

University at Buffalo

Identifying Opportunities for Retention of BIPOC Librarians Using Survival Analysis

The University at Buffalo and East Carolina University request \$478,044 to conduct a three-year research in service to practice project investigating the retention of librarians who identify as Black, Indigenous, and People of Color (BIPOC). The research team will use a statistical technique called survival analysis to determine whether, when, and why BIPOC librarians are likely to leave the profession. We will conduct interviews to contextualize and expand the results. The research team will work with key stakeholders to identify potential strategies for improving retention of BIPOC librarians in the profession.

A. STATEMENT OF BROAD NEED

The lack of diversity in librarianship has been a critical issue for decades. Only 9.4% of librarians are from underrepresented minoritized groups (Rosa & Henke, 2017). In addition to problems that arise from a lack of diversity in terms of service to the public and organizational functioning, BIPOC librarians suffer from isolation, discrimination, low morale, and other issues that put them at risk for leaving the profession. Several scholars have noted that more attention is paid to recruitment than retention (e.g., Bugg, 2016; Damasco & Hodges, 2012), and others have noted that the attrition rates for BIPOC librarians is higher than those in the profession overall (Harper, 2020; Vinopaul, 2016). If the profession cannot retain BIPOC librarians who have already been recruited, then recruitment strategies will have a limited and temporary effect. Thus, effective strategies for retention of BIPOC librarians are critical.

The inequities in information access highlighted by the ongoing pandemic and the awareness of systemic racism in our public institutions brought about by the Black Lives Matter protests make studying issues of race and power in librarianship even more urgent. Professional associations are responding to members' requests to address this issue. Webinars and online programs, such as the Association of Southeastern Research Libraries' "Why Did I Leave the Profession? A DEI Perspective" during which former BIPOC librarians described their experiences and decision to leave librarianship (<http://www.aserl.org/archive/>), indicate that there is interest in the problem and a need to understand it.

Despite the attention being drawn to the problem of retention of BIPOC librarians, there has been limited research in this area. Most of the research in this area is focused on academic librarians, neglecting other environments, such as school and public libraries. Studies tend to be small-scale and anecdotal in their recommendations (Goodman, 2019). Suggested barriers to retention of BIPOC librarians include microaggressions, discrimination, isolation, culture of Whiteness, work overload, lack of advancement, and low morale (Bugg, 2016; Damasco & Hodges, 2012; Kendrick & Damasco, 2019). Strategies for retention in the literature include mentorship programs, professional development, networking, and counternarratives (Harper, 2020; Johnson, 2007; Riley-Reid, 2017; Walker, 2015). However, the existing studies do not explain when and why work life experiences result in a decision to leave the profession.

Furthermore, BIPOC librarians are a diverse group that includes people with different racial/ethnic identities, as well as identities relating to gender, age, ability, and roles. These librarians' diverse racial/ethnic and other intersecting identities likely have differing effects on

their decision to remain in or leave librarianship. We have noticed, while studying the experience of reference and information service for BIPOC librarians, differences in how diverse participants perceived and reacted to negative worklife experiences (VanScoy & Bright, 2017, 2019). This finding emphasizes the diversity of the group that identifies as BIPOC librarians and raises the question of how contextual factors affect librarians of different races/ethnicities and intersectionalities and whether the decision to leave is similar or different across the larger group.

While small-scale qualitative studies have produced useful findings, there are no large-scale studies focused on when and how BIPOC librarians leave librarianship and whether this decision varies by racial/ethnic group or intersectionality of identities. To fill this gap, we will use survival analysis to identify when and why BIPOC librarians of different racial/ethnic groups leave librarianship. Survival analysis is an advanced statistical analysis technique used to investigate categorical outcome variables (in this case, retention or no retention) measured over time (Singer & Willett, 2003). Although this method is rarely used in library and information science (LIS), survival analysis has been used to study other workers, including people with disabilities (Fabian, 1992), sports team managers (Volz, 2008), teachers and principals (e.g., Bailes & Guthery, 2020; Donaldson, 2009; Landa, 2020; Tickle et al., 2010), faculty members (e.g., Durodoye et al., 2020), and medical professionals (Abelson et al., 2018; Russell et al., 2013). Knowing when and why librarians of different racial/ethnic groups leave librarianship will allow libraries, professional associations, and mentors to provide effective, targeted retention initiatives to prevent the loss of BIPOC librarians from the profession.

B. PROJECT DESIGN

Guiding Conceptual Framework

Aspects of this project are guided by critical race theory (CRT) in intention and design (e.g., Delgado & Stefancic, 2017). We see race as a socially constructed concept that pervades the structures of librarianship. Race is not independent of other identities of librarians; therefore our analysis will include other identities (e.g., gender identity). CRT tries not only to understand our social situation but also to change it, setting out not only to ascertain how society organizes itself along racial lines and hierarchies but to transform it for the better. CRT requires us to acknowledge two potential limitations to the project. First, the motivation for the study could be incorrectly interpreted as solving the need of a predominantly White profession to retain enough BIPOC librarians to be considered “appropriately” diversified, while still maintaining a power imbalance (see Hudson, 2017). CRT contends that racial issues receive attention only when they converge with the needs of White people. However, our motivation for the study is to identify ways in which the profession is failing BIPOC librarians and driving them to leave. Identifying when and why BIPOC librarians make such a decision will allow the profession to make changes. Second, the quantitative nature of the study creates arbitrary categories which simplify and potentially de-humanize the experiences of BIPOC librarians. To mitigate this abstraction, we will follow up the survival analysis with interviews to allow individuals to share their narratives of remaining in and leaving librarianship.

Research Questions

This study will address the following four research questions (RQs):

1. At what point in their careers do BIPOC librarians tend to leave the profession?
2. Is there a difference in timing of leaving the profession among different racial/ethnic groups?
3. Do contextual factors identified in the literature, such as mentoring and discrimination influence the probability of leaving the profession?
 - a. If they do, how do the factors work differently for the BIPOC and non-BIPOC groups?
4. How have the patterns of retention of BIPOC librarians changed over the last decade?

Project Goals

- 1) Re-analysis of existing data using survival analysis.
We will re-analyze an existing data set from the IMLS-funded “Workforce in Library and Information Science” (WILIS 2) project that studied career histories of graduates of LIS programs from 2000 to 2009. The data will be re-analyzed using survival analysis with a new focus on race/ethnicity to partially answer RQs 1-4.

Outcome

- Results of survival analysis for existing 2000-2009 data.

Deliverables

- Two project updates to the project website.
- Presentation of results at scholarly and professional conferences.
- Publication of a peer-reviewed journal article on the findings.

- 2) Collect and analyze new data using survival analysis.
We will develop and use a survey to collect career history data on LIS program graduates since 2009 and adopt survival analysis to partially answer RQs 1-4.

Outcomes

- Instruments to measure retention related constructs/variables among BIPOC librarians
- Results of the survival analysis for 2010-2019 data.
- Comparison of the results of the two analyses to identify trends over time.

Deliverables

- Two project updates to the project website.
- Presentation of results at scholarly and professional conferences.
- Publication of a peer-reviewed journal article on the findings.

- 3) Interview current and former BIPOC librarians.
We will conduct interviews with BIPOC librarians to contextualize and expand the findings of the survival analysis.

Outcome

- Results of the interview analysis.

Deliverables

- Two updates to the project website
- Presentation of results at scholarly and professional conferences
- Publication of a peer-reviewed journal article on the findings

4) Work with stakeholders to develop retention strategies

We will share the findings with key stakeholders in the profession to develop retention strategies for the profession.

Outcome

- Report of ideas for retention strategies.

Deliverables

- Two updates to the project website.
- Publication of the report in professional journal.

Procedures for Project Goals 1 and 2: Using survival analysis to re-analyze existing and new data

The project uses survival analysis (Singer & Willet, 2003) on two data sets, 1) an existing nationally representative data set from ten years ago collected by an IMLS-funded project (WILIS 2), and 2) a new data set that covers the years since the WILIS 2 project in order to provide current information on retention of BIPOC librarians and to explore trends over time.

Survival analysis examines whether, when, and why an event or status change (e.g., leaving librarianship) has occurred in a longitudinal framework (Kim, 2019; Kim et al., 2018; Kim et al., 2019). An example of a recent project using survival analysis demonstrates its potential: Kim et al. (2015) used survival analysis to identify the different stages when students of color are more likely to drop out of high school. They found that different ethnic groups drop out at different times; for example, African-American students were more likely to drop out in the first and second year and Hispanic/Latinx students in their last year of high school. These findings allow schools to develop specific interventions for these groups and time them appropriately. This project will similarly allow the profession to develop appropriate interventions with appropriate timing, and investigate potential distinctions found between racial/ethnic groups and additional intersecting identities.

Data Collection

A previous project funded by IMLS, WILIS 2, was a retrospective career study whose data is available for secondary analysis. Although the WILIS 2 data was analyzed for retention of librarians (Rathbun-Grubb, 2009), it was never examined specifically by race/ethnicity. We see an opportunity to gain additional value from the initial investment by IMLS by re-analyzing the data with this new lens, as race/ethnicity data were collected. We will analyze the existing data (2000-2009) from the WILIS 2 project using survival analysis, drawing new findings from this data and suggesting factors/variables to examine in collection of new data.

To collect data for the second phase of the project, we will develop a survey targeting data about the careers of graduates of LIS programs in the United States, about factors that are believed to affect retention, and about graduates' racial/ethnic identity and demographics, including intersecting identities. The survey will be created in Qualtrics to collect retrospective career data on graduates, as well as information about variables related to retention (e.g., mentoring, morale, and microaggressions).

Using the model of the WILIS 2 project, we will recruit graduates of LIS programs for the years 2010 to 2019. The advisory board (members listed below) will play a role in establishing credibility and using their network for buy-in about the project. We will work with LIS programs and their respective institution research or admissions offices (the process may vary considerably due to institutional differences in data collection and retention practices) to identify graduates of the programs. Institutions frequently do not have up-to-date contact information for graduates. Therefore, again following the model of the WILIS 2 project, we will contract with AlumniFinder, a service that finds current contact information for alumni, to update contact information for graduates. The updated contact information will be used for recruiting and will also be returned to the LIS programs to assist with their alumni communication. From this updated list of graduates, BIPOC graduates, along with a portion of White graduates for comparison, will be invited to participate in the survey.

Power Analysis for Sample Size Calculation

To compute the sample size needed to attain a target power level of 0.85, we conducted an a priori power analysis using RMASS software for clustered and longitudinal data (Roy et al., 2007). We conservatively set the parameters for three waves of data collection (number of time points = 3) and the proportion of the BIPOC and non-BIPOC groups at 0.5 for the equal size of the two groups. We also considered attrition rate and set the type I error rate at 0.01 (two-tailed). We conservatively assumed a moderate effect size of 0.5 for the longitudinal analysis (Bhaumik et al., 2008). With these RMASS parameters and default settings, we calculated the sample size required for a power of 0.85 for our analysis with the programs as the clustered units. According to the RMASS software calculations, the protocol requires 256 participants (128 BIPOC and 128 non-BIPOC librarians; approximately four participants from each of 64 programs). Given a total of approximately 650 BIPOC graduates per year, this is easily attainable. This calculation is based on the power analysis for unconditional models without any covariates. Therefore, we anticipate that the same sample size in our project would possibly obtain higher levels of power by including covariates that could potentially decrease the variability.

Data Analysis

To collect the new data sets, while utilizing the same survey items from WILIS 2 for the comparison purposes, this study will develop and validate survey instruments measuring participants' retention status, and their experiences with mentorship programs, professional development, and networking (American Educational Research Association, 2014; Kane, 2006; Messick, 1989). Specifically, our validation process will utilize a series of structural equation models (SEMs), including exploratory SEM (ESEM), confirmatory factor analysis (CFA), and Bayesian SEM using Mplus (Muthén & Muthén, 2019). To analyze the new data collected by our validated survey instruments, we will conduct a series of survival analyses.

We will share the findings of the analyses for Project Goals 1 and 2 through two published papers and several presentations at scholarly and professional conferences (see *Dissemination Plan* below).

Procedures for Project Goal 3: Interview current and former BIPOC librarians

Using a phenomenological approach, we will conduct interviews with up to 20 current and former librarians (the final sample size to be determined by theoretical saturation) to contextualize and extend the statistical analysis and to provide context and depth to the quantitative data. Participants will be recruited through a question on the survey asking if they would be interested in talking with the team about their experience in the profession. The purposive sample will include graduates who remained in librarianship and those who left, as well as participants with diverse racial/ethnic identities. The hour-long interviews may be in person or online via a video conferencing service, such as Zoom; participants will be compensated for their time. Audio recordings of the interviews will be transcribed by a transcription service. We will analyze the interview data in light of the findings of the survival analysis using qualitative analysis software. Findings from the interviews will contextualize the results of the statistical analysis, humanizing the data. The findings from the interviews will be shared via a published paper and presentations at scholarly and professional conferences.

Procedures for Project Goal 4: Work with stakeholders to develop retention strategies

The most important consumers of this research are the librarians, managers, association leaders, and mentors who will use the research to develop strategies for retention of BIPOC librarians. Therefore, we will work with the advisory board to share the research with key stakeholders. Stakeholders may include professional associations that support BIPOC librarians, such as the Black Caucus of the American Library Association (ALA) or REFORMA: The National Association to Promote Library & Information Services to Latinos and the Spanish Speaking, or individual librarians who advocate for diversity, equity, and inclusion (DEI) issues. Individual or group meetings, held in person at conferences or online, will be used to solicit ideas for future strategies. Stakeholders will be asked for ideas about retention initiatives, individual actions, or future research. These ideas will be compiled and organized and then shared via a published paper in a professional journal, as well as at professional conferences or invited talks. This dissemination activity may continue after the project is completed.

Project Structure

Year 1

In the first year of the project, Dr. Kim will conduct a preliminary analysis of the existing WILIS 2 data using quantitative research methods including logistic regression analyses and will conduct the data transformation for survival analysis. using survival models. Dr. Bright will assist with this analysis as needed, providing an LIS context expertise to better understand the data. The preliminary analysis will be used to develop the survey for collecting new data. Results of the preliminary analysis and a survey draft will be submitted to the advisory board for feedback to ensure that we draw on multiple perspectives in development of the survey. The survey will be piloted and finalized. Also, the existing dataset will be transformed into the data suitable for survival analysis.

Dr. VanScoy will coordinate creating infrastructure for the project, including setting up the project website, recruiting and hiring the graduate research assistant, working with the institutional research or admissions offices associated with the ALA-accredited LIS programs to create lists of contacts for recruiting, updating contact information for recruiting, and obtaining IRB approval for the survey. Dr. VanScoy will also coordinate performance measurement through documentation of deliverables (effectiveness), deadlines (timelines), and resource use (efficiency) and through solicitation of feedback from the advisory board (quality).

We will begin the dissemination process by submitting proposals to conferences. These proposals will focus on generating awareness of the project and presenting preliminary results of the WILIS 2 survival analysis. Target conferences will include Association of Library and Information Science Education (ALISE), American Library Association (ALA) Annual, Association of College and Research Libraries (ACRL), Association of Information Science & Technology (ASIS&T), and the Joint Conference of Librarians of Color (JCLC).

Year 2

During the second year of the project, we will achieve Project Goal 2. To achieve this goal, we will administer the survey of graduates from LIS programs and analyze this new data using survival analysis. Results of the survival analysis will be discussed with the advisory board for broader interpretation. Dr. VanScoy will coordinate submitting a paper to a peer-reviewed journal (see *Dissemination Plan* below).

During Year 2, we will also lay the groundwork for Project Goal 3 to interpret the findings by developing the interview protocol. Drs. Colón-Aguirre and Bright will lead the team in developing the interview protocol, working with the advisory board for input.

We will work together to present preliminary findings at professional and scholarly conferences (see *Dissemination Plan* below). Funding will be used strategically, so that at least one member of the research team attends all of the strategic conferences in the *Dissemination Plan*.

Year 3

In the final year of the project, Dr. Kim will return to the existing WILIS 2 data, completing the full analysis in order to achieve Project Goal 1. Also, Dr. Kim will analyze the data from Project Goals 1 and 2 to build analytical models to identify trends over time. We will draft at least one paper for a scholarly journal on the results of the WILIS 2 findings and/or development of the survey instrument.

During Year 3, the team will also achieve Project Goal 3. Drs. Colón-Aguirre, Bright, and VanScoy, along with the graduate research assistant, will conduct interviews and analyze the data. Dr. Colón-Aguirre will coordinate submitting a paper to disseminate the findings of the interview phase.

During this period, we will also achieve Project Goal 4. Drs. Bright and VanScoy will coordinate the research team and the advisory board in identifying key stakeholders in the profession, scheduling individual and group meetings to brainstorm for possible retention strategies and future research, and writing a report to disseminate the ideas to the profession. The interviews are intended to provide additional meaning to the quantitative findings, whereas the meetings with the stakeholders are intended to generate actionable strategies and future directions.

We would also like to disseminate findings from the project in the form of webinars hosted by professional associations. Such webinars attract librarians who do not or cannot attend national conferences, and they would be a good way to disseminate findings and future strategies to an additional audience. The team and the advisory board will reach out to professional associations such as American Association of School Libraries (AASL), ACRL, Association of Research Libraries (ARL), Association of Southeastern Research Libraries (ASERL), Public Library Association (PLA), Southeastern Library Association (SELA), and ALA ethnic caucuses and work with interested groups to develop webinars.

We will present findings at conferences, submit papers from Project Goal 1 and 3, and submit the report for publication. We may continue to publish and present on the research after the project period is finished. For example, we will continue to revise and resubmit papers until they are published, we may want to do secondary analysis on the interview data to answer additional research questions, and we will continue to offer webinars at the request of professional associations.

Dissemination Plan

We will share information about the project on the project website, posting updates as well as links to papers, video recordings of presentations or slide decks.

We will target high impact scholarly publications and conferences, such as those listed below, so that other researchers studying retention of BIPOC librarians can build on the findings.

Journals

- International Journal of Information, Diversity & Inclusion
- Library & Information Science Research
- Library Quarterly

Annual Conferences

- ALISE
- ASIS&T

We will also target professional journals and conferences, such as those listed below, so that practitioners and leaders in the profession are aware of the project and stay current on the findings. We will target both publications and conferences that focus on DEI issues and those that draw more general audiences.

Publications

- In the Library with the Lead Pipe
- Library Diversity and Residency Studies
- Library Leadership & Management

Annual Conferences

- ACRL
- ALA
- JCLC

We would also like to partner with professional associations to offer webinars on the retention strategies. Potential partners would include ASERL, PLA, AASL, ACRL, ARL, SELA, and ALA ethnic caucuses

Key Personnel

The research team consists of four faculty with different areas of expertise and a common interest in diversity, equity, and inclusion. Each team member has a successful record of planning and executing rigorous research studies. The research team will be responsible for planning and executing the research aspects of the project.

- **Kawanna Bright** (co-PI), Assistant Professor, ECU, has published and presented widely on LIS DEI issues, including recruitment, hiring, and retention, and with a specific emphasis on the assessment of library DEI efforts.
- **Mónica Colón-Aguirre** (co-PI), Assistant Professor, ECU, studies user services, academic library administration, and Latinx use of information organizations. A recipient of the ALA Spectrum Doctoral Fellowship, she has more than 10 years' experience as a researcher and academic.
- **Sunha Kim** (co-PI), Assistant Professor, UB, is a methodologist with expertise in quantitative research methods including SEM and survival analysis. By capitalizing on her statistical expertise to conduct studies on DEI, Kim has 29 published papers in peer-reviewed journals (more than 1,300 Google Scholar citations).
- **Amy VanScoy** (PI) is Associate Professor, UB, studies professional issues for librarians, including DEI issues. VanScoy and Bright worked together on the ALA Diversity Research Grant "Including the Voices of Librarians of Color" which resulted in papers in *Reference & User Services Quarterly* and *Library Quarterly* and numerous scholarly and professional presentations at conferences. VanScoy is the PI on IMLS grant LG-12-190032, and therefore has experience managing a large grant-funded project.

A graduate research assistant in the information science department at the UB will be funded as a part of the research team. A BIPOC student, either at the doctoral or master's level, who is interested in DEI issues and conducting research in the profession will be selected. The student will assist with research, writing, and presenting and will be mentored by the team. Future librarians and LIS faculty need to be prepared to do research in this critical area. Therefore, the investment in this student will provide lasting benefits to the profession.

The advisory board includes six accomplished professionals from various racial/ethnic groups and library environments. Their role in the project is to contribute additional perspectives, critically assess the progress of the project, draw on their network to achieve project goals, and assist with interpretation of research findings. The advisory board represents the target community for the project.

- **Shantel Agnew**, Library Media Specialist, District of Columbia Public Schools.

- **Nikhat Ghose**, Associate Librarian for the Social Sciences at American University and organizational development consultant.
- **Sandy Littletree**, Assistant Teaching Professor at the University of Washington and past president of the American Indian Library Association.
- **Antonia Olivas**, Full Professor and Engagement & Inclusion Librarian at California State University San Marcos and editor of the book *Choosing to Lead: The Motivational Factors of Underrepresented Minority Librarians in Higher Education*.
- **Mark Puente**, Associate Dean for Organizational Development, Inclusion, and Diversity, Purdue University Libraries and School of Information Studies.
- **Kelvin Watson**, Executive Director, Las Vegas Clark County Library District and Public Library Association Director-at-Large.

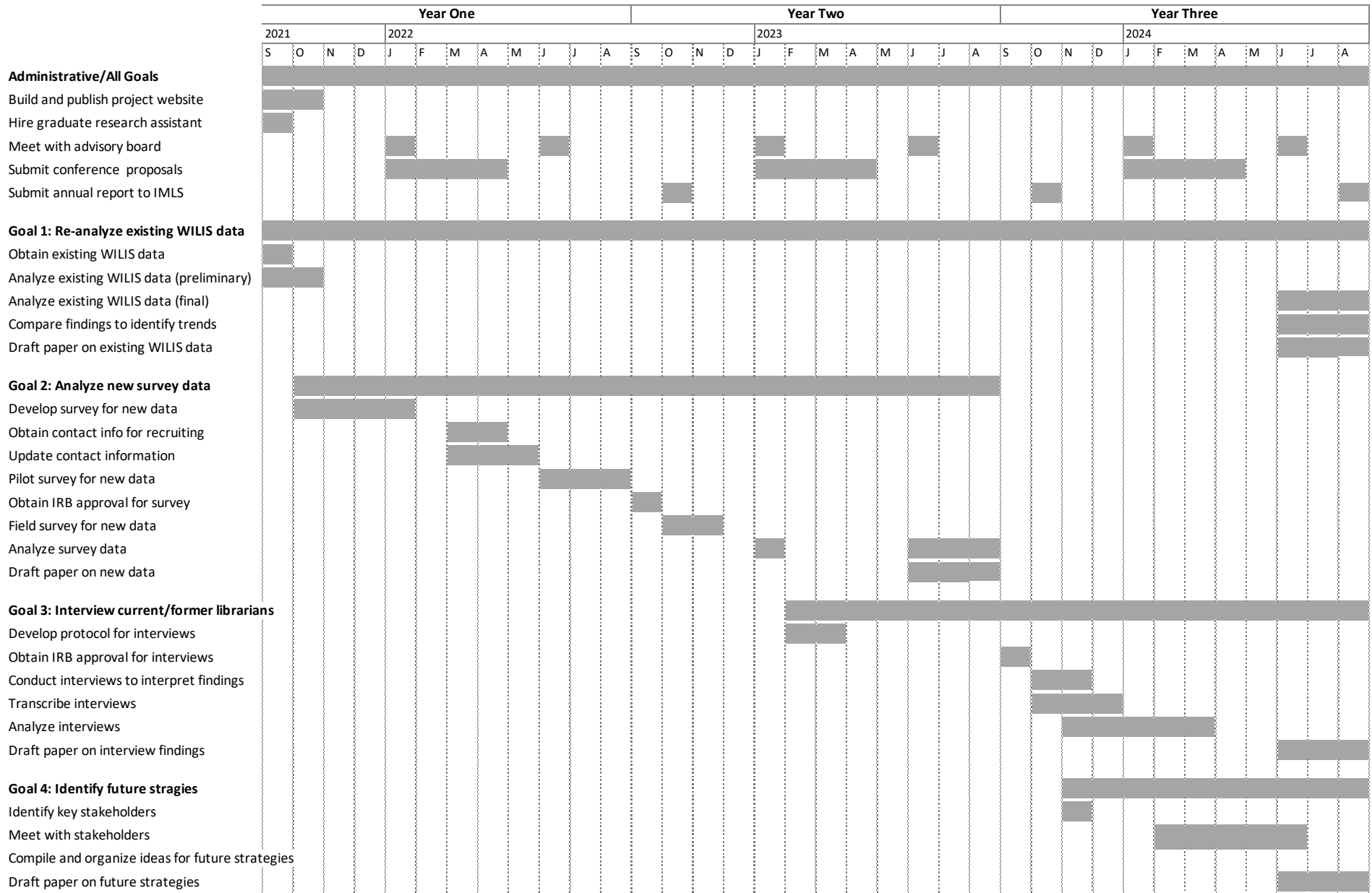
C. DIVERSITY PLAN

While a single phrase, BIPOC librarians, is used to describe the group under study, the research team recognizes the diversity of this group. Survival analysis is particularly suited to the research aims because it explicates racially responsive approaches by creating models for groups within the broader sample. This will allow for not only an overarching understanding of the shared experiences of BIPOC librarians, but a deeper understanding of the distinctions that may exist within the individual groups that BIPOC librarians comprise. The findings of this study can foster a new understanding of needed strategies that will help facilitate the retention of BIPOC librarians in the future.

The research team and the advisory board are composed of scholars and librarians with diverse backgrounds that will help to build inclusive research strategies from the outset and establish credibility with multiple stakeholder groups.

D. BROAD IMPACT

Knowing what causes BIPOC librarians to leave the profession, when this occurs, and what interventions might be useful can lead to improved retention plans for individual libraries and for professional associations. This research will provide some of this knowledge and can serve as a launching pad for the development of retention initiatives. This would allow the creation of programs that can bring support to BIPOC librarians when they are needed, instead of putting the onus of requesting help on this group of professionals. The research findings will equip supervisors and professional organizations with knowledge that will help make their retention efforts more specific and their interventions more timely and effective. Knowing when certain groups of librarians are likely to leave would help to justify additional funding requests for support and initiatives, such as sabbaticals and professional development programs, and would allow for more targeted and useful programs that would provide the right support at the right time.





DIGITAL PRODUCT FORM

INTRODUCTION

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

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

INSTRUCTIONS

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

SECTION II: DIGITAL CONTENT, RESOURCES, OR ASSETS

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

SECTION III: SOFTWARE

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

SECTION IV: RESEARCH DATA

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

SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS

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

The digital products for this project are

- the project website
- at least 3 published papers
- recorded videos of conference presentations or slide decks

The project website and its content, including links to published papers, recordings of or slide decks from conference presentations, project updates, and resources lists will be openly licensed with a Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) license.

We will attempt to publish papers in open access electronic journals, so that they will be freely available, as well as indexed and archived. "Open access" takes many forms in journal publishing. We will negotiate for the article to be available as close to CC BY-NC 4.0 as possible.

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.

The University at Buffalo and East Carolina University agree that all content created for the project will be licensed as CC BY-NC 4.0.

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.

There are no anticipated privacy concerns, no necessary permissions or rights and no potential cultural sensitivities regarding the digital products created by the project.

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.

The digital products for this project are

- the project website
- at least 3 published papers
- recorded videos of conference presentations or slide decks

The project website and its content, including links to published papers, recordings of or slide decks from conference presentations, project updates, and resources lists.

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.

All digital products will be generated by the collaborators on the project.

Equipment, software and supplies used by the project will include:

Microsoft Office

Adobe Acrobat and/or Preview

CaptionSync

Qualtrics

SPSS

MPlus

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.

All digital products will be formatted to standards that will be most accessible for library practitioners, scholars, and instructors. This will include PDF, HTML, and MP4.

Workflow and Asset Maintenance/Preservation

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

We do not expect significant quality control challenges. The PI will serve as the final inspector on all digital products and determine when resources are ready to be added to the website or submitted for publication.

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).

All digital products will be available on the project's website hosted by the University at Buffalo. Papers will be published and archived by electronic journals, preferably open access journals.

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).

N/A

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

N/A

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).

N/A

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).

Digital products will be available on or linked from the project's website hosted by the University at Buffalo. The website and its contents will be openly available to the public via standard web browsers. Papers will be published and archived by an electronic journal, preferably an open access journal. These will be available via standard web browsers.

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.

Two members of the research team have created digital content for another IMLS funded project. The digital content for the proposed project will follow this example: <https://www.datafiedclassroom.org/>. The website for the proposed project would be hosted at the University at Buffalo. Examples of digital content hosted by the University at Buffalo can be found here: <https://ed.buffalo.edu/research.html>.

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.

N/A

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.

N/A

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.

N/A

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

N/A

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

N/A

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

N/A

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

N/A

Access and Use

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

N/A

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

Name of publicly accessible source code repository:

N/A

URL:

N/A

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.

The proposed project will generate survey responses and audio recordings of interviews. The survey responses will be analyzed using a statistical method called survival analysis. The audio recordings will be transcribed and used to support qualitative analysis methods (e.g., coding). The schedule of completion reflects the period of time we will generate data and is also duplicated below:

Survey responses: Fall 2022
Interview audio recordings: Fall 2023

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?

The research will undergo IRB approval in stages. IRBs at University of Buffalo and East Carolina University will review each stage of research. The schedule of completion reflects the period of time in which we will seek IRB approval: approximately Spring 2022 and Spring 2023.

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.

The team will collect PII while conducting the survey and interviews. First, recruiting individuals for will create a trail of documentation that identifies their interest and participation in the project. Second, PII may be collected as part of data collection and captured in digital files. To resolve the first issue, only the research team will have access to communications and documentation. For the second issue, disclosed research results will only include pseudonymized or aggregate results.

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

Research documentation will be stored with data in a secure Box folder. The research documentation will have the same lifespan as the data. We will maintain the data and related documentation for five years after the project's completion. It will be destroyed with the data five years after the project's completion.

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?

Project documentation will include spreadsheets and word processing documents to capture processes, tasks, organizational strategies related to the datasets. Documentation will only exist in digital formats and will be stored in the secure Box folder. The documentation and the data itself will follow a strict data management plan to help with strategic storage, organization, and retrieval. Box automatically creates revisions of documents, which will help the team keep track of changes and secure associations between documentation and data

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

Only de-identified and aggregate results will be disclosed to the public in research artifacts (e.g., articles and presentations). The team will retain the data and related documentation for five years after the project's completion. At the five year mark, the team will ensure data is securely deleted from personal devices and shared workspaces (e.g., the secure Box folder).

A.7 Identify where you will deposit the data:

Name of repository:

N/A

URL:

N/A

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

The research team is committed to the strategic and careful management of research data and related documentation. The team is resolved to follow the data management plan and review it as necessary during team meetings. If significant changes occur in the team's processes and/or infrastructure, the PI will work with IMLS to resolve any issues and maintain compliance with federal rules and requirements.