

African American Undergraduates' Use of Academic Libraries Simmons University

Rebecca Davis, Ph.D., Principal Investigator, Assistant Professor of Library and Information Science, is applying for a Laura Bush 21st Century Early Career Development Grant of \$140,834 to investigate African American undergraduate students' experience and use of academic libraries to inform research-based decisions for resource and service provision to this historically marginalized community. Project Role: The PI will oversee the research efforts and ensure that the project benchmarks and deliverables are successfully executed.

Statement of Broad Need

Issues of diversity, equity and inclusion are strategic priorities throughout the field of library and information science. Libraries, and academic libraries specifically, serve diverse populations and work to create spaces, resources and services that are inclusive to all populations. However, providing meaningful services to historically under-served and marginalized populations like African Americans presupposes a deep understanding of the information needs and experiences of those populations. Unfortunately, African Americans have not only been under-served but under-studied within LIS.

Current research focuses on the Latinx population while research on African American undergraduates is nearly non-existent, suggesting that librarians may not have the knowledge and understanding they need to adequately serve this population. The literature that does exist on undergraduate African American students and academic libraries focuses on how they navigate the academic landscape, race, electronic resources, and time constraints when seeking information. Katopol (2012) found that African American participants in her study were frequent users of electronic media and rarely visited the library. Palmer (2015) attributes poor help-seeking behavior to an "unhealthy masculine identity for Black men", which leads to a lack of inclination to engage faculty and other professional members in the university community (p.40). Whitmore (2003) found that African American students are using the academic library more than white students. The academic library is a place where African American students can use the technology and online resources, study, and escape "tumultuous campus racial climates" which is even more of reason to focus on services for these students (p. 43). McGinn (2002) focused on support services that would help African American students feel supported and accepted, including mentoring, financial services, etc. According to Hall (2003) a Research Assistance Program (RAP) was created at Penn State, University of Notre Dame and several other universities to "enhance research skills in African American undergraduates which included research mentoring" (p. 182). This is only one instance of creating a program specifically for African American undergraduates which was seventeen years ago. As Hall stated, "If we in the academic world are at all serious about the retention of not only African American students but also other at-risk clientele, it is vital that we find the time and energy to mentor these individuals into the world of academic research" (p.187).

While documented, research-based academic library services or programs for African American undergraduates are basically non-existent, there have been studies to explore whether or not black college students feel welcomed in academic libraries. Stewart, Ju and Kendrick (2019) expanded on a study by Witmire (2004) and surveyed 160 black students at non-historically black colleges and universities on their perceptions of feeling welcomed. The results showed that "interactions with the library as a place had a significant effect on students' perception of welcomeness" (p. 28). African American college students may feel welcomed in academic libraries, but there have been studies on stereotype threat which could affect whether or not they use the library and its services (Black. 2016). Stereotypes can affect how people are treated and in turn cause people to have negative associations because of their experiences. Katopol (2016) gives an example how stereotype threat can affect "how black students may feel when asking a librarian questions" because they may feel like the librarian may be "judging them as being unqualified to pursue their degree" (p.1). In another article, Katopol (2014) argues that stereotype and library anxiety affect black students and other minorities. "Rather than risk being judged by the librarian, black students may avoid the librarian and turn to other black students for help,

even in those students were outside of their discipline” (p. 3). These suggest that the way African American students are treated could have an impact on their use of academic libraries.

These studies suggest that African American students are likely underutilizing and under-served by academic libraries, and point to the need for additional research. Importantly, Walton and Cohen (2007, 2011) found that targeted services and interventions in higher education can improve student outcomes and narrow the achievement gap between white and African American students. Academic libraries can build on these findings by developing a better understanding of African American students’ perceptions of and experiences with their campus libraries and using those results to inform resource, outreach, and program development.

As mentioned earlier, current research tends to focus on the Latinx population, and there are examples of targeted services for first generation students and international students. These could serve as models for service development for African American students, but it is crucial to conduct research as the experiences of this community could differ from other under-served and marginalized populations, thereby necessitating different interventions and responses.

Güereña and Erzao (2000) assessed how library services for Latinos have evolved over the years. They noted that with the help of REFORMA, some libraries are now providing more “culturally sensitive reading materials in Spanish and bilingual formats as well as programs that celebrate Latino and Hispanic culture, information and referral and outreach” (p. 140). In a study on information literacy, Dabbour and Ballard (2010), found that Latino students used the library to access the internet more than white students. Additionally, more “Latino students had formal library instruction than white students”, but that was more than likely due to more library outreach to the Chicana/o Studies Department courses at CSUN (p. 356).

In addition to adapting services for Latinx students, academic libraries are also creating services for first generation students. Focusing on the services in academic libraries, Arch and Gilman (2019) surveyed high school counselors and a sample of academic libraries and found that some academic libraries are offering services that target first-generation students. Navigating college, financial, social and cultural, home and family issues were some of the themes that emerged from these surveys complete. In effort to assist these students, some libraries have “developed first-generation-targeted services, the most common were instruction programs, usually in conjunction with university-run first-generation programs” (p.1002).

Just as academic libraries and LIS literature focus on first-generation students, there has also been a push to focus on international students. At Kent State University, first year international students were surveyed about their introductions to library resources and services in an effort to improve services for these students (Sheu and Panchyshyn, 2016). The findings from this study showed that the marketing strategies used by the library worked in terms of reaching international students during their first year at the university. Students appreciated the dedicated reception indicating that “library staff made them feel welcomed by addressing them in their own languages, students had an opportunity to learn about the library, its staff and services” (p. 139).

African Americans are much less likely to be the focus of research and library services than other populations and while there is likely some intersectionality among first-generation, Latinx and African American students, we should not assume that their perceptions, behaviors, and needs are the same. Further study of African American students is warranted in order to create the kinds of targeted services seen for other populations that could potentially increase use, outcomes, and feelings of acceptance.

This project will implement 32 semi-structured in-person interviews with African American undergraduate students to explore their perceptions and use their campus libraries. The research framework for this two-and-a-half year project will include the PI traveling to four academic libraries at three types of four-year universities: Liberal Arts, Research Intensive, and Historically Black Colleges and Universities (HBCU) in four U.S. geographical regions (Northeast: Boston, South: Raleigh/Durham/Chapel Hill, Midwest: Chicago and the West: Los Angeles). The variety of universities will provide a broader sample of students which will give the PI an opportunity to compare the results.

This project addresses a gap in literature by seeking to explore two research questions:

RQ1. To what extent do African American students use academic library resources?

a. What are African American students’ overall perceptions of their campus library?

- b. If they choose not to use the library resources and services, what factors influence that decision?
- c. If they choose to use the library, what knowledge, experience, and understandings do they bring to their interactions? How can academic libraries work with these students build on those experiences to provide more meaningful services?

RQ2. For those students who choose to use the library, which services and resources (e.g. collections, reference, space, etc.) are African American students most and least likely to use, and why?

The PI's previous research focused on the use of academic library resources and services by undergraduate women in the STEM fields and found that they primarily use the physical space in academic libraries. Additionally, the PI found that undergraduate women in the STEM fields appreciated the quiet space provided in the academic library, having electronic resources that are accessible on and off campus, but they mentioned that the library was not their go-to place for textbooks or information to complete assignments. In this project, the PI will build on that previous research, using tested methods and an asset orientation to explore African American students' use of and experience with academic libraries.

Project Design

Prior to beginning this study, the PI will submit an IRB for approval. Participants should be recruited based on the study's purpose (Creswell, 2007). For this study, there is a clearly defined population, only African American undergraduates will be recruited. According to Elliot (2013), when recruiting participants researchers must customize their approach to focus on how to tap into the population of interest. The PI will contact Student Life Services, Provost's offices, and student groups for minorities at each institution to recruit eight African American undergraduates from each of the institution (32 total) to participate in the study. By recruiting students through Student Life Services, Provost's offices and student groups for minorities there may be bias because they may recommend some of most engaged students at the institution. A graduate assistant will create flyers to be posted on each campus and the PI will draft an email message to be sent to students at each institution through various offices to recruit participants. All participants must self-identify as African American.

For this project, the PI will use interviews to learn about whether or not the participants use the academic libraries on campus at their institutions. The "long interview is one of the most powerful methods in the qualitative armory and gives the researcher the opportunity to step into the mind of others, to see and experience the world as they do themselves" (McCracken, 1988, p. 9). The qualitative interview's purpose is to learn about the lived experiences of the participants which determine how they view the world (McCracken, 1988). By conducting interviews, the PI in this study will be able to learn about the participants' lived experiences. The PI will create an interview guide which "has a list of key questions the researcher would like to cover, with some useful prompts to encourage the participants to talk about their experiences" (Patton and Cochran, 2002, p. 12). According to Merriam (2009), good interview-guide question should be "open-ended and yield descriptive data, even stories about the phenomenon" (p. 98). Questions will be designed to "elicit the participant's experiences" (Turner, 2010, p. 1). The interview guide's questions will be as neutral as possible, clearly worded, and open-ended (McNamara, 2013). Once the interview guide is completed, the PI will have the questions evaluated through a pre-test to ensure they are clearly worded. In this study, the PI will ask questions about the participants' use of the academic library with questions such as:

- What are your perceptions of the campus library?
- What library services and resources are you aware of?
- What services and resources would you like to see offered?
- If you use the library, how often do you use it? What services and resources do you typically use?
- What has been your experience using the library?
- If you do not use the library, what factors influence your decision?

The second set of questions will be about the participants' specific use of library resources and services. The participants will be asked how often they use these resources and services and which ones they used. Participants will be asked if there were any library resources and services that they needed that are not available:

- What resources, materials, services and programs in the library have you used?
- What are the resources that were not available through the library that you think the library should have?

Lastly, the participants will be asked if the library has played a role in their academic lives. By asking the participants a probing question, the PI will be able to get more explanation about whether or not the library specifically played a role in the participants' lives:

- What role, if any, has the library played a role in your academic life?

According to Creswell (2007), asking probing questions gives the participants a chance to fully explain their thoughts.

After the PI has finished creating the interview guide and the participants have agreed to participate in the study, the PI will work a graduate assistant to organize the schedules for interviews. Prior to conducting the interviews, the PI will work with each institution to identify a quiet area on campus to conduct the interviews with participants. The PI will travel to each of the four institutions to conduct interviews with the participants.

On the day of the interviews, each participant will be given an Informed Consent form to read and sign and asked permission to digitally recorded the session. According to Creswell (2007), participants should be willing to honestly share information or "their story" (p. 133). In order for participants to feel comfortable with sharing their experiences honestly, the researcher will need to instill a sense of trust and safety. Each interview will begin with the PI greeting the participants, thanking them for agreeing to participate in the study, and providing an overview of the study and its purpose. The PI will emphasize the voluntary nature of participation, remind students that they are free to end the interview at any time, and remind them that neither their decision to participate nor their specific answers will be shared with others or have any impact on their academic institutional standing. The PI will also emphasize the steps taken to ensure participants' privacy and confidentiality. The PI will be sure to ask the participants if they have any questions or concerns before beginning the interview. All interviews will be recorded using a high-quality digital recorder. It is anticipated that each interview will last 45 minutes to one hour. The students will be compensated with \$35 gift cards after the interviews have ended.

Analysis of Data

Grounded theory principles will provide a basis for analysis of the interviews. This is one of the most common approaches used by interpretive researchers. After the interviews are completed, they will be transcribed by a transcription service. Participants' names will be removed and replaced with codes (S1, S2, etc.) to ensure privacy and confidentiality. The data in a qualitative study are the participants' actual words; thus, measures must be taken to correctly record what participants say and understand what those words mean to them. A high-quality digital audio recorder and professional transcription services will help to ensure data quality. The transcripts from all of the interviews will be analyzed using the inductive thematic analysis described by Braun and Clarke (2006). During the inductive analysis, the PI and graduate assistant will read the transcripts multiple times because this allows for patterns, themes, and categories to emerge from the data (Patton, 1987). The PI and graduate assistant will carefully read the transcripts to identify potential patterns and any interesting features. During this phase, the PI will try to make sense of what was uncovered and identify participant's multiple realities, by compiling the data into themes (Turner, 2010).

Van Manen (1990) defined a theme as the "focus or point of a passage; articulating something particularly essential or revealing about the experience described" (p. 40). The themes will be labeled using an emic approach. According to Lett (1990), emic constructs are accounts, descriptions, analyses expressed in terms of conceptual schemes and categories regarded as meaningful and appropriate by the participants in the group being studied. In taking an emic approach, the researcher tries to put aside prior theories and assumptions

in order to let the participants and data “speak” and to allow themes, patterns, and concepts to emerge (Litchman, 2013).

After the analysis of data from the interviews, the PI will create a survey based on the findings to send to participants. The survey will give the PI an opportunity to further probe and add to the findings from the interviews by getting a larger sample than will be possible with the interviews. The survey will be created using Qualtrics and sent to a random sample of four-year non-profit institutions in the United States. According to Statista, there were 4,313 colleges and universities in the U.S. in 2017, so a suggested sample size of institutions will be selected. The PI will contact the Provosts’ office at each institution to ask about distributing the survey to their constituents. There will be a screener question asking the students to identify their race in order to only have African American respondents. In terms of the survey specific questions, those questions will depend on the findings, but if the interviews show that African American students are concerned about stereotype threat when asking reference questions, there will be a set of questions that ask if students ask reference questions and why or why not. If the interviews show that African American students find or perceive that the library doesn’t have the resources they need, the PI will plan a series of questions asking students to rate their level of agreement on statements about availability, usefulness, and relevance of resources.

Timeline

Year 1

- IRB approval
- PI will create interview guide
- PI will work with each institution to recruit 8 students from two institution (16 students total) to interview
- PI will travel to two institutions to conduct interviews
- Transcribe and analyze the data
- PI will make revisions to interview guide if necessary

Year 2

- PI will work with the last two institutions to recruit 8 students from each institution (16 students total) to interview
- Transcribe and analyze the data
- PI will develop and disseminate a guide, model, or framework for developing responsive services to better meet the needs of African American undergraduate students.
- PI will present findings at practitioners’ conferences (ACRL and IDEAL)

Year 3

- PI will create a survey based on the findings from the interviews
- Survey will be distributed to a sample of non-profit academic institutions
- Data from the results will be analyzed
- PI will publish research findings in academic journals
- Submit final report to IMLS

Dissemination

After the PI analyzes the data, she will write a paper to submit to the ACRL conference where the focus is academic libraries. Additionally, the PI will write a paper to submit to IDEAL where diversity in libraries is the main focus. The PI will also expand on the conference papers and submit a journal article to be published in a peer reviewed journal for academic librarians. The conference presentations and journal article could reach a wide audience of current and future academic librarians. The PI could also be available to consult with

academic librarians who would like to implement her findings to develop more responsive services for African American undergraduate students.

Diversity Plan

This research project directly supports diversity, equity and inclusion in academic libraries. African Americans have been a marginalized and under-served group and there is astounding lack of research on their needs and perspectives. My research will begin to fill that gap. Once their needs and perspectives are better understood, academic librarians will be able to design services and resources to better serve that community and engage in outreach that resonates with the community. This project could result in academic libraries developing or updating their diversity, equity and inclusion plans and implementing more responsive services. Many academic libraries are creating diversity plans and if they are going to follow through with those plans, it is imperative to consider being inclusive of all populations that the library serves.

Broad Impact

The research findings will help academic librarians create services and resources to better serve their African American communities. This will lead to the development of a better community for that group, and perhaps identify skills or tools to develop the academic library workforce to be better prepared to serve that community. The findings from this project will make libraries and librarians more aware of how and why African American undergraduate students use or don't use academic libraries. Furthermore, the project seeks to make long-lasting changes in academic libraries, ultimately creating stronger connections to African American communities.

This study is also connected with the ACRL Diversity Standards: Cultural Competency for Academic Libraries (2012). The project aligns with Standard 1 Cultural awareness of self and others by working to identify the skills and tools that academic librarians can use to work with African American undergraduate students. As mentioned earlier, stereotype threat is an issue that plagues minorities and others who are stigmatized based actual or perceived membership in a targeted group (Wheeler, 2014; Kataopol, 2016). If librarians and library staff are going to work to provide services for African American undergraduate students, they need to have training that will focus on cultural awareness.

In addition to Standard 1, Standard 4. Development of collections, programs, and services specifically relates to this project as “programs and services will be developed that are inclusive of the needs” of African American students (ACRL, 2012, para 10). The interpretation of this standard states that “librarians and library staff need to learn how to detect and prevent exclusion of diverse constituents from service opportunities and seek to create opportunities for constituents, matching their needs with culturally competent services or adapting services to better meet the culturally unique needs of constituents” (para 10). Academic libraries have developed services for some target populations, but African American students have been excluded from the research.

Standard 10 Professional education and continuous learning, is aligned with this project because librarians and library staff need to continue to work towards having the training necessary to provide services for African American undergraduate students. All “practicing librarians should stay abreast of current educational trends and training methods needed to stay ahead of changes in professional practice, which includes the evolving needs of diverse populations” (para 16). As the needs of African American undergraduates and all other populations change, librarians and library staff need to be equipped with the training to adapt and change services to meet the needs of diverse populations that they serve.

The findings from this study will create more services that are inclusive and consider the needs of African American undergraduate students. Additionally, this project could increase the need to focus on other diverse populations that may be excluded in terms of the services that are being offered in the library. Essentially, this project could cause a shift in how academic libraries develop services to meet the needs of their users and call for more feedback from users from diverse populations. In academic libraries and libraries in general, the work that is being done is for the users and librarians and library staff can work to create a place where African American undergraduate students have the resources and services that they need.

The tool that will be created based on the findings from this project could provide more mentoring opportunities for African American undergraduates or more opportunities for outreach to those students. There may be opportunities to work with mentoring programs on campus and collaborate if that is finding from the project. Similar to the study by Arch and Gilman (2019) on first-generation students, academic libraries could partner with centers and organizations on campus to provide services that students need. In terms of outreach, the tool could take the form of focusing on marketing strategies and having library sessions for African American students. As previously mentioned, international students appreciated having library sessions specifically for them and they felt welcomed (Sheu and Panchyshyn, 2016). Studies have found that a lack of feeling welcomed and stereotype threat are issues that African American students may experience in the academic libraries (Stewart, Ju and Kendrick, 2019; Whitmire, 2004; Katopol, 2016).

Personnel

Dr. Rebecca Davis, PI is an Assistant Professor in the School of Library and Information Science at Simmons University. Her research is under the umbrella of diversity issues in academic libraries. She has given conference presentations and published on undergraduate women in STEM and their use of academic library resources and services, microaggressions, and diversity representation on academic library websites in the United States (Davis, 2019, Davis et al., 2016, Davis, 2015, Mehra & Davis, 2015). She brings experience with qualitative methods as the majority of her research is conducted using interviews, focus groups or a combination of both methods. Dr. Davis will be responsible for leading this project, working with institutions to recruit participants, scheduling interviews, traveling to conduct interviews, analyzing interviews and developing a survey instrument based on analysis from the interviews.

A graduate student assistant will be selected to work on the project and will be mentored by the PI. The graduate student will be an MLIS graduate student in the School of Library and Information Science and is expected to work on the project activities except for traveling and conducting interviews. Funding will support the student's work.

**African American Undergraduates' Use of the Academic Library
Schedule of Completion**

	Phase 1 - 2020-2021						Phase 2 - 2021						Phase 3 - 2021-2022					
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Task 1: IRB Approval																		
Task 2: Create interview guide																		
Task 3: Recruit participants from two institutions																		
Task 4: PI travels to two institutions for interviews			○															
Task 5: Transcribe and analyze interview data																		
Task 6: Revise interview guide																		
Task 7: Work with last two institutions to recruit students																		
Task 8: PI travels to last two institutions to conduct interviews								○										
Task 9: Transcribe and analyze data																		
Task 10: Develop and disseminate a guide, model or framework										△								
Task 11: Present findings at ACRL and IDEAL																		
Task 12: PI creates survey based on findings from interviews																		
Task 13: PI works with Provost's office at institutions to distribute survey																		
Task 14: Analyze data from surveys															○			
Task 15: Publish research findings in academic journals																	△	
Task 16: Submit final report to IMLS																		△

○ = milestone △ = deliverable



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?

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