The copyright on research papers published within academic journals will be determined by the journal's permission policies; however, in order to expand access and reach, we will prioritize submission to at least one open access journal that stipulates Creative Commons licenses. The copyright for original content that may be created by participants or project/dissemination partners for dissemination or sharing with their own audiences during the project will be held by the authors. Authors will be encouraged to apply a Creative Commons Attribution (CC BY 4.0) license to their shared works from among the six (6) Creative Commons licenses available.

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.

All digital content (digital summaries of research findings and the OER curation framework) created by ISKME staff or contractors during the course of the project will be the property of ISKME and will carry a Creative Commons license. All content will be openly accessible in digital format and available online at OER Commons (oercommons.org) and on the ISKME (iskme.org) website. Contributions authored and published by participants are owned by the author and may be made publicly available by the authors on sites of their choosing and shared on ISKME's OER Commons digital library. Authors will be encouraged to apply a Creative Commons Attribution 4.0 (CC BY 4.0) license from the six Creative Commons licenses available to the works they publish. Terms of use on the OER Commons site state the rights and permissions of contributors who use the platform to build resources or add comments and metadata on the site.

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

We will create at least two recorded webinars to discuss project findings as part of our dissemination efforts for the project. During the webinars, we may record participants, and will seek their permission to use any images or video footage in which they are captured, for educational purposes and in the promotion of the project. Otherwise, we do not expect there will be materials created that involve privacy concerns, require obtaining permissions or rights, or that raise cultural sensitivities.

In collecting empirical data from participating school librarians (interview and observation data as part of the in-depth case studies), this research will adhere to standard human subjects protocols, including obtaining informed consent, ensuring that the research purpose is explained clearly and comprehensively, that research participation is voluntary, and that anonymity of all participants is maintained. The Institutional Review Board (IRB) of the Institute for the Study of Knowledge Management in Education has since 2006, in accordance with U.S. federal guidelines, been registered with the U.S. Office for Human Research and Protections for the fair and ethical treatment of all human subjects.

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

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

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

During the project, ISKME and FSU will both create dedicated HTML web pages on their sites, from which all shared content from the project will be organized and publicly available. A project description, links to blogs about project findings by ISKME and partners, and a PDF of the resulting annotated *OER Curation Framework* will reside on the ISKME website and be available for further distribution by interested project partners and the community.

The annotated *OER Curation Framework* will also be shared as a remixable resource in OER Commons. The resource will be displayed in HTML and any user will be able to copy or edit it using the OER Commons Open Author Tool. Open Author combines a WYSIWYG editor for content editing, and a custom UI for adding metadata and licensing information. Open Author Resources can also be downloaded as epub, SCORM, PDF, or exported to Google Docs by users.

Two webinar sessions to which the education community will be invited will be recorded and shared on YouTube for web viewing. For each webinar, Powerpoint presentations will be developed to guide the discussion.

Depending on the journal targeted, a PDF or HTML version of the project's peer-reviewed research article will also be created.

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

Content created for the project will be created by ISKME staff or contractors using ISKME's or personal equipment and software, which includes Microsoft Office, Google Docs, ISKME site blogger, the OER Commons content authoring tool, and OER Commons digital library. ISKME's web-based platforms are supported by full-time ISKME developers and system administrators.

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

We will not be converting existing physical or digital content to new formats in this project. Project resources created on the ISKME website and in OER Commons are created in HTML for web viewing, as well as available for viewing and download as PDF. Participants may embed openly licensed digital content (images, video, audio, presentations) in their resources and these will be available in the format in which they are uploaded and may be JPEG, TIFF, PNG, GIF, MP4, MP3, PPT formats.

B. Workflow and Asset Maintenance/Preservation

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

ISKME will review and monitor all digital media, communications and papers produced and distributed digitally to ensure they both reflect the goals and objectives of the project and are of the highest production quality. Additionally, content that participants create and upload into OER Commons will be required to be aligned to project goals, be described with OER Commons educational metadata, assigned a Creative Commons license, and use acceptable file formats. Quality control is further assured within OER Commons through work flow controls embedded within the

authoring platform (file formats, metadata authority, completion of entries).

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

Papers, digital communications, instructional resources and all related digital assets that reside in OER Commons or on the ISKME website are backed up daily and stored using Amazon Web Services. Database backups of OER Commons and its microsites are kept for two-week time periods. Since its public release in 2007, OER Commons has been providing open educational resources (OER) 24/7 without loss of data. Additionally, all resources are downloadable and available for users to save and use from their own local systems, servers and computers.

C. Metadata

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

OER Commons uses a modified Learning Object Metadata (LOM) metadata framework that includes technical, descriptive, administrative and life-cycle categories. The framework also includes extensive educational metadata elements (LRMI), as well as alignments to the national Common Core State Standards and the Next Generation Science Standards. Furthermore, metadata is generated for resources in OER Commons evaluated against the Achieve.org OER Quality Rubrics (achieve.org/oer-rubrics) and the Achieve.org EQuIP Rubrics (achieve.org/EQuIP), with the metadata of evaluated resources submitted to the Federal Learning Registry project.

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

All metadata created in OER Commons is saved to the cloud using Amazon Web Services. OER Commons has multiple back-up protocols and cloud servers and has provided ten (10) years of continuous service and data control.

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).

Metadata from OER Commons is contributed to the Learning Registry for access and use by other portal creators and educational entities. Additionally, interested partners may register with OER Commons to receive an API key that allows batch queries and retrieval of metadata on the open educational resources created in the project for integration into cataloging or content management systems.

D. Access and Use

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

All digital content, including the project framework and findings, blog communications, scholarly papers, and open educational resources that may be created in the project will be freely accessible, openly licensed, and reside either on ISKME site or in OER Commons, ISKME's web-based digital library repository of openly available educational content. OER Commons is available via all standard web browsers and mobile devices. To increase successful access to content for all users, the OER Commons user interface includes multiple Learner View Options for accessibility, including: adjusting text and display selections by increasing font, line spacing, color and contrast; including a Table of Contents for scanning content and use by screen readers; and, increasing the size and weight of links, buttons, drop-down menus, input fields and navigational tools. Papers will be submitted to other OER research hubs to be made further available online to the public.

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

Examples:
- School Librarians Advancing STEM Learning (http://www.oercommons.org/hubs/imls)
- Minnesota OER Commons (http://www.oercommons.org/hubs/minnesota)
- ISKME Blogs (http://www.iskme.org/all-blogs)

Part III. Projects Developing Software

A. General Information

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

N/A

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

B. Technical Information

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

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

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

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

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

C. Access and Use

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

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

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

Name of publicly accessible source code repository:
URL:

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Part IV: Projects Creating Datasets

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

N/A

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

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

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

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

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

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

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

Name of repository:
URL:

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