Abstract

Community College Library Support for Student Success is a research project proposed by Northern Virginia Community College (NVCC), to coordinate a diverse partnership of seven community colleges and a not-for-profit research service, to develop and assess a series of concepts for innovative services with the goal of improving library support of community college student success, under the IMLS Laura Bush 21st Century Librarian Program.

We propose to test two key research questions:

- How can "student success" be defined so that it is inclusive both of students' own needs as well as important policy priorities?
- What services can academic libraries offer to most effectively support students in their attainment of success?

The time frame for this project is 18 months and the total budget if awarded will be $449,388.00.

The project will advance the IMLS priorities by supporting academic libraries nationally in meeting the needs of a broad and important population base in service of lifelong learning, workforce development, and economic mobility. In addition, it will strengthen the capacity of participating colleges to engage with, and provide service to their local communities. The intended audiences for this project are community college librarians, administrators, and researchers working on the challenges of student success in two-year institutions of higher education. It supports the librarian profession by developing the research capacity of librarian participants at the partner colleges, and addresses important gaps in the literature regarding librarianship at two-year institutions of higher education.

NVCC is joined in this proposal by six partner community colleges, each offering significant diversity in student populations, and regional and economic conditions, as well as institutional type and organizational context. The partners include: four CUNY colleges (Borough of Manhattan, Bronx, LaGuardia, and Queensboro), Monroe Community College of the SUNY system (upstate NY), and Pierce Community College District (Washington State). The colleges are supported in this work by our partner Ithaka S+R, a non-profit research service with deep expertise in libraries and educational transformation, as well as ethnographic and survey research methodologies. An external advisory panel of national experts will advise the project team.

Three methodological phases comprise the project:

1. A qualitative discovery phase, in which we will learn about the practices, preferences, and needs of community college students and their relationship to success, academic libraries, and librarianship by means of on-campus, in-depth, in person qualitative interviews;
2. A service concept development phase, in which we will develop a series of concepts for services that community college libraries might seek to offer, based on the discovery phase, during pre-work and in-person workshops with the members of the extended project team; and
3. An assessment phase, in which we will proactively evaluate the service concepts with community college students by means of a survey to evaluate their potential value through a "concept testing" methodology.

This project will generate two research reports, one on student perspectives, practices, and needs, and a second providing specific assessments of the service models that are developed in the course of this project. It will also yield a toolkit that can be further adopted by community colleges nationally to test these service concepts themselves or develop and assess additional service concepts, specifically relevant to their populations. All work products will be shared openly under a Creative Commons license.

The project will significantly benefit the communities and institutions represented. Together, the colleges serve over 182,000 students; five are "majority-minority" and federally designated as minority-serving, and collectively enroll students from 180 countries. The project's potential impact is national and could help shape how libraries at community colleges serve their students across the country.

Community College Library Support for Student Success

Northern Virginia Community College

Northern Virginia Community College (NVCC), leading a diverse partnership of seven community colleges and a not-for-profit research service, proposes to develop and assess a series of concepts for innovative services to improve library support for community college student success.

Community colleges are vital engines of our higher education system, with special emphasis on serving underrepresented minorities, low-income students, first-generation college students, New Americans, and other diverse populations. To continue evolving in support of their students, community college libraries need strategic intelligence about how to adapt their services.

The vast majority of research on how to adapt library services to support new priorities has been conducted at four year colleges and universities. And, the definitions of student success used in these projects have often derived from higher education institutions, state boards of education, and the federal government, thus omitting the perspective of the student in what defines success. This project will take an important step to address these imbalances.

This project's rich collaboration of seven community colleges brings meaningful diversity: we are urban as well as non-urban institutions, serving different populations, and including independent colleges as well as system members, an important consideration for library service provision. In this project we will collaborate with a non-profit academic research service, Ithaka S+R to develop and test a series of concepts for new student academic support services for the community college library, allowing libraries to align resources and programming in support of student success.

We propose to test two key research questions:
- How can "student success" be defined so that it is inclusive both of students' own needs as well as policy priorities?
- What services can academic libraries offer to most effectively support students in their attainment of success?

The three methodological phases that comprise the project are: a *discovery* phase, in which we will explore the practices, preferences, and needs of community college students; a *service concept development* phase, in which we will develop a series of concepts for services that community college libraries might wish to offer; and an *assessment* phase, in which we will evaluate the service concepts with community college students to determine their potential value.

This project will generate two public research reports, one on student perspectives, practices, and needs broadly and a second providing specific assessments of the service models that are developed in the course of this project. It will also yield a toolkit that can be further adopted by both community colleges and community college systems to test these service concepts themselves or develop and assess additional service concepts, specifically relevant to their populations.

Ultimately, this project will strengthen the position of the community college library, as an anchor in its campus community, to collaborate more effectively with its partners and increase its contributions to the success of its students.

Statement of Need

Higher education institutions across the United States are being called upon to provide greater assurance about student outcomes. Community colleges are an essential part of the US higher education sector, as roughly 42% of all undergraduate students attend community colleges, including an outsized share of underrepresented minorities and low-income students. In 2014, forty-four percent of low-income students attend community colleges as their first college after high school, while only 15% of high-income students do so. 56% of Hispanic undergraduates, 44% of Black undergraduates, and 39% of white undergraduates were enrolled at community colleges. (Community College Research Center, 2017).

And community colleges have taken up the challenge on student outcomes. We are at the vanguard of adapting our approaches to ensure student success for our diverse portfolio of students, including New Americans, first generation students, workforce development, and the academically underprepared, as well as high-achieving students seeking transfer opportunities.

Despite often limited staffing and resources, community college libraries are essential partners and leaders in this vital work, bringing together a variety of academic support services, including creating learning commons, engaging with faculty in support of Open Educational Resources to increase access and reduce cost of college, and spearheading initiatives to demonstrate value and evidence of the library's impact through initiatives such as Association of College and Research Libraries' (ACRL) Assessment in Action (Ackerman, 2015). This project will give voice to community college students in helping to develop the right mix of library services to support their success.

Given the policy priority to prepare a greater number of students for workforce and further education in the face of declining state funding for higher education (O'Banion, 2013; AACC, 2016), many observers are understandably concerned that we achieve greater educational efficiency. "Student success" has moved to the forefront of the higher education agenda, nowhere more prominently than community colleges. For two-year colleges, success has been defined by the achievement of institutional outcomes, predominantly comprised of various measures of student persistence, achievement, and attainment, including rates of transfer, enrollment in postsecondary education, GPA, retention, time to graduation, and graduation (Kuh, 2006). In other cases, student success has been measured as a function of post-graduation job attainment and compensation (Guthrie, 2016).

Researchers measure the library's contributions towards these success outcomes in a variety of ways in an attempt to demonstrate a positive correlation. At the institutional level, studies determined the ratio of professional library staff at elite Association of Research Libraries institutions predicts a positive relationship with both retention and graduation rates (Emmons & Wilkinson, 2011). Library expenses are positively correlated with graduation and retention rates at four-year colleges and universities (Crawford, 2015). At the individual level, a number of studies of four-year universities have correlated library use (library workstation logins, database logins, circulation check-outs, and/or electronic resource access) with student retention and GPA (e.g. Allison, 2015; Haddow, 2013; Soria, Fransen, & Nackerud, 2014). At the same time, few if any of these studies indicate a causal relationship with library funding, staffing, programs or collections.

The vast majority of this research has also been conducted at four year colleges and universities, and their measures of student success have often been derived from higher education institutions, state boards of education, and the federal government, thus omitting the perspective of the student in what defines success. Because we will be engaging directly with community college students in the course of this project, we have an opportunity to study their own goals and objectives.

As we learn about other outcomes that recent scholarship indicates are important to students (Cuba, Jennings, & Lovett, 2016), such as becoming more-informed citizens, providing for their parents and families, discovering themselves and their humanity, discovering a "path to purpose," or developing their critical thinking abilities we will incorporate those factors into the project. The project will examine if students' objectives vary across different institutions with different student populations. So, this work to develop library services that support student success will recognize whatever level of complexity that is discovered in how student success is defined.

The ongoing research conversation described above shows the growth in studies devoted to identifying linkages between elements of library service and student outcomes. This work is vitally important and well-aligned with our initiative. At the same time, our focus is somewhat different. The purpose of the proposed project is to identify promising practices matched with unmet areas of need and thereby create opportunities for libraries to develop new services that allow them to better serve the cause of student success.

The project recognizes the different types of community college students, such as adult learners interested in changing careers, noncredit technical training workforce development, and traditional-age students looking to transfer to four-year institutions. We will explore different student types, stratify findings to reflect them, and guide community colleges to the right mix of innovative services in support of their actual population.

Project Design

Research questions for this project include:
- How can "student success" be defined so that it is inclusive both of students' own needs as well as policy priorities?
- What services can academic libraries offer to most effectively support students in their attainment of success?

Three methodological phases comprise the project:
1. A qualitative discovery phase, in which we will learn about the practices, preferences, and needs of community college students and their relationship to success, academic libraries, and librarianship;
2. A service concept development phase, in which we will develop a series of concepts for services that community college libraries might seek to offer, based on the discovery phase; and
3. An assessment phase, will examine the service concepts with community college students to evaluate their potential value through a "concept testing" methodology.

In the discovery phase, we will explore in an open-ended fashion students' educational objectives, their academic and information usage practices, and the barriers they face. The research team plans to visit each of the seven colleges. The core methodology will be in-depth interviews, supplemented with observations and other qualitative methods based on input from the extended project team and any necessary iterations.

In the first phase, extended, in-person student interviews will be conducted with approximately 10 students from each institution for a total of at least 50 students across the participating colleges. We will work with the libraries from each college to identify interview subjects. We will ensure that our sample includes a broad and inclusive array of student types, such as full-time/part-time, minority, first-generation, adult, military, etc., and a variety of different long-term educational objectives. For these interviews, the project will ensure the sample does not simply reflect heavy library users, student employees, or similar likely sources of sampling bias.

In the service concept development phase, based on the outcomes of the discovery phase, the lead researchers will conduct an in-person workshop with the extended project team, with a series of calls and assigned pre-work and reflection activities.

In the workshop, the full project team will develop a series of concepts for library services, a process that will include several components. We will review the discovery phase findings. We will develop personae for the types of students (categorized by their objectives, practices, and needs) that have been identified. For each persona, we will collaboratively develop a series of preliminary concepts for library-provided services that could reduce barriers and increase student success (for example; roving reference, tiered reference, pop-up services in the student center during midterms, self-service finding aids, integration of writing center services in library space, new kinds of online, virtual, and social models for service delivery, or on-demand instruction YouTube videos). We will compare these preliminary concepts from across the personae, group them together, and edit them accordingly, to arrive at the service concepts for testing in the final phase.

In the assessment phase, we will conduct a survey of community college students to test the breadth of demand for these service concepts and how demand may vary by student persona, other student characteristics, institutional type, and other factors. The survey questionnaire will be developed by Ithaka S+R project staff with expertise in survey design, and it will be reviewed by the extended project team and advisory team and tested with the survey population.

The project leadership considered and ultimately decided against conducting a national survey as part of this project. There is no existing representative sample of community college student contact information for a large-scale research study, making such an approach logistically infeasible. We would not wish to make a methodological compromise by using something other than an appropriate representative sample in pursuing a national survey.

Instead, we will conduct local surveys at each of the participating institutions. In collaboration with the institutional research offices at these seven institutions, we will determine appropriate samples of the entire study body populations and distribute the survey to this subset of students. Invitation messages will be sent by each institution's academic leadership to that sample of students via email, with information about incentives (such as a raffle entry for a table, or certificate for a beverage at campus cafe) to encourage response. Based on response patterns, an appropriate number of reminder messages will be generated.

Each institution will be provided with a report of its own findings for local analysis and follow-up. The findings will also be analyzed collectively, to determine differences between participating institutions and student types. Our aggregate survey sample is not intended to be representative of the population of all US community college students, but our findings will nevertheless be generalizable. The diversity of our institutions, the diversity in student bodies, and the project's reflection of this diversity in the analysis, most

community college administrators and librarians across the country will see the relevance of this study and the reports generated for their efforts to support student success. The toolkit (discussed below) is intended to ensure that other community colleges can adopt this methodology to test findings in their own context.

Given this research plan, we recognize the need to submit this project for campus research ethics (IRB) approval, and other forms of campus review such as survey clearance, at each of the partner colleges. We expect that the CUNY institutions will all be able to participate under a single university-wide IRB approval. To expedite these approvals, NVCC is already submitting its IRB request, working through any questions that may arise in advance. We believe this will streamline the process for the other partners and may lead their submissions to be treated as "short form" submissions. The other partners have already begun reaching out to their IRB's to prepare to launch their own internal processes.

Toolkit

Following the completion of the research work on this project, we will package all research protocols, questionnaires, and support materials, as well as guidance on how they can be used, into a toolkit. The protocols and questionnaires will be annotated to help them be more adaptable by others and make it possible to leverage the creative commons license under which they will be released. The purpose of this toolkit is to allow other community colleges not only to replicate the work of the project, but to further adapt the project's work to suit their local context. This model will allow other institutions to examine whether the service needs of their communities are similar to, or different than, what we have found in our project, and to adapt their service profile accordingly.

Other toolkits have been developed and made available for libraries. For example, the Association of Research Libraries provides the LibQual+ tool, allowing libraries to assess perception of service quality among their user community. The toolkit in this project will be different because it will be made available in formats that can be readily re-used, for example so that survey questions can be modified and incorporated into any survey platform. It will require no payment or service relationship in order to be adopted.

The Partnership

The project is organized under NVCC as fiscal agent, as a partnership of community college libraries that is diverse in student population, geographical location, programming, and type of system affiliation. The research collaborator is Ithaka S+R, a nationally recognized not-for-profit research service with expertise studying faculty and students to inform future roles for the academic library and analyzing educational transformation to support student success. The partner organizations will serve as research sites, prove the value of the method, and test the resulting toolkit. Partnership members include four members of a single university system and three additional institutions. The diversity among the size, demographics, and the communities served will ensure results and findings can be scaled to national audiences and to an array of community colleges across the United States.

NVCC in close collaboration with Ithaka S+R, included multiple institutions from the same system - City University of New York (CUNY) - to ensure that our toolkit will offer value to multiple colleges choosing to run the toolkit as a cohort and thereby test the opportunity for common or shared services. CUNY participants are:
- Borough of Manhattan Community College (CUNY) has the largest undergraduate population of any New York City colleges or university, serving over 26,000 students. Among U.S. community colleges, BMCC is ranked #4 in conferring associate degrees to minority students; more than 40% of

enrolled students are Hispanic, more than 30% are African-American, and approximately 15% are Asian. Over 30% of BMCC students were born outside the U.S., 76% of students are 25 years old or younger, and 65% have annual household incomes of less than $25,000.

- Bronx Community College (CUNY) enrolls over 11,000 students across 30 academic programs. BCC is a designated Title V Hispanic Serving institution, and enrolls students originating from more than 100 countries. BCC was the vanguard CUNY campus leading student success with the Accelerated Study in Associate Programs initiative. BCC is a partner in the Achieving the Dream OER Degree Initiative for community colleges. A showcase library building opened in Autumn 2012.
- LaGuardia Community College (CUNY, Queens, NY) was founded in 1971 and enrolls 19,456 students in degree programs. LaGuardia students transfer to four-year colleges at three times the national average, and family income increases on average by 17%. 43% of LGCC students are Hispanic, and 21 percent are African American.
- Queensborough Community College (CUNY, Bayside, NY) enrolls 16,000 students in degree programs across roughly equal populations of African Americans, Asians, Caucasians and Latinos. QCC students come from more than 140 countries speaking 84 different languages. More than 50% of students come from families with less than $25,000 in yearly household income, and over half of QCC graduates transfer to a four-year institution upon graduation.

To ensure the research outcomes/findings and toolkit will be relevant to the broader scope of community college institutional types, we also include three community colleges in addition to the fiscal agent:

- Monroe Community College (SUNY) is located in upstate Rochester, N.Y., and is nationally recognized for both its academic and workforce development initiatives. MCC is ranked in the top 3% of U.S. community colleges for most associate degrees awarded, and enrolls more than 20% of student in workforce programs through partnerships with 187 regional employers. The college enrolls 13,000 students, 37% of whom are minority, and houses more than 700 students on-campus.
- Northern Virginia Community College, (VCCS, Fairfax County, VA), project leader and prospective grantee, is the 2nd largest community college and 15th largest higher-education institution in U.S. Enrolling more than 75,000 students across six campus and online NVCC has led national community college consortia with grants from the Department of Labor, the State Department, HHS, and, the National Science Foundation. An Achieving the Dream Leader College since 2010 it is nationally-recognized for innovative and proven programming supporting student success, graduation, transfer and employment. NVCC enrolls more African American students than any other higher education institution in Virginia; 31% of all Hispanic college students in Virginia; is the top community college in the nation in Asian graduates, and has students from 143 countries. NVCC is also an AANAPISI-serving institution.
- Pierce College (Puyallup and Lakewood, Washington), is comprised of two colleges and a military campus supporting a diverse body of 20,000 students from both rural and urban communities. A winner of Achieving the Dream Leah Meyer Austin Award, Pierce is a member of the American Association of Community Colleges Pathways Project, and was named one of the 150 best community colleges by The Aspen Institute College Excellence Programs. The Pierce College Library is also a former winner of the ACRL Excellence in Academic Libraries award.

We believe a particular strength of this proposal is the collaboration between these institutions and Ithaka S+R. One challenge faced by community colleges is that they are seldom afforded the opportunity to collaborate in research and publication alongside a non-profit partner with depth of experience (Arnold,

2010; Poole, 2000; Crumpton, 2013). Ithaka brings a skillset in research methodology and analysis and a wealth of expertise with academic libraries, including in-depth projects in profiling the academic library experiences of undergraduates at other institutional types. Ithaka S+R has experience in qualitative and survey research to examine the academic practices and associated needs of scholars and students. It has developed tools, such as surveys and ethnographic studies, enabling individual institutions to study the needs of their scholars and students. And, it has extensive experience in service concept development and testing as part of its array of market research experience working with scholarly publishers, academic libraries, and learned societies. Its research publications, issue briefs, and blogposts regularly reach an audience of thousands of readers across academic libraries and the academic community more broadly.

Project Team

The core project team will consist of the Project Director Dr. Braddlee, Dean of Learning & Technology Resources and Professor at NVCC and Co-Project Director, Roger Schonfeld, MLS, Director of Ithaka S+R's Library and Scholarly Communication program, as well as Christine Wolff-Eisenberg, Survey Coordinator for Ithaka S+R.

Braddlee has twenty-plus years' experience leading innovation and assessment initiatives in academic libraries and technology in higher education, holding leadership positions in grant projects supported through Title V, Gates, and the Hewlett Foundations. He is former Chair of the NERCOMP Board of Trustees and Program Committee, has served as Vice-Chair of the Westchester (NY) Academic Library Directors Organization, as a member of the Educause Program Committee and is currently on the ACRL/CJCLS Conference Program Planning Committee.

Schonfeld has extensive experience working on library strategy, user needs assessment, and higher education product/service development, working extensively on qualitative and survey research to identify faculty member and student practices and needs. He has held leadership roles in research projects for higher education supported by the Getty, Hewlett, Kress, Mellon, and Mertz Gilmore foundations, as well as Joint Information Services Commission in the United Kingdom, NEH, and the Rockefeller Brothers Fund. Schonfeld has degrees in English Literature from Yale University and in Library and Information Science from Syracuse University.

Wolff-Eisenberg leads the Ithaka S+R local surveys program, which has been designed to help academic libraries gain better insight into the perceptions of their faculty members, undergraduate students, and graduate/professional students as they make strategic decisions. Wolff-Eisenberg works with survey participants to secure institutional approvals, customize questionnaires, maximize response rates, and receive meaningful analyses of findings. She leads the Ithaka S+R national surveys of faculty members and library leaders, which provide insight into the practices and perceptions of higher education stakeholders.

Members of the core project team bring extensive experience with research design and analysis in the context of academic libraries. They will be responsible for developing all research methods and protocols, conducting all analysis, and authoring all publications.

In addition to these core team members, the extended project team will include the following individuals in library leadership roles at their respective institutions, and who will serve as point persons at the local level:
- Jean Amaral, Asst, Professor and Outreach Director, Borough of Manhattan Community College
- Katie DeRusso, Instructor and Interim Director of Libraries, Monroe Community College

- Christie Flynn, Dean of Library and Learning Resources, Pierce College District
- Jeanne Galvin, Professor and Chief Librarian, Queensboro Community College
- Michael Miller, Professor and Chief Librarian, Bronx Community College
- Steven Ovadia, Professor and Deputy Chief Librarian, LaGuardia Community College

The extended project team members are expert in library operations in a community college context, extensive on the ground experience working with community college students, instructors, and administrators, and an up-to-date awareness of the strategic interests and needs of community colleges. The group will meet formally, as detailed in the work plan, helping to ensure that decisions taken will work on the ground and prove strategically appropriate to community colleges and their students. This team will play a vital role in developing the service concepts that will be tested in the survey. Its members will assist with community awareness about the project and dissemination of its outputs. In addition to formal meetings, extended project team members will be consulted as needed throughout the project.

External Advisory Panel

In addition to the extended project team, our External Advisory Panel will review all data-gathering instruments, advise us during the service concept development stage, and provide input on draft reports. The EAP will also participate in the annual meetings of the Project Team. The following distinguished professionals have agreed to serve in the capacity as an External Advisory Panel:
- Dr. Bryan Alexander, Author and Senior Researcher, New Medium Consortium Horizon Project.
- Dr. Deborah Gilchrist, Vice-President for Learning and Student Success for Pierce College District
- Dr. Megan Oakleaf, Associate Professor, Syracuse University School of Library and Information Studies

Workplan

- *December 2017 - February 2018.* Develop interview protocol and review it with the steering committee. Develop standard language for institutional review boards. Seek and receive formal campus approvals.
- *Spring 2018.* Interview students from each institution. Analyze findings using grounded theory and publish a report. Based on these findings, convene partnership in a workshop to design service possibilities for community college libraries. Draft survey instrument and iterate with steering committee to finalize.
- *Summer 2018.* Test survey instrument and outreach/incentives via cognitive interviews and pretest, to maximize engagement. Develop protocol for fielding survey. Develop marketing and outreach materials.
- *Fall 2018.* All participating institutions field the survey and receive a report of findings (ie assessment results).
- *Spring 2019.* Review findings via partner workshop. Develop local action plans for each campus. Analyze aggregate findings. Publish research report and issue brief. Host external briefing about findings. Develop and publish the toolkit.

See **ScheduleofCompletion.pdf**

Project Deliverables and Communications Plan

- *Interim and final research reports.* Qualitative phase findings will be published via an interim report. The final report will include details on methodology and project process, qualitative findings, a meta-analysis of survey findings from the participants, and reflections resulting from the workshop.
- *Blogposts and issue briefs.* Regular blogposts from the core project team will examine aspects of student success, project progress and challenges, and share our service concepts in draft form for community input. One issue brief will be published on survey best practices in community colleges.
- *Presentations.* The core project team members, as well as members of the extended project team, will present at a variety of conferences, such as ACRL, Library Assessment Conference, METRO, and the League for Innovation in Community Colleges.
- *Toolkit.* All research protocols, questionnaires, and support materials, as well as guidance on how they can be used, will be packaged into a toolkit, allowing other community colleges to replicate the work of the project.

All publications will be reviewed in draft form by the extended project team and external advisory panel and copy-edited by Ithaka S+R communications staff. When finalized, they will published to the Ithaka S+R website where they will be made freely available under CC-BY license and with a unique DOI. They will be publicized widely with the support of the partnership, coordinated by Ithaka S+R marketing staff. The survey dataset will be submitted to the ICPSR repository for preservation and access. ICPSR provides data access, curation, and methods of analysis for a diverse and expanding international social science research community. The toolkit will be published via the Ithaka S+R website, under a CC-BY license.

Diversity Plan

Diversity is central to the contributions community colleges make to the American higher education landscape. Together, the seven partner colleges serve over 182,000 students from 180 countries, include five "majority-minority" institutions—each of which is also a federally designated minority-serving institution.[1] The partnership serves underrepresented minorities and low-income students, and also provides extensive services for veterans, adult learners, non-native English-speakers, and other underserved groups, including individuals pursuing job retraining. The college partners in this proposal have been selected for their varying and broadly inclusive student profiles and economic and geographic diversity. These include cross section of urban, suburban, and lower-population density communities. For example, NVCC enrolls more African-American students than any other college or university in Virginia, and nearly a third of all Hispanic students in Virginia higher education.

Given the varied needs, goals, and challenges of these populations, we believe that finding ways to improve the nature of the library services provided by community colleges will be of particular benefit to them. This project at its core is about ensuring that community college libraries are at the forefront of contributing to the student success of their diverse student populations. The project puts these students at its heart, conceptually and methodologically, and we will strive to ensure that the students that we engage are representative of the overall diversity of the participating community colleges.

---

[1] AANAPISI serving institutions (NVCC, BMCC, LGCC), Hispanic Serving Institutions (BMCC, BCC, LGCC, QCC). U.S. Department of Education.

National Impact

The expected national impact of this project is fourfold:

- First, the seven participating institutions will have the opportunity transform their own services offerings as a result of the detailed findings about their own student bodies. We expect there will be reasonable commonality across the service directions they pursue, and we expect to work as a group even after the formal project is completed to document and publicize their transformations. Libraries often look to leading peers to inform their own service development, so this is one important avenue for national impact.

- Second, the overall findings from our national report will be widely publicized and studied by community college leaders and libraries across the country (and beyond). Other librarians and educators will be able to evaluate the student needs and service directions documented in the report for local relevance and consider their own community practices and needs in this light. It is impossible to know how many libraries will make specific service adjustments in response the research findings, but we intend to position our work to maximize this type of impact.

- Third, our toolkit will be freely distributed and adopted or adapted by community colleges interested in replicating our research or parts of our approach in their own local context. For these institutions, findings may differ from those in our project, and their service adjustments may therefore not fully align with the directions suggested by our partnership's research. Nevertheless, our techniques, methodologies, and instruments will have an impact in this way as well.

- Finally, as noted above, there is a critical need to advance research by and about community college librarianship. Engagement in focused, reflective, and institutionally grounded research of the type proposed here, builds library leadership capacity, consistent with IMLS priorities regarding investigating widespread community challenges, forming mutually beneficial relationships between researchers and practitioners, and communicating findings in ways that have the potential to improve library services.

	2017-12	2018-01	2018-02	2018-03
Develop interview protocol and review it with the steering committee. Develop standard language for institutional review boards. Seek and receive formal campus approvals.	███████	███████	███████	
Interview students from each institution. Analyze findings using grounded theory and publish a report. Based on these findings, convene partnership in a workshop to design service possibilities for community college libraries. Draft survey instrument and iterate with steering committee to finalize.			███████	███████
Test survey instrument and outreach/incentives via cognitive interviews and pretest, to maximize engagement. Develop protocol for fielding survey. Develop marketing and outreach materials.	See Sheet 2			
All participating institutions field the survey and receive a report of findings (ie assessment results).	See Sheet 2			
Review findings via partner workshop. Develop local action plans for each campus. Analyze aggregate findings. Publish research report and issue brief. Host external briefing about findings. Develop and publish the toolkit.	See Sheet 2 & 3			

Schedule of Completion - Sheet2

2018-04	2018-05	2018-06	2018-07	2018-08	2018-09	2018-10	2018-11	2018-12

	2019-01	2019-02	2019-03	2019-04	2019-05

DIGITAL PRODUCT FORM

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

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

PART I: Intellectual Property Rights and Permissions

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

All digital products that are deliverables for the project, including reports, briefs, surveys and the digital toolkit will be released under a Creative Commons 4.0 CC-BY license. Authors and organizations participating will be identified as such in credits.

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.

Attribution rights only, per https://creativecommons.org/licenses/by/4.0/. Whenever applicable, we intend to follow the guidelines for grantees recommended by the Federal Open Licensing Playbook.

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.

No data that would allow participants to be individually identified will be released in any of the reports, briefs or shared datasets. Surveys and interview protocols will be reviewed and approved by IRB groups at each of the partner institutions. No intellectual property belonging to others will be distributed in the process of fulfilling grant obligations or deliverables.

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

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

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

Per proposal narrative, we "will generate two public research reports, one on student perspectives, practices, and needs broadly and a second providing specific assessments of the service models that are developed in the course of this project. It will also yield a toolkit that can be further adopted by both community colleges and community college systems to test these service concepts themselves or develop and assess additional service concepts, specifically relevant to their populations." Reports will be available as digital downloads in pdf format, with summaries presented in HTML. Items in toolkit will be in common file formats, including .pdf, .doc, .sav, .xls or .csv depending on the nature of the item.

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

For the partner college surveys, Ithaka will employ Qualtrics, a highly configurable and flexible survey software application. For the toolkit, surveys will be adapted so they may be adopted by other colleges in the future though affordable and easily accessible means, such as Survey Monkey, or the open-source LimeSurvey. All other deliverables will be created using widely available applications such as Microsoft Office, Google Docs, Adobe Acrobat, and SPSS.

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

Reports will be available as digital downloads in pdf format, with summaries presented in HTML. Items in toolkit will be released as .pdf, .doc,.xls, .sav (spss) or .csv depending on the nature of the item.

B. Workflow and Asset Maintenance/Preservation

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

During the award period, survey data will be stored within the survey platform (Qualtrics) and on a private protected drive, both of which will only be accessible to the Ithaka S+R project team and ITHAKA network domain administrators. Data from the survey will later be processed by and deposited with ICPSR for preservation and access, along with the associated questionnaire and codebook.

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

Per grant narrative, Data from the survey will be processed by and deposited with ICPSR for preservation and access, along with the associated questionnaire and codebook. The toolkit will be published and maintained via the Ithaka S+R website.

C. Metadata

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

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

D. Access and Use

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

Per grant narrative, data from the project's survey dataset will be submitted to the ICPSR repository for preservation and access. The toolkit will be published and maintained via the Ithaka S+R website.

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

ICPSR: http://www.icpsr.umich.edu/icpsrweb/ICPSR/series/00226 /
Ithaka S+R http://www.sr.ithaka.org/publications/

Part III. Projects Developing Software

A. General Information

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

N/A.

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

N/A

B. Technical Information

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

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) and URL(s) for examples of any previous software your organization has created.

N/A

C. Access and Use

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

N/A

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

N/A

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

Name of publicly accessible source code repository:N/A

URLN/A

Part IV: Projects Creating Datasets

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

Two sets of data will be created. First, from in-person interviews during the discovery phase (Spring, 2018). These will inform the survey and be cited in reports and publications, but there are no plans to release these publicly. Second, data produced by the student surveys during Fall, 2018 will be used to produce reports, and will form the basis of the archived dataset, which will be released prior to completion of the grant.

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?

As part of the proposal development planning, each of the partner colleges has notified their local IRB of our plans for the project and the nature of the research, and solicited input on the appropriate application process and to determine if there are any specific concerns that might impact the viability of the project. The research protocols and instruments will be submitted first through NVCC's IRB process. Once approved by NVCC, the protocol will be shared with the partner colleges as the basis for their individual submissions.

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

PII will be collected during the in-person interviews, but all PII will be removed or blinded from any references in released reports. Survey data will be collected with anonymous responses enabled, to insure separation of individually identifying information, such as email addresses, from collected data. For participation incentives, contact information will be submitted separately from data collected during the survey process.

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

Ithaka will preserve any consent documentation for in-person interviews conducted during the discovery phase. We will include language on consent in our online survey questionnaire, but we will not gather signed consent forms (i.e. that by proceeding in the survey, students will have indicated consent). Survey data, data dictionaries, code books and any other documentation will be preserved either by Ithaka, or where appropriate, released as part of the toolkit or shared dataset.

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

Data for the dataset will be gathered by means of an email survey, distributed to students institutional email addresses via Qualtrics survey software, as described above in Part II, Section A2. Results will be analyzed using a commonly available statistical software package, such as SPSS, SAS or R. Datasets to be archived will be saved in common file formats so they are easily accessible, and not made specific to a particular application.

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

During the award period, survey data will be stored within the survey platform (Qualtrics) and on a private protected drive, both of which will only be accessible to the Ithaka S+R project team and ITHAKA network domain administrators. Data from the project's survey will later be deposited with ICPSR for preservation and access, along with the associated questionnaire and codebook.

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

Per grant narrative, data from the project's survey dataset will be submitted to the ICPSR repository for preservation and access. The toolkit will be published and maintained via the Ithaka S+R website.

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

Name of repository: ICPSR

URL: https://www.icpsr.umich.edu/icpsrweb/

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

The data management plan will be periodically reviewed during the course of the project. In the event that any changes are necessitated prior to project completion, IMLS will be informed and consulted prior to implementation.