NARRATIVE

Project Title: SLIDE: The School Librarian Investigation – Decline or Evolution?

Project Overview

Antioch University Seattle (AUS) requests $372,405 for a three-year investigation of the continuing national decline in school librarian positions. It will explore how and why school decision-makers are choosing among staffing options to develop and deliver learning resources and instruct students and teachers about using them. (Learning resources include library and instructional technology.) With input from an Advisory Council of library, instructional technology, and education experts, Project Director Debra Kachel and Principal Investigator Keith Curry Lance will examine information from: 1) an in-depth assessment and analysis of National Center for Education Statistics (NCES) school librarian employment and related data since 2014-15; 2) confidential interviews with decision-makers in districts that have reported the greatest librarian gains and losses over the past five years; 3) a content analysis of job postings and descriptions for learning resources positions from interview sites; and 4) relevant state survey data providing needed context. Two nationally-recognized organizations, the International Society for Technology in Education (ISTE) and Future Ready Schools – an initiative of the Alliance for Excellent Education – will partner on the project (see Supporting Document - 1 Partnership Commitments). Contacts in 49 state school library associations or state agencies overseeing school library programs have pledged to assist in gathering contextual data, recruiting interviewees from targeted districts, and disseminating project findings (see Supporting Document 2 - State Intermediaries Letters of Commitment). The findings will be available on a project website including reports, infographics, and videos to share national, regional, and state school librarian staffing patterns and trends. Web-based tools will make NCES data more usable and understandable by enabling users to generate tables, charts, and maps of state or district-level data, specifying years, library and other staff types, and values or ranges of values on district characteristics, including enrollment, urban/suburban/rural setting, poverty (based on eligibility for free and reduced price meals), race/ethnicity, and per pupil spending (hereafter district characteristics). As a result of this "Research in Service to Practice" project, school leaders will be able to make data-informed decisions to improve equity of access to learning resources for all students. LIS educators will be equipped to better align academic programs to the changing K-12 landscape. Library and education associations will be able to offer professional development that school librarians need to meet evolving priorities of school leaders who employ them. And school librarians will have new information to inform their practice and align to school priorities.

Statement of Broad Need

According to NCES data, since the end of the Great Recession, school librarian full-time equivalents (FTEs) have steadily declined nationwide while other educator FTEs have increased, sometimes dramatically. Between fall 2009 and fall 2017, many types of school staff FTEs increased— 12%, school administrators; 11%, instructional aides; and 7%, guidance counselors. Most surprisingly, instructional coordinator FTEs increased by 29%. By contrast, during the same interval, librarian FTEs declined by 19% and library support staff FTEs by 37% (Lance, personal communication, March 16, 2020). Instructional coordinators are defined by NCES as "staff supervising instructional programs at the school district or subdistrict level, including supervisors of educational television staff; coordinators and supervisors of audiovisual services; curriculum coordinators and in-service training staff; Title I coordinators and home economics supervisors; and supervisory staff engaged in the development of computer-assisted instruction. School-based department chairpersons are excluded" (Glander 2016, p. B-8). Thus, it appears the fate of school librarians is more likely explained by the choices of school leaders than by funding. (Refer to Supporting Document 3 for References and Additional Sources.)

There is growing evidence that schools hardest hit by the loss of librarians are those located in poor communities with more racial diversity (Pribesh, Gavigan, & Dickinson, 2011; Traska, 2013; Long, 2016; Levin, 2019). Charter schools have escalated this situation as charters tend to be more racially and socioeconomically segregated than traditional public schools and have less regulation (Frankenberg & Siegel-Hawley, 2011; McNeel, 2019). Jessen (2018) found serious racial gaps in access to school libraries in predominantly low-income and black neighborhoods of Chicago and Los Angeles. Yet, black and Hispanic students and students with disabilities gained more academically in reading and writing than all students combined as evidenced in a Pennsylvania school library study (Lance & Schwarz, 2012). In a Washington state study (Coker, 2015), students in high-poverty schools were almost twice as likely to graduate when the school library was staffed with a certified school librarian. Other research suggests that school librarians and a well-resourced library can lessen the effects of low socio-economic status on reading (Krashen, Syying Lee, & McQuillan, 2010).

Despite three decades of school library impact studies in over 34 states (Gretes, 2013; Scholastic, 2016; Lance & Kachel, 2018), school administrators still are largely unfamiliar with the research (Wilson & MacNeil, 1998; Kachel, 2006). More than 90% of principals receive no formal training related to school librarians and 65% of their knowledge comes from interacting with school librarians on the job (ALA, 2016, p. 90). It is also clear that school leaders value technology to achieve their results-oriented goals (*Trends in Digital Learning*, 2015; *Education Technology Use,* 2019). In 2016, when school administrators were surveyed to identify how they would use federal ESSA funds, the top five responses referred to instructional technologies and digital resources (*Education Week spotlight*, 2017). In a California survey, principals reported that they perceived teacher willingness and professional development to be the strongest obstacles to technology integration and believed that teacher coaches would be a viable solution (Machado, & Chung, 2015). Despite AASL position statements and standards that articulate a technology leadership role for librarians (AASL, 2018), school leaders seldom recognize librarians as essential technology facilitators, and often perpetuate the stereotype of librarian as "keeper of books" (Johnston, 2012; Johnston, 2015).

With limited resources, school leaders must implement new or improved ways to support and coach teachers in the use of digital resources, emerging technologies, and other newly-adopted programs (Helms, 2015; Lewis, 2016; Kachel & Lance, 2018). To that end, new or blended staff positions are emerging, often with little regard for certification requirements (Kachel 2018). Sometimes new positions include the "library" word (e.g., Library Information Technology Teacher, Library Interventionist, Emerging Technology Librarian, Teacher-Librarian Technology Coach), but sometimes not (e.g., Educational Technology and Information Literacy Specialist, Innovation Specialist, Technology Integration Coach, Digital Learning Specialist). Other factors too have been found to influence whether schools support librarian positions, including upper-level administration changes (Kachel 2018); site-based management (Superville, 2019); charter schools, few of which hire librarians (Jessen, 2018); a lack of state requirements for librarians (Kachel, 2018, May 1); and librarians reassigned to classrooms due to teacher shortages or to cover multiple schools ("Erie," 2017; Franklin, 2018). Often, as librarians retire, school leaders choose to make staffing changes to address local needs, eliminating positions or changing responsibilities once filled by school librarians.

In many cases, the work of school librarians is not valued, understood, or aligned to district goals to produce measurable outcomes. As Jonathan Hunt, Coordinator of Library Media Services, San Diego County Office of Education, explained, "it's not just a lack of funding that hurts school libraries and literacy, but also how the people in power frame what is important and what is not. A choice is being made not to use it [funding] on school librarians" (Ahlfeld, 2019, p. 931).

However, as school librarian employment declines nationally, some schools are adding librarians or redefining their job responsibilities, suggesting some shifts in thinking about how to staff learning resources, even in high-poverty schools. For example, the Los Angeles school district recently committed to hiring 41 librarians to staff all secondary schools (Swaak, 2019); Olathe Public Schools,

Kansas, reinstated full-time librarians in its 36 elementary schools and library clerks in its 10 middle schools (Franklin, 2018); the Eastpointe Community School District, Michigan (formerly East Detroit Public Schools) hired a K-12 librarian for its six schools after not having a librarian for at least 20 years (Levin, 2019). Little research has investigated why librarians have been added in such districts and if their responsibilities have been altered to meet changing priorities.

To date, no study has thoroughly examined the extent to which the traditional role of school librarians is evolving or being eliminated, or the thinking behind such developments. If jobs have changed beyond recognition as librarians, that may explain why some districts no longer report "librarians" to NCES. In-depth interviews of staffing decision-makers—whether they added librarians or eliminated them—are needed to understand new realities influencing different staffing choices.

Project Design
Theoretical Framework
This descriptive study will assess the status of school librarian employment and explore the decision-making processes that lead to increased or decreased librarian FTEs, and, in some cases, hiring of related positions unrecognized and unreported as librarians to NCES. The four processes of evolutionary organization theory (see https://tinyurl.com/evorth)—variation, selection, retention, and competition—will be utilized to explain how school librarianship is changing and evolving. Variation results from decision-makers seeking different skill sets they believe will better meet needs of their schools. Selection happens when school leaders choose from known or created alternatives. Retention occurs when decision-makers become committed to chosen alternatives that meet expectations and produce results. Competition enters the process when scarce resources motivate school leaders to favor one staffing model over another, based on their assessments of the cost-benefits of alternatives, especially the perceived impact of each model in addressing school priorities.

Research Questions
These research questions are aligned to the four processes of the evolutionary organization theory.
- How equitable is the distribution of school librarians by enrollment, district setting (urban, suburban, rural), race/ethnicity, poverty, and per pupil spending? (Variation)
- What job titles, skills, and responsibilities are valued and sought by school leaders who decide staffing patterns that provide students and teachers with access to and instruction about learning resources, including library and educational technologies? (Selection and Variation)
- What factors affect how school decision-makers choose to staff learning resources? (Selection and Retention)
- What advantages do decision-makers perceive in their chosen models for achieving district goals compared to other alternatives they considered? (Competition)

(More detail in Supporting Document 4 - Research Questions, Data Sources, and Deliverables)

Research Methods & Sampling
This three-year, mixed-methods study will employ both quantitative and qualitative approaches. Quantitative research will utilize school library employment and related district-level data from NCES's Common Core of Data (CCD). This is the only dataset that collects annual data at state and district levels, makes it publicly available in a reasonable timeframe, and reports positions in full-time equivalents (FTEs), which is a more precise and meaningful way to consider staffing. School staffing in FTEs for the latest ten years will be downloaded and manipulated at both state and district levels for the interactive website tools to examine the extent of school librarian losses geographically and in relation to various district and student characteristics. Additionally, to identify districts for potential interview sites, percent change will be calculated between the 2014-15 and 2018-19 school years on the ratio of librarian FTEs to operating schools in each district. As counts of librarian FTEs are not

available at building level, this is a necessary proxy. The most recent five-year interval is chosen in hopes that a school leader involved in making staffing changes will be available to be interviewed. Because CCD includes all states and districts, no sampling is necessary for the national, regional, and state analysis of school librarian employment trends. (See Supporting Document 5 - Data Selection and Sampling Methodologies for a more detailed explanation.)

In both quantitative and qualitative approaches, this study will employ purposeful sampling, a method consistent with the realities faced in attempting to conduct in-depth interviews with school leaders. Purposeful sampling is most appropriate when one needs to maximize the impact of limited resources to identify and examine information-rich cases (Palinkas, et al., 2015). For this study, it is especially important to identify and select school decision-makers who have substantial knowledge and experience about staffing changes to develop, deliver, and teach about learning resources used by students and teachers. It is even more vital that these decision-makers be willing to participate, openly reflect, and articulate the thought processes, experiences, and perceptions that influenced their choices. Partners, intermediaries, and the Advisory Council will be leveraged to assist in securing interviewees at identified sites. Four interviewers will be trained with assistance from ISTE, an organization that has experience in interviewing school leaders. As in the quantitative portion of the study, attention will be given to district differences. Where available, job descriptions and announcements will be gathered from interviewed districts for content analysis of job titles, responsibilities, and desired characteristics. State intermediaries will also be surveyed to collect contextual information, including library standards, staffing and certification requirements, and the number of universities that prepare school librarians.

Initial purposeful sampling will be based on an extreme-cases strategy (i.e., a district being in the most-gains or most-losses of librarians group). Districts with little or no change in librarian staffing—including those where there have been no librarians for years—will be excluded as being less likely to contribute to answering the research questions. To maximize representativeness – and, if needed, to meet the 100-interviews target – snowball sampling based on the same criteria will also be used. The Advisory Council, national partners, state intermediaries, and interviewers will inform this process. To the extent possible, district differences will be represented. Random sampling was rejected, because there are too many uncontrollable, self-selection biases involved to achieve randomness. Randomness is also unnecessary, because the project does not aim to characterize the total extent of variation in learning resources staffing models; but to identify variations among districts that have reported the most extreme changes in librarian FTE gains and losses since 2010.

Project Goals

The goals of this project are to:
1. Analyze and report patterns and trends since 2014-15 in national, regional, and state-level NCES data on school librarian employment, assessing data quality and differences associated with geography, enrollment, district setting, race/ethnicity, poverty, and per pupil spending.
2. Create interactive tools that enable interested parties to access user-defined data on employment status of librarians and associated variables in customized tables, charts, and maps. (See Supporting Document 6 – Uses of Interactive Data Tools)
3. Identify various staffing models for learning resources chosen by decision-makers—including school librarians and other positions—and factors that influence their thinking.
4. Interpret and widely share project findings as "Research in Service to Practice" to library and information science (LIS) educators, library and education associations and agencies, practicing and aspiring school librarians, and school leaders who make difficult K-12 staffing choices.

Assumptions
This project assumes the following:
1. USABLE DATA: NCES data on school library employment is the only annual data source for comparing FTEs at national, state, and district levels. However, NCES's definition of a librarian is dated, does not require certification, and may not be applied consistently in some cases. This project will provide unprecedented access to customizable NCES data.
2. SCHOOL DECISION MAKING: While funding constraints are often cited for librarian cuts, extant research indicates that many other factors contribute to such decisions (Kachel, 2018). This project will shed light on factors affecting the varying fates of school librarians.
3. JOB MORPHING: The concept of a librarian as a distinct and essential school employee is not always an accepted practice. In some districts, the librarian's job is being changed, eliminated, or blended with other positions, particularly in the area of technology integration. This blurring of responsibilities is resulting in different job titles and job descriptions and new staffing models. This project will begin to reveal potential options for the roles of school librarians.
4. NEED FOR INFORMATION: The lack of comprehensive data about school libraries and librarians for districts and buildings contributes dramatically to the current lack of understanding of the status of school librarianship. 49 states have already submitted signed Letters of Commitment to be state intermediaries in order to gain better access and more accurate information on the status of school librarians in their states (see Supporting Document 2 - State Intermediaries). This project will provide one-stop access to a wide array of enlightening data: NCES staffing statistics as well as project data on state context, interview summaries, and job descriptions/announcements.
5. INEQUITIES EXIST: There are substantial equity issues involved in access to school librarians across the nation (Sparks & Harwin, 2018). According to NCES data, 2,688 school districts or 24.5% of all responding districts reported zero school librarians for the latest five years, 2013-14 to 2017-18 (Lance, personal communication, March 16, 2020). This project will assess recent patterns and trends in school library employment, focusing on equity of access to school librarians.

Potential Risks
   Identifying school decision-makers in targeted districts and recruiting them for interviews will depend on the active engagement of project partners, state intermediaries, and others who know them and will encourage their participation. With such support at state and local levels, we believe the challenges we will face in recruiting interviewees will be minimized to acceptable levels.
   Communicating to potential interviewees that this is an unbiased research project will encourage their participation by reassuring them that the sole purpose is to gather information and create new knowledge about staffing alternatives (see Supporting Document 7 – Potential Interview Questions). Four highly qualified leaders in the library and education worlds will be employed by the project to conduct the interviews for consistency and reliability (see Resumes). They will be oriented and trained with scripts of uniform, vetted questions and statements that should, and should not, be used, to reduce the perception that the interviews challenge district decisions.

Project Staff (See Resumes)
   Debra Kachel, an online Affiliate Faculty, Antioch University Seattle, has written and directed five successful IMLS-funded projects. As Project Director, she will manage all activities via online meetings and other communications with project staff, the Advisory Council, partners, and intermediaries. She will be responsible for fiscal management, IMLS reports, and dissemination of products and deliverables as well as submission of journal articles and proposed conference presentations. Keith Curry Lance, prominent school library researcher, will formulate and manage all data analyses, write and edit research reports, and consult with Kachel and the Advisory Council regarding other products and dissemination activities. Kachel and Lance produced the Pennsylvania

school library impact study of 2012 (*PA School Library Project*), and have co-authored many articles foundational to this study. In addition to implementing substantial parts of the research design, RSL Research Group's Marcia J. Rodney and Bill Schwarz will sub-contract with Lance, the interviewers, and the web designer. See Budget Justification for detail. Four highly qualified individuals—Mark Ray, Rebecca Morris, Leslie K. Maniotes, and Bill Maniotes—will conduct interviews consistently and objectively. Formative and summative evaluations will be conducted by Mary K. Biagini, University of Pittsburgh, as project evaluator. Her responsibilities appear under Evaluation & Performance Measurement. Details about individual staff responsibilities appear in the Budget Justification.

The nine-member Advisory Council of library and education experts, representing different regions of the U.S., will provide advice and diverse perspectives as a "think tank," assisting in development of interview questions and leveraging their connections to secure interviews in targeted school districts. (See Supporting Document 8 – Advisory Council). Working with a web hosting service, the website designer will create, refine, and maintain the project website and its interactive data tools (see Supporting Document 9 – Scope of Work and Position Description for the Web Designer).

Project Partners
ISTE and Future Ready Schools (FRS) will bring national prestige and extensive experience working with school leaders and actively participate on the Advisory Council (see Supporting Document 1). In particular, ISTE will assist in designing the interview protocol and provide virtual training for the project interviewers. FRS will lend expertise in the research process and analysis. In addition, they will:
- publicize the project and disseminate its products via their own websites and social networks,
- review and provide feedback about products as they are developed,
- present project findings at their conferences and in their publications, and
- help to identify and encourage staffing decision-makers in target districts to be interviewed.

When potential interviewees are resistant or dubious about participating, these influential partners may play a critical role in securing interviews with those staffing decision-makers.

Activities & Needed Resources
Year One (2020-21) Activities:
1. Analyze NCES data on school librarians at national and state levels and by district characteristics. Produce and disseminate Report #1: Perspectives on Employment of School Librarians in the U.S., 2014-15 to 2018-19. Produce infographics #1 thru 7 (one general, one per district characteristic).
2. Survey intermediaries to collect state data on school librarians and libraries, staffing and certification requirements, and academic programs for school librarians. Produce and disseminate Report #2: Contexts of School Librarian Employment: State Staffing & Certification Requirements & Graduate Education Programs. Produce infographic #8.
3. Identify 250 districts that lost and 250 that gained the most librarians between 2014-15 and 2018-19, based on a district ratio of librarian FTEs to schools (a proxy for non-existent building data).
4. With support from Advisory Council, partners, and involved intermediaries, develop and implement a communications protocol to recruit a total of 100 districts—50 each from the most gains/losses groups. Select districts, as possible, to maximize geographic and demographic diversity. Intermediaries will be trained and supported in implementing the protocol.
5. Begin IRB process with Antioch University Seattle staff.
6. Hold Zoom meetings with Advisory Council and partners (at least every 6 months).
7. Design, launch, and sustain a project website and social media outlets to report progress, solicit input and feedback, and share relevant findings.
8. Develop and test interactive data tools providing NCES data from 2009-10 to the latest year available.
9. Produce video #1 summarizing Year One findings.

10. Attend ISTE and ALA conferences to meet with available partners and intermediaries
11. Submit for publication Year One progress and preliminary findings.
12. Assess progress with project evaluator, making adjustments as needed.

Year 1 Cost: $98,814 (IMLS: $96,152; AU: $2,662)

Year Two (2021-22) Activities:

1. Design, publicize, conduct, and archive a training webinar for state intermediaries and others on how to access and use the interactive data tools.
2. With Advisory Council, partner, and intermediary support, continue recruiting interviewees.
3. Create and test interview questions, documentation tools, and procedures with interviewers, Advisory Council, partners, and state intermediaries where interviews will be conducted.
4. Via Zoom, train and prepare project interviewers.
5. Complete IRB process with Antioch University.
6. Conduct and record interviews (via Zoom where permitted) of school district decision-makers.
7. Conduct content analysis of job descriptions/announcements provided by interviewees. After coding job titles, responsibilities, and qualifications, assess patterns and trends. Add selected sample job descriptions/announcements to the project website.
8. Attend AASL, National PTA and National Principals conferences to potentially present and meet with project partners.
9. Continue to develop and update data tools as new NCES and project data become available.
10. Continue: regular Advisory Council meetings via Zoom; production of live and archived webinars; maintenance of project website; publication of project findings via websites and social media; submission of articles to targeted journals and conference session proposals.

Year 2 Cost: $136,507 (IMLS: $131,959; AU: $4,548)

Year Three (2022-23) Activities:

1. Complete decision-maker interviews and analyze patterns and trends with input from interviewers, Advisory Council, and selected state intermediaries.
2. Generate recommendations based on findings and interpretation by Advisory Council.
3. Produce and disseminate Report #3: Voices of Decision-Makers about Employment of School Librarians and Other Learning Resources Staff. Produce infographics #9 & 10 (1 each about gaining and losing districts) and Video #2.
4. Produce live and archived webinars available via the project website for the public.
5. Submit manuscripts about project findings to major education and library journals.
6. Attend ACSD and ALA conferences to meet with partners and present findings.
7. Offer to report findings in webinars hosted by national and state library and education associations.
8. With Advisory Council support, seek corporate sponsor(s) to meet costs of sustaining the website.
9. Continue: regular Advisory Council meetings via Zoom; production of live and archived webinars; maintenance and updates to the project website.

Year 3 Cost: $149,069 (IMLS: $144,294; AU: $4,775)

Data Collection & IRB Approval

This study will involve four data collections: 1) a survey of state intermediaries; 2) NCES data on school librarians and others; 3) job descriptions and announcements from interviewees; and 4) in-depth interviews of decision-makers in selected districts that gained and lost the most librarian FTEs per school. Interviewees will be asked to describe the staffing configuration responsible for the change in its statistical status on librarian employment (most gains, most losses), the influences on their decision-making, and questions exploring the four principles of organizational evolution (variation, selection, retention, competition) as well as self-assess the impact of their decision.

Neither the existing NCES data nor the gathering of job descriptions/announcements requires IRB approval. Interview approval will be obtained from the Antioch IRB. Each interview will be scheduled for an hour, and will be conducted via telephone or Zoom by a trained interviewer. When subjects allow, interviews will be recorded to permit review and ensure accuracy. Interviewees, schools, and districts will not be identified in reports without permission.

Data Analysis

As this is a descriptive study to shed light on currently unknown realities, no cause-and-effect analysis will be done. Accordingly, this study is framed by research questions, not hypotheses (Palinkas, et al., 2015). At national, regional, and state levels, NCES data on school librarian FTEs will be cross-tabulated with district characteristics. Statistically significant differences in employment trends for school librarians will be identified. Patterns in different learning resources staffing models will be assessed via chi-square tests. The purpose of the tests is to assess equity and associations, not causality. Patterns associated with tabulated characteristics of position descriptions/announcements will be analyzed similarly in relation to characteristics of districts including diversity demographics. Meaningful insights will be drawn from interviews and job descriptions/ announcements via thematic content analysis to identify patterns and trends and by narrative analysis to compare and contrast emerging realities. A deductive approach to qualitative analysis will not be taken, because, though easier and quicker, it would be inconsistent with the goals of seeking in-depth information and a new understanding of the status and future prospects of school librarianship.

Project Audience & Their Involvement

The project audience includes school librarians, library, technology, and education leaders and organizations, academics, researchers, and district and school administrators charged with staffing decisions. All of these groups are represented among Advisory Council members, project partners, state intermediaries, and project staff. Project findings will be made available to these groups along with archived webinars on how to use the interactive tools on the project website.

Evaluation & Performance Measurement

Mary K. Biagini, Ph.D., will be the independent evaluator. She will observe webinars and conduct annual interviews of Advisory Council members, project partners, and state intermediaries to provide formative feedback to project leaders. She will submit a final evaluation including recommendations for further research with survey results from the Advisory Council, partners, and state intermediaries. They will be surveyed to respond on a strongly agree to strongly disagree scale to the following statements as required for IMLS's Building Capacity projects:

As a result of [my/our organization's] participation in this study, [I am/we are]:

- Better prepared to develop initiatives to address the future of school librarianship in the context of library, learning resources, and technology integration functions in public schools.
- Better able to engage with the larger public education community in addressing this issue.
- Better prepared to develop/maintain ongoing relationships with partners and intermediaries.
- Better prepared to contribute to problem solving around this issue.
- Offer programs, services, or resources that address this issue.
- [Am/is] an active contributor to problem solving around this issue.

Sharing Project Findings with Public, Profession & Practitioners

Live and archived webinars reporting on the study's progress and findings will be offered at least annually to the Advisory Council, national partners, and state intermediaries. Annual public webinars and the final project report will be disseminated via the project website, social media outlets, and on partner websites and social media outlets. Further, posts will be targeted to social media of library and education associations, including ALA, AASL, ALISE, American Association of School Administrators (AASA), Association for Supervision and Curriculum Development (ASCD), National Association of State Boards of Education (NASBE), National Parent Teacher Association (PTA), and related superintendent, principals, and school boards websites.

In disseminating findings, priority will be given to journals school leaders read over presentations at their conferences where library programs are sparsely attended. Examples: *Best Practices, Education Week, Educational Leadership, Phi Delta Kappan, Principal, School Administrator, NEA Today,* and PTA's *Our Children*. Manuscripts will also be submitted to major library publications such as *Knowledge Quest, School Library Journal, Teacher Librarian,* and *School Library Research;* conference sessions and webinars will be offered to ALA, AASL, ALISE (Association for Library and Information Science Education), Future Ready Schools, ISTE, and state library associations.

Dissemination, Replication & Adaptation of Project Deliverables

All instruments developed for this study—state intermediary communications, interviewee nomination form, IRB question answers, interview questions, content analysis coding systems—will be posted on the project website, where they will be available to other researchers. Code for the GIS feature on the project website will also be available for adaptation by others. Survey and interview data will be available, subject to privacy protections applied by Antioch University, the Advisory Council, IRBs, and the research participants themselves. A corporate sponsor will be sought to finance the maintenance of interactive data tools after the IMLS-funded years to update NCES data. The Project Director, an affiliate faculty of Antioch, will keep other parts of the website updated as needed beyond the IMLS grant period. Antioch will fund the web hosting fee beyond the grant period.

Diversity Plan

Several regional studies have found that school librarians are less available to poor, racially diverse, and at-risk learners (Pribesh, Gavigan, & Dickinson, 2011) and that high-poverty schools have inferior libraries (Neuman & Celano, 2001). A 2011 AASL task force study of large, diverse urban schools (over 40,000 students) found that 63% of the 733 districts surveyed did not have full-time professional librarians and 35% indicated a decline in staffing in the past three years. Jessen (2018) revealed serious racial gaps in access to school libraries in a study of Chicago and Los Angeles. Research also consistently supports the benefits of school librarians and libraries for at-risk and underrepresented students (Coker, 2015, Gretes, 2013; Kachel, 2013; Scholastic, 2016). Using 4th-grade NAEP reading data, Lance and Hofschire (2011) found that in states that gained librarians between 2004-05 and 2008-09, average reading scores for poor students, Black students, and Latino students improved more than in states that lost librarians. In states that lost librarians, English language learners' scores dropped. According to Pribesh, Gavigan, & Dickinson (2011), "providing equitable and adequate school library services and instruction has become an issue of social justice."

This project will build on previous research about such inequities across the US. It will be the first comprehensive investigation of national, state, and district differences in student and teacher access to librarians, examining school enrollment, district setting (urban, suburban, rural), poverty (free and reduced meals eligibility), race/ethnicity, and per pupil spending. A variety of information will be available via reports, infographics, videos and data tools that will access and display customized data.

Broad Impact

The 2011-12 school year was the last for which NCES or AASL published data about school libraries and librarians (Bitterman, Gray, & Goldring, 2013; AASL, n.d.). Few state library associations or state education agencies have the capacity to collect data and assess learning resources equity. That 49 states have committed to participate in this project demonstrates that school library leaders lack, yet want, data about librarian employment and insights about emerging realities of K-12 education that may be heightening, obscuring, or undermining their work and the practice of school librarianship.

While this project will make NCES data more usable and understandable, that data is only one piece of interpreting how the dramatic changes well underway for school librarians are just part of the radical restructuring of public education. Only by talking to decision makers where significant staffing changes have occurred will we learn the kinds of circumstances in which librarians are meeting school leaders' expectations and the consequences where they did not. There is ample evidence that school librarian positions seem to be disappearing; but no known studies have examined whether those jobs are truly disappearing or they are so changed that they are no longer recognized as "librarians."

This project will inform a wide range of interested parties: library and education leaders and their organizations, academics and practicing and prospective school librarians (see Supporting Document 10 – Potential Outcomes for Stakeholders). They will gain a deeper understanding of how schools are making difficult decisions, and possibly creating new staffing models, to develop, deliver, and teach about learning resources to K-12 students and teachers. Project findings and more user-friendly access to locally customizable data will equip education leaders to make better and more equitable staffing decisions. With influential support from ISTE and Future Ready Schools, this project's deliverables will be disseminated widely to those reshaping the K-12 environment. State library associations and education agencies will be provided with usable evidence about the status of school librarians in their states. Library educators will be able to enhance education and professional development for school librarians, recognizing how external forces are shaping school librarianship. These enhancements will empower future generations of school librarians to better meet the expectations of school leaders who determine staffing patterns and job responsibilities. Current school librarians and those in training will be better able to tailor their practice to the vision and expectations of those who hire them.

At the apparent rate of decline, within a few decades, the profession of school librarianship as we know it could disappear or evolve into something else—or, indeed, many something-elses. This mixed-methods investigation—drawing on comprehensive national data and seeking, for the first time, to gather first-person accounts of how and why the profession and public education itself are being changed—will be a long-overdue study of changes already well underway.

Goal / Objective	Sep 2020	Oct 2020	Nov 2020	Dec 2020	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	Jun 2021	Jul 2021	Aug 2021
Analyze and provide access to data on employment trends for school librarians in U.S. public schools, 2009-10 to the latest available school year. (Note disparities by district characteristics including diversity demographics.)												
Analyze NCES data on school librarians at national and state levels and cross-tabulated by district data on enrollment, urban/suburban/rural setting, race/ethnicity, free-and-reduced-meals eligibility (i.e., poverty), and per pupil expenditures.	▓	▓										
Identify at least 250 districts that lost and at least 250 who gained the most librarian FTEs per school and select purposive samples of at least 50 from each extreme group, including a mix of diverse districts.				▓								
Begin developing project website including data tools that make user-defined NCES school library staffing data and other state/district data accessible and displayable in dynamically generated tables, charts, and maps. (User chooses years and state/district geography, and selects or specifies conditions to be met on other state/district variables.)								▓	▓	▓	▓	▓
Develop and conduct a survey for state intermediaries to gather contextual data including, standards for school library programs, certification requirements, staffing mandates, state funding to school libraries, and universities that prepare school librarians in each state.												
Design, test, and publicize in advance survey of state intermediaries.	▓	▓	▓									
Conduct state intermediary survey, monitor response rate, and process data.					▓							
Determine prevailing models for library, learning resources, and technology integration positions in U.S. public schools (Note disparities by district characteristics and student diversity.)												
questions.		▓										
With Advisory Council, partner, and intermediary support, identify and recruit as interviewees decision-makers for learning resources positions in 100 targeted districts (50 at each extreme).						▓	▓					
Train interviewers, and develop, test and finalize interview instruments and protocols with them.								▓				
Interpret and widely share project findings.												
Schedule, organize, hold, and deliver minutes for regular advisory council meetings (monthly for first quarter, at least every 6 months throughout project).	▓	▓						▓				
Hold and record Zoom sessions to update all intermediaries on project progress.				▓				▓				
Hold Zoom sessions with intermediaries from states where decison makers will be interviewed.					▓							▓
Produce and disseminate reports based on state intermediary survey and NCES data.				▓				▓				
Design, launch, and sustain a website and social media outlets and use to report progress, solicit input and feedback, and share relevant findings throughout project.	▓							▓		▓		
Produce live and archived webinars providing annual updates to all interested parties and quarterly updates to partnering national and state organizations.											▓	▓
Produce and submit manuscripts for publication and proposals for potential conference sessions.										▓		
Discuss formative evaluation feedback from the project evaluator										▓		▓
Attend ISTE and ALA conferences to meet with state partners able to attend and to share about study with interested parties.										▓		

SLIDE: The School Librarian Investigation - Decline or Evolution?
Schedule of Completion: September 2021 - August 2022

Goal / Objective	Sep 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022
Analyze and provide access to data on employment trends for school librarians in U.S. public schools, 2009-10 to the latest available school year. (Note disparities by district characteristics including diversity demographics.)												
Continue developing project website including data tools.	▓	▓	▓	▓								
Design, promote, and conduct webinar for partners and state intermediaries on how to use project website's interactive data tools. Archive training and post on website.			▓		▓							
Provide online and telephone support to users of data tools.			▓	▓	▓	▓	▓	▓	▓			
Determine prevailing models for library, learning resources, and technology integration positions in U.S. public schools (Note disparities by district characteristics and student diversity.)												
With Advisory Council and partner/intermediaries support, continue to identify and recruit as interviewees decision-makers for library, learning resources, and technology integration positions in 100 districts.	▓											
Interview decision-makers about needed skill sets, alternative school staffing structures, and peer hiring practices. (Document and analyze influences on their thinking.)			▓	▓	▓	▓	▓	▓				
Gather position descriptions/announcements for learning resources positions from interviewees.			▓	▓	▓	▓	▓					
required or preferred education, experience, and responsibilities as well as references, if any, to state staffing/certification requirements and state and national guidelines/standards for school libraries.								▓	▓	▓	▓	▓
Interpret and widely share project findings.												
Schedule, organize, hold, and deliver minutes for regular advisory council meetings (monthly for first quarter, at least every 6 months throughout project).		▓						▓				
Hold and record Zoom session to update partners and state intermediaries on project progress.		▓			▓			▓				
Design, launch, and sustain a website and social media outlets and use to report progress, solicit input and feedback, and share relevant findings throughout project.	▓		▓		▓		▓		▓	▓		
Produce live and archived webinars providing annual updates to all interested parties and quarterly updates to partnering national and state organizations.											▓	▓
Produce and submit manuscripts for publication and proposals for potential conference sessions.											▓	
Discuss formative evaluation feedback from the project evaluator											▓	
Attend AASL, PTA and national prinicpal conferences to make presentations and meet with state partners in attendance.		▓								▓	▓	

Goal / Objective	Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023	Mar 2023	Apr 2023	May 2023	Jun 2023	Jul 2023	Aug 2023
Analyze and provide access to data on employment trends for school librarians in U.S. public schools, 2009-10 to the latest available school year. (Note disparities by district characteristics including diversity demographics.)												
Continue providing online and telephone support to users of data tools.	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓
Add new NCES data to interactive data tools when it becomes available.						▓						
Provide online and telephone support to users of data tools.	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓
positions in U.S. public schools (Note disparities by district characteristics and student diversity.)												
Continue interviewing decision-makers about needed skill sets, alternative school staffing structures, and peer hiring practices. (Document and analyze influences on their thinking.)	▓	▓	▓	▓								
required or preferred education, experience, and responsibilities as well as references, if any, to state staffing/certification requirements and state and national guidelines/standards for school libraries.	▓	▓	▓	▓								
Interpret and widely share project findings.												
Schedule, organize, hold, and deliver minutes for regular advisory council meetings (monthly for first quarter, at least every 6 months throughout project).		▓						▓	▓	▓		
Hold and record Zoom sessions to update partners and intermediaries on project progress.	▓		▓								▓	▓
Design, launch, and sustain a website and social media outlets and use to report progress, solicit input and feedback, and share relevant findings throughout project.	▓		▓									
tools.						▓	▓	▓				
Prepare, disseminate, and publicize final study report and infographics. Include multiple website and social media postings targeting project followers, partners, and stakeholders.						▓	▓	▓				
Produce live and archived webinars providing annual updates to all interested parties and quarterly updates to partnering national and state organizations.											▓	
Generate recommendations for action based on findings and their interpretation by Advisory Committee.									▓	▓		
Submit article manuscripts to professional library and education publications targeting school employment decision-makers and school librarian educators.						▓	▓	▓				
Offer to report study findings during webinars scheduled and hosted by library and education associations.						▓	▓	▓				
Discuss and submit final evaluation report from the project evaluator, sharing with the Advisory Council and partners.												▓
Attend ALA and ASCD conferences to make presentations and meet with state partners and interested parties in attendance.							▓			▓		

DIGITAL PRODUCT FORM

INTRODUCTION

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

The digital products you create with IMLS funding require effective stewardship to protect and enhance their value, and they should be freely and readily available for use and reuse by libraries, archives, museums, and the public. Because technology is dynamic and because we do not want to inhibit innovation, we do not want to prescribe set standards and practices that could become quickly outdated. Instead, we ask that you answer questions that address specific aspects of creating and managing digital products. Like all components of your IMLS application, your answers will be used by IMLS staff and by expert peer reviewers to evaluate your application, and they will be important in determining whether your project will be funded.

INSTRUCTIONS

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

> ### SECTION II: DIGITAL CONTENT, RESOURCES, OR ASSETS
> Complete this section if your project will create digital content, resources, or assets. These include both digitized and born-digital products created by individuals, project teams, or through community gatherings during your project. Examples include, but are not limited to, still images, audio files, moving images, microfilm, object inventories, object catalogs, artworks, books, posters, curricula, field books, maps, notebooks, scientific labels, metadata schema, charts, tables, drawings, workflows, and teacher toolkits. Your project may involve making these materials available through public or access-controlled websites, kiosks, or live or recorded programs.
>
> ### SECTION III: SOFTWARE
> Complete this section if your project will create software, including any source code, algorithms, applications, and digital tools plus the accompanying documentation created by you during your project.
>
> ### SECTION IV: RESEARCH DATA
> Complete this section if your project will create research data, including recorded factual information and supporting documentation, commonly accepted as relevant to validating research findings and to supporting scholarly publications.

SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS

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

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

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

SECTION II: DIGITAL CONTENT, RESOURCES, OR ASSETS

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

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

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

Workflow and Asset Maintenance/Preservation

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

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

Metadata

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

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

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

Access and Use

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

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

SECTION III: SOFTWARE

General Information

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

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

Technical Information

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

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

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

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

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

Access and Use

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

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

Name of publicly accessible source code repository:

URL:

SECTION IV: RESEARCH DATA

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

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

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

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

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

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

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

A.7 Identify where you will deposit the data:

Name of repository:

URL:

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