

HEAL (Healthy Eating and Active Living) at the Library via Co-Developed Programming

Facilitating and managing community partnerships has become a core part of public librarianship. Although the co-developed programs that emerge from these partnerships are becoming ever more common, few best practices exist to guide this important work. In a three-year, **Early Career Development** project, Dr. Noah Lenstra and student researchers propose to investigate how public library staff and partners work together to develop public programs, specifically those that address health equity. Theoretically, the proposed HEAL study is needed because we lack an evidence-based model of public libraries as public health partners. Although focused on health, its findings can be applied to other domains in which librarians partner with others.

This *exploratory* project will generate the knowledge needed to better understand and support these emerging trends. This project's research question is: ***How, why, and with what impacts do public libraries collaborate with others to co-develop programming around healthy eating and active living (HEAL)?*** Public health concepts, introduced below, shape this research question and the approach used to answer it. This project supports the P.I.'s long-term goal of better connecting public health and public librarianship.

This project answers its research question through case studies in **19** strategically chosen communities across the nation. The research findings will be refined and evaluated through three national community conversations. HEAL culminates in a one-day online National Summit that brings together leaders from libraries and public health. This summit will begin to foster and sustain a collaborative network at the national level to parallel and complement the collaborative networks emerging in local communities across the nation. All stages of this work will be supported by an inter-disciplinary advisory board composed of experts in public health, public librarianship, and social justice, as well as by supporters in the PLA, ARSL, OCLC/WebJunction, and NNLM.

Statement of Broad Need

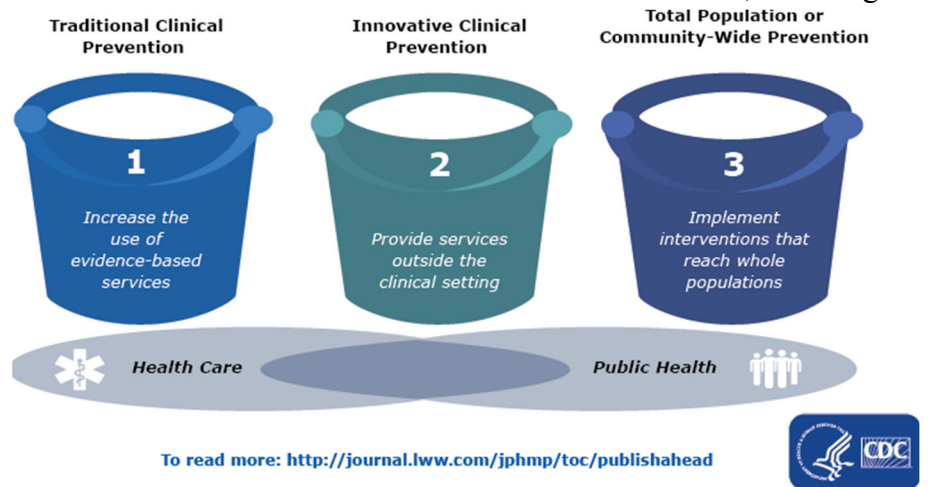
Librarians increasingly operate as *community catalysts*, “transform[ing] how they collaborate with their communities.”¹ To support this transformation, we need to understand how it happens. The Public Library Association (PLA) found in a 2018 survey of 3,539 members that the second most needed job skill in the profession is how to be a “Community Liaison/Partner.”² The American Library Association *National Impact of Library Public Programs Assessment (NILPPA)* also found librarians increasingly “co-develop programs with partner organizations,” concluding more research is needed on “library-community partnerships.”³

In this context, the domain of health is uniquely important, given the focus by policy makers on how public libraries address health equity through innovative partnerships. The IMLS demonstrated in its *Let's Move! Museums & Gardens* initiative “How Libraries Can Get Involved in Summer Meals”⁴ by opening their spaces to become sites for summer meal provision through the US Department of Agriculture's Summer Feeding Program. Libraries also get involved in many other local, regional, and national initiatives to increase healthy eating and physical activity among Americans. Key terminology is introduced on the following page, but, by way of introduction, this project defines health equity as “*when everyone has the opportunity to be as healthy as possible.*” Public librarians often work with partners to increase access to these opportunities. The public health sector has taken note of this fact. In 2018, the fourth most read article in the newsletter of the American Public Health Association was, “Libraries, public health work together on community health.”⁵ Nonetheless, we still lack fundamental understanding of how and why these partnerships come to exist, and the impacts they have. This knowledge is needed to support public librarians in their work with partners to support health equity.

Despite not yet coalescing into an evidence-based framework to guide practice and education, emerging research on HEAL programming in public libraries demonstrates the spread of this phenomenon. The American Library Association reported in 2015 that 23% of US public libraries had offered at least one fitness class in the previous year, 60% of which depended on collaborations with partner organizations.⁶ In California, a team from Stanford University's School of Medicine studied that state's *Lunch at the Library* program, concluding “public libraries are ideal locations for community-based meal programs due to their welcoming and stigma-free environment.”⁷ Researchers from the University of Pennsylvania's Center for Public Health Initiatives found in a 2018 survey of 262 Pennsylvania library directors that 37% offered nutrition programs.⁸ In 2010, in San Jose,

California, nutrition scientists analyzed the “impact of after-school nutrition workshops in a public library setting,” concluding such programs require more analysis and support.⁹ Seven years later, a Professor of Library and Information Science at San Jose State University returned to this library to analyze its health programming, finding the two most common formats of such programming to be workshops (48.7%), such as how to build a healthy plate, and exercise classes (31.6%), nearly all of which depended on partnerships.¹⁰ The ALA’s NILPPA also concluded that libraries are increasingly “nurturing physical health” through yoga and nutrition programs, among many other programs.¹¹ Based in part on these facts, the Robert Wood Johnson Foundation included public libraries on its list of factors that contribute to cultures of health.¹² This literature shows us that HEAL programming is emerging across the country, and the field of public health has begun to study it.

Health literacy is listed as a goal in the IMLS 2018-2022 Strategic Plan,¹³ but what is meant by the term “health,” and how libraries support it, are left undefined. As typically discussed in LIS, consumer health literacy focuses on an individual’s engagement with health care and with health information.¹⁴ In contrast, this image from the CDC (right) shows that a public health perspective focuses on “interventions that reach whole populations,” rather than a consumer health perspective, which would focus more on how to “increase the use of evidence-based services” and information. Since a public health perspective on public libraries is new, and since a primary goal of this project is to explore a public health perspective on public librarianship, the need for this project can be expressed through the introduction of key public health concepts:



Glossary of key public health terminology

Health – In May 2017 a team of public health researchers defined health as, “*physical and mental health status and well-being, distinguished from health care.*”¹⁵ Public health policy increasingly highlights the disconnect between what we spend on healthcare versus what actually improves our health. The figure on the right derives from data collected by the New England Healthcare Institute.¹⁶ Based on this definition, interventions often now prioritize changes to our environments and to our behaviors, as well as access to healthcare, striving to find balance among the myriad factors that together shape population health.

Health Equity – A central hypothesis undergirding this project is that HEAL programs in public libraries may increase health equity, which in turn relates to the IMLS strategic goal of promoting diversity, equity, and inclusion. The concepts of “diversity” and “health equity” are in fact frequently conjoined. The CDC’s Office of Minority Health and Health Equity defines health equity as “*when everyone has the opportunity to be as healthy as possible.*”¹⁷ Efforts to improve health

What Makes Us Healthy



What We Spend On Being Healthy



equity focus on interventions designed to increase access to opportunities to be healthy in the spaces where we work, live, learn, and play. The CDC report *Strategies for Reducing Health Disparities* showcases how “public health professionals and community workers design and implement strategies for reducing health disparities” by working together on public programs.¹⁸

HEAL – In a study of public health interventions in 49 communities, researchers defined HEAL as “*community partnerships to promote healthy eating and active living.*”¹⁹ A report on the growth of this trend finds that with “the launch of the Healthy Eating Active Living Convergence Partnership [in Fall 2005], local funders shifted toward funding place-based initiatives that addressed complex, multi-faceted issues.”²⁰ This idea has since been incorporated into policy documents, including the National After School Association’s Healthy Eating and Physical Activity Guidelines,²¹ but has not yet been used explicitly in library policy or research. Nevertheless, the concept of HEAL has already found its way, at least implicitly, into public library practice. The Alliance for a Healthier Generation reported how in Bristol, CT, librarians “introduced exercise, mindfulness and creative food preparation activities to lunchtime” served at the library during summer months.²² In the small town of La Cygne, Kansas, librarian Janet Reynolds “didn’t want to just be a [summer] ‘feeding’ station; [she] wanted to tie library programming to lunch.”²³ She did so by partnering with a retired P.E. teacher, who offered Fitness Thursdays on the library lawn. The central idea of HEAL, as a public health concept, is that supporting health equity requires supporting the cornerstones of healthy living: How we move and what we eat.

Multi-sectoral collaborations – A foundational idea in modern public health is that *health equity emerges from multiple sectors working together*. Already, some have included public libraries in their collaborations. Writing in the *Journal of Physical Activity and Health*, McGladrey et al. report on a “multisectoral approach” to rural physical activity promotion in Clinton County, Kentucky, concluding that the local public library has been an ideal stakeholder and partner in such coalitions.²⁴ Similarly, in Memphis, TN, the Memphis FitKids project integrated the public library into its multi-sector network, finding it to be a key partner in the endeavor.²⁵

Sentinel communities – As public health shifts its focus toward collaborators from multiple sectors working together to address health equity, scholars have shifted to understanding and assessing “sentinel communities.” The Robert Wood Johnson Foundation defines these as “*a geographically defined community ... selected for the purpose of observing how a culture of health takes hold and evolves at the local level.*”²⁶ Sentinel communities are **not** chosen for their generalizability. Instead, the focus is on deeply understanding how health equity emerges in particular local contexts through collaborations: “There is no single way to build a culture of health, and many approaches may provide valuable insight on how to make progress.”²⁷ The goal is to deeply understand what is happening in **specific** communities to develop policy recommendations on what **may** be possible elsewhere. This approach fits perfectly with the **exploratory** stage of this proposed HEAL project.

Finally, beyond the specific domain of health, this study contributes to growing professional interest in programming partnerships. NILPPA found three pathways through which libraries develop programs, of any type: 1) Library staff develop programs, 2) Libraries co-develop programs with partner organizations; and 3) Regional or national entities develop and distribute programs to libraries.²⁸ Previous studies suggest that co-developed programs are largely driven by librarians. In the IMLS-funded *Libraries Respond to the Opioid Crisis with their Communities*, OCLC/WebJunction found that “in almost all cases, the library initiated the partnership.”²⁹ In a study the P.I. did with the State Library of North Carolina, he found that 96% of North Carolina public libraries report that collaborative programming (of any type) was typically initiated by librarians.³⁰ These two facts tell us that more research is needed to help public librarians most effectively work with community partners to co-develop programs. Specifically, more work is needed at the national level to communicate to potential partners that they can and should be reaching out to their local libraries as partners.

Past research demonstrates that public librarians often work with partners to develop HEAL programs, which include everything from hosting summer meals to drop-in fitness classes to cooking classes. We know this activity is happening. What we do **not know** is **how** and **why** it is happening, and **what impacts it is having**. *HEAL (Healthy Eating and Active Living) at the Library via Co-Developed Programming* addresses this gap through **exploratory**, case study **research in service to practice** in 19 communities across the nation.

Project Design

The three phases of this project are organized around addressing the research question: *How, why, and with what impacts do public libraries collaborate with others to co-develop programming around healthy eating and active living (HEAL)?* Specific sub-components of this research question include:

1. **Internal Practices.** How and why do library staff incorporate partnerships into programming plans?
2. **Community.** What roles does the library play in community-level health initiatives and coalitions?
3. **Impact.** How does access to health equity increase through these co-developed programs?

We propose a unique combination of qualitative and quantitative methods to answer these questions. First, we will develop a model of collaboration through 19 case studies. Second, three national community conversations with public librarians will lead to the refinement of this model, as well as the identification of priority areas around which best practices can be developed. Third, a national online summit will bring diverse stakeholders together to *begin* the work needed to create a national multi-sector network, based in public libraries, to parallel the work taking place in local communities. As an **Early Career Development** project, this project sets the stage for work focused on fostering richer public health-public library partnerships after this project concludes.

Overview of project timeline. Already completed – Form Advisory Board | recruit participating public libraries.

Phase 1, Aug. 2020-Dec. 2021, Case study fieldwork and preliminary analysis, includes two stages:

Stage A, Aug. 2020-Aug. 2021, on the ground fieldwork in 10 communities across the nation, and

Stage B, Sep. 2021-Jan. 2022, virtual fieldwork with 9 communities across the nation.

Phase 2, Feb. 2022-Oct. 2022, National Community Conversations to validate and refine findings, and to begin to build national community around this topic. This phase includes intensive analysis of fieldwork data.

Phase 3, Nov. 2022-Jul. 2023, Finalize findings from Phases 1 and 2, culminating in a National Online Summit.

After project, application of findings focused on building and sustaining a multi-disciplinary research network to understand and support how public libraries support health equity through programming and partnerships.

Methodologies. The methodology of *Phase 1* is the case study. We will do fieldwork in 19 communities across the US, interviewing approximately 97 library staff and 97 library partners, and talking with 80 patrons who participate in HEAL programming. Case study methods are ideal to research phenomenon that cannot be easily disentangled from their context.³¹ A key theoretical assumption is that to understand co-developed programming, you need to understand the collaborations undergirding it. Through semi-structured interviews with library staff involved in different capacities in these collaborations, the P.I. and student researchers will reconstruct the history and current state of these collaborations and the programs that result from them.

Site and participant selection. To establish a participant pool, in Winter 2019 the P.I. worked with the Advisory Board of his *Let's Move in Libraries* initiative³² to recruit 19 libraries from across the US to participate. The P.I. has formed relationships with key stakeholders at each participating library. HEAL has received enthusiastic assurances of support (see attachments). During this project, participating libraries will: 1) Help the P.I. identify organizations with which they have partnered to develop and deliver HEAL programming, 2) Work with the P.I. to co-develop a community conversation in which participants of past HEAL programming will be invited to share their experiences, and 3) Be invited to participate in interviews. In exchange for their time, libraries will: 1) Receive a stipend of \$1,000, 2) Possibly learn more about their community, and 3) Have the opportunity to network and exchange information with libraries working on similar programs across the nation.

The case study communities include a diverse array of urban, suburban, small, and rural libraries from across the nation. Criteria for inclusion as a case study community included: 1) Must self-identify as already having in existence co-developed HEAL programming; 2) Must self-identify as being willing to allow P.I. and student researchers to spend time talking with staff, patrons, and partners; and 3) Must add to the overall diversity of this study, in terms of adding representation from different parts of the country, different community types, and different demographics within communities. Communities that have agreed to participate include locations as diverse as the second poorest large city in the country (Memphis), the third most populous county in the country (Harris County), a small town in Western Montana (Belgrade), and a community at the center of Pennsylvania's

post-industrial Lehigh Valley (Bethlehem), among others. These public libraries serve a diverse population whose total population is 7,176,519, 40% of which is Non-White (table, data via IMLS Public Library Survey [FY 2017] and US Census [2010]).

	Population	% White	Service Area Type	State	Stage A	Stage B
Harris County Public Library	4698619	56.6	City, Large	TX	x	
Memphis Public Library	823830	47.3	City, Large	TN	x	
Anne Arundel County Public Library	560133	75.4	Suburban, Large	MD	x	
Loudoun County Public Library	361708	68.7	Rural, Fringe	VA	x	
Gail Borden Public Library District	144597	65.9	City, Mid-Size	IL	x	
Bethlehem Area Library	114175	76.4	City, Small	PA	x	
High Point Public Library	110244	54.5	City, Mid-Size	NC	x	
Rutherford County Library	67703	86.8	Town, Distant	NC		x
McCracken County Public Library	65162	86.7	Town, Remote	KY	x	
Marion Public Library	46327	93.7	Suburban, Mid-Size	IA		x
Orion Township Library	35394	95.4	Suburban, Large	MI		x
Pendleton Community Library	26099	96.6	Suburban, Small	IN		x
Scotch Plains Public Library	23510	77.43	Suburban, Large	NJ		x
McArthur Public Library	21362	94.8	Suburban, Mid-Size	ME		x
Pella Public Library	17949	95	Town, Distant	IA		x
Baxter Memorial Library	17381	96.5	Suburban, Mid-Size	ME		x
Laurel Public Library	15616	55.5	Suburban, Small	DE		x
Bigelow Free Public Library	13750	71.9	Suburban, Large	MA	x	
Belgrade Community Library	12960	94.2	Town, Remote	MT	x	

Case study development will occur over two stages. In **Stage A**, the P.I. will work in 10 communities. Stage A will entail interviews with approximately 6-8 library staff and 6-8 library partners in each community, as well as community conversations. **Stage B** will scale this work up through nine less intensively developed case studies. The work in Stage B focuses on extending and refining the findings developed in Stage A. They will be smaller in scope and conducted virtually. Stage B will include interviews with 3 library staff and 3 library partners in each community. Interviews will take place via WebEX videoconference. Libraries were assigned to the two stages based on the perceived complexity of the cases, concerns for equitable distribution, and logistical concerns. All partners interviewed and all community conversation participants will receive a small stipend.

Prior to fieldwork, in each community, the P.I. will work with participating libraries to identify contacts in partner organizations with which the library has worked, as well as to set a time for the community conversation (Stage A only). **During fieldwork**, participating libraries and partners will engage in one-on-one interviews about co-developed HEAL programming. The library will work with the P.I. to advertise the community conversation as a public library program (Stage A only). **After the fieldwork**, interview participants will as needed respond to emails about topics that arose during interviews that need elucidation and to ensure anonymity. Participant libraries know these details and they want to participate in this project.

Interview Protocol. Case studies frequently include both quantitative and qualitative elements. HEAL uses the **Wilder Collaboration Factors Inventory**, a tool to assess how collaborations operate based on 20 research-tested factors developed by the Amherst H. Wilder Foundation.³³ This tool is widely used in the field of public health to evaluate collaborations.³⁴ Hour-long interviews with librarians and collaborators will consist of: 5 minutes - Informed consent; 15 minutes – Completion of 40 question collaboration factors inventory; 40 minutes – semi-structured interviews beginning with prompt: “Tell me about your experiences collaborating with other organizations to bring healthy eating and active living programs to your community,” with follow-up prompts based on the different factors in the Wilder inventory. By utilizing the Wilder inventory, this project

will: 1) Develop a more nuanced understanding of how collaboration shapes these programs; 2) Test a new tool, for the field of LIS, that could be used in other domains beyond health; and 3) Generate data that speaks directly to the disciplinary concerns of public health. The use of this inventory will enable HEAL to communicate general trends, in terms of which collaboration factors seen more strongly or weakly across all 19 cases.

The interview protocol will ensure themes of diversity and inclusion are represented. As discussed above, diversity and health equity are frequently conjoined at the national level. However, we do not currently know **how** or **if** public libraries that work on HEAL programs see their efforts as contributing to health equity and inclusion. As such, in interviews we will ask if and how concerns about diversity and inclusion inform collaborations. Through this measure, we will better understand to what extent co-developed programming contributes to increased access to health equity, when everyone has the opportunity to be as healthy as possible.

Community Conversations. To further discern program impacts, in case study communities visited in person, a community conversation will be convened at the library. During these conversations, community members who have participated in HEAL programs will be invited to come and share their experiences. These community conversations will be guided by policy documents created by the ALA on how and why to hold such community conversations in public libraries.³⁵ They will be offered as a co-developed public library program. In this particular case, the partners working together to develop the program consist of the HEAL research team and the participating library. An ancillary outcome will be that participating librarians may become more capable in developing community conversations around other topics at their libraries in the future.

Recruitment, human subjects and confidentiality. Each case study will be unique, and the particular details of that uniqueness will be critical to understanding them. As a result, we will not de-identify names of particular communities. This procedure aligns with best practices in case study research, including in the field of LIS. See, for instance, the reports of the IMLS-funded “Public Libraries Respond to the Opioid Crisis with Their Communities.”³⁶ Individuals will be assigned pseudonyms to protect personal privacy. Participants will be informed of these procedures, and all actions will be approved by the UNCG IRB prior to the commencement of this study. The research team will also share drafts with participants to ensure they are comfortable with how they are represented, and to give them an opportunity to ask that sections be more thoroughly anonymized.

Risk management. One risk associated with HEAL is that library staff may not feel comfortable speaking openly about negative experiences they may have had working with partners or with their employers due to the fact that the library is a partner in this project, and their remarks will be associated with that library in publications. This risk will be navigated in three ways: 1) By interviewing multiple library staff members at each location, it will be possible to obscure the source of any particular remarks; 2) By sharing drafts with participants, we will strive to mitigate this risk; and 3) By working closely with the research team from OCLC/WebJunction. This team completed the IMLS-funded “Public Libraries Respond to the Opioid Crisis with Their Communities” project, which confronted similar issues, and we will learn from their experiences.

The 19 cases are not meant to generalize to all public libraries, nor to all possible collaboration configurations. Rather, the aspects of collaboration these unique cases demonstrate will contribute to a model of the range of possibilities – the successes, the challenges – and the best practices that libraries should consider when engaging in co-developed programming, regardless of domain. An ancillary benefit will be to alert potential partners to things they may wish to consider to start and to sustain stronger relationships with public libraries.

Case study analysis. In case study methodology, particularly in the sentinel community tradition, each case study is developed independently. To build from unique cases to common trends, a technique called intercase analysis is deployed.³⁷ Based on collating: 1) all responses to the Wilder Collaboration Factors Inventory, 2) common themes that emerge in community conversations, and 3) common themes from semi-structured interviews, a typology of the things that go into co-developed HEAL programs will emerge. Based on the P.I.’s previous work, it is anticipated this typology will include *patterns*, such as personal relationships contributing to professional collaborations, as well as common *obstacles* faced and surmounted. The latter include such as concerns over legal liability in cases where food is consumed and prepared or bodies are put in motion through

library programming. In the community conversations, based on the P.I.'s previous research,³⁸ we hypothesize that themes around increased social well-being and feelings of community connectedness will emerge.

These findings will emerge from a research design process in which each case study will be analyzed using grounded theory techniques combined with intercase analysis. This will develop and refine an evidence-based model of co-developed HEAL programming.³⁹ The software Atlas.TI will be used to analyze and store the data. The P.I. has used this software for past projects.⁴⁰ The codebooks developed in past projects will serve as a starting point in the analysis. Throughout, the Advisory Board will provide expert input based on findings.

Phase 2: Community conversations at the national level. Following completion of the initial intercase analysis, this project will convene members from our case study communities in a half-day online community conversation using the software WebEX. Two face-to-face, 1.5 hour community conversations will also occur at the meetings of the Public Library Association and the Association for Rural and Small Libraries. In these conversations, we will present preliminary findings and engage stakeholders in a conversation focused on validating and refining those findings. HEAL will ask participants to help identify themes from the data they think most urgently need to be addressed, in terms of developing continuing education content.

Professional Development for Library Staff. Library staff from across the country who work independently on co-developed programming in their particular communities will be invited to share their experiences together. Previous work has shown that public librarians, particularly those working on co-developed programs,⁴¹ often lack professional support. These conversations begin to fill that need, while also raising national awareness of the prevalence of these activities. Through these community conversations, HEAL aims to give back to professionals who have taken the time out of their busy days to participate in this study.

These community conversations will be based on the P.I.'s past successful experience leading workshops with public librarians for research purposes.⁴² These community conversations will also be based on the principles of participatory design, with participants working together to articulate themes they think most urgently need to be addressed in continuing education content, and beginning to design that content.⁴³ Prior to the conversations, HEAL will develop a 20-page white paper of findings to be circulated and posted online at least one month prior. During Phase 2, HEAL will also dedicate time to the completion of the intercase analysis from Phase 1.

Phase 3 focuses on *beginning* to set the stage for the development of a multi-disciplinary, multi-sectoral community of practice around the topic of this study. The activities in this phase begin the work necessary to create a multi-sectoral structure that could parallel the local partnerships that have formed around co-developed programming in communities across the nation. HEAL culminates in a national, online, one-day summit. This free event will bring together public librarians, LIS educators, and representatives from the groups our advisory board represents (public health, parks and recreation, cooperative extension, medical librarianship, environmentalism). In planning the summit, HEAL will also seek the advice of OCLC/WebJunction and the National Network of Libraries of Medicine, both of whom support this project. The National Online Summit is inspired by the free one day, online conference *Big Talk from Small Libraries*, which the Nebraska Library Commission has successfully offered annually in partnership with the Association for Rural and Small Libraries since 2012.⁴⁴ Nebraska's online conference was in turn inspired by the State Library of Iowa's Small Libraries Online Conference, successfully offered as a one-day, online conference since 2008.⁴⁵ HEAL intends to continue this tradition of excellence in librarians successfully utilizing the community convening capacities of new technologies. Based on these successes, as well as our previous experience developing and delivering online continuing education with partners, we envision success in the National Online Summit.

Criteria for success and risk management (Phase 2 & 3). Case studies are sometimes critiqued as being too idiosyncratic to inform other contexts. By conducting this research in multiple, diverse communities, HEAL seeks to mitigate these concerns to the highest degree possible. This project's use of the Wilder Collaboration Factors Inventory will also produce quantitative findings tied to a widely used and respected benchmark. The three national community conversations, followed by a national online summit, will enable the research team to validate findings with an invested group of practitioners from multiple sectors. The Advisory Board will also help navigate challenges as they arise. Potential risks associated with this project center around the fact that all

stages depend upon the goodwill and support of public libraries, their partners, and their patrons. The support already provided to this project by key stakeholders both within participating libraries and within a number of national library organizations, suggest this risk will be successfully navigated. In particular, WebJunction has agreed to work with HEAL to arrange virtual events if the in-person meetings scheduled become impossible, owing to COVID-19 or other public health emergencies that we cannot currently predict. More generally, given that this project focuses on forming and sustaining partnerships, we aim to practice what we preach.

Project deliverables and dissemination strategies

- Phase 1 – Online white paper to guide community conversations, as well as research article and academic conference presentation on utilization of Wilder Collaboration Factors Inventory
- Phase 2 – Online white paper on results from community conversations, as well as research article addressing question “How, why, and with what impacts do public libraries collaborate with others to co-develop programming around healthy eating and active living (HEAL)?”
- Phase 3 – National Online Summit: recorded and shared with a white paper articulating key findings and action items; sharing educational modules at Association for Library and Information Science Education; research article on co-developed programming (in general); and conference presentation at meeting of the Society of Public Health Educators (SOPHE) on findings from project.

The dissemination strategies span the range from face-to-face presentations to social media. In addition to sharing findings in peer-reviewed academic journals and conferences, the P.I. will work with the Advisory Board to ensure the model is and remains accessible within communication channels utilized by public librarians, LIS educators, and public health stakeholders. OCLC/WebJunction has agreed to work with HEAL as a sustainability and dissemination partner. The open access white papers created at each phase of this project will be shared broadly within the communication channels utilized by library practitioners, including professional listservs (e.g. ALA Connect, ARSL, JESSE), national blogs (e.g. blog of the ALA Public Programs Office), and academic journals. Our deep connections to the providers of continuing professional education enable us to reach both our colleagues in the LIS research field and our colleagues in the continuing education sectors. HEAL will work with the Advisory Board and project supporters to disseminate this project’s findings as widely and as effectively as possible and help us ensure that these findings remain accessible in perpetuity.

Throughout the project, the P.I. will incorporate findings into teaching modules to be deployed in his own courses (e.g. Advanced Library Administration and Management), and also shared at the project’s end for potential adoption in other LIS programs across the country. HEAL will also work with OCLC/WebJunction to develop continuing education modules that could be used in courses at UNCG, in other LIS programs, and by other providers of continuing education to public libraries across the nation, including state libraries.

Finally, this project’s findings will be disseminated using the P.I.’s *Let’s Move in Libraries* initiative (2016-), which exists to extend into the library sector the IMLS’s *Let’s Move! Museums & Gardens* (2010-2016). Over the last four years, *Let’s Move in Libraries* has grown an active community of public library professionals and supporters, including (as of March 10, 2020) 2,030 followers on Instagram, 1,962 on Facebook, 1,435 on Twitter, and 2,611 subscribers to a monthly e-newsletter. The project’s website has been visited by 19,562 users. The P.I. will utilize this successful deployment of new media to build community among public library professionals both to disseminate project findings and to sustainably engage public library professionals.

Research Team

P.I. Dr. Noah Lenstra. Since joining the faculty of Library and Information Science at the University of North Carolina at Greensboro, the P.I. has sought to build sustainable collaborations with the health sciences. Since 2017, he has served as an Affiliated Faculty member in the UNCG Gerontology program. His research on this topic began in North Carolina in Winter 2016, when he interviewed 39 library staff who had worked on active living programming, finding these programs typically emerge through community partnerships.⁴⁶ For instance,

he discussed how a rural library in Appalachian North Carolina hosts and promotes the town's Yoga club, a peer-led group open to all. He then administered a survey to discover how widespread this programming had become, finding at least 1,157 libraries throughout the US and Canada offered such programs.⁴⁷ More recently, Lenstra & D'Arpa analyzed how public libraries contribute to food justice through programs focused on food distribution, increasing nutritional knowledge, and supporting community agriculture. This research showed that in 2017, over 1,500 public libraries across the country opened up their spaces to distribute free summer meals through the USD.A. Summer Feeding Program.⁴⁸ Based on this work, the P.I. had the privilege to serve on the Public Library Association's Health Initiative Advisory Group.

In developing this research, the P.I. has sought to connect with public health scholars and practitioners. In March 2018, he was invited to present a poster entitled "How public libraries contribute to cultures of health through community partnerships: Food & Physical Activity" at the Robert Wood Johnson Foundation's annual Sharing Knowledge to Build a Culture of Health conference. More recently, based on his research, the P.I. was invited to serve on the Voices for Healthy Kids' Activating Rural America initiative Advisory Group.

Graduate Student Research Assistant Lindsey Wilson. As a resident of rural, western N.C., Lindsey Wilson is intimately familiar with the challenges associated with health equity in small town America. She brings to this project strong technical skills, a passion for public librarianship, and research skills: having won a student research award from UNCG for her scholarship in Spring 2020. After Ms. Wilson graduates with her Master's degree, the project will recruit and mentor other students who will also add diversity to our field.

Multi-Sectoral Advisory Board. Throughout all stages of this Early Career project, we will seek the advice and support of our multi-sector Advisory Board, structured to feature representatives whose interests include social justice in LIS, public health partnerships, community health, health literacy outreach, health services provided through the USDA cooperative extension, and innovative partnerships designed to increase access to the natural world. By bringing this diverse group of experts together, this project has the support needed to be successful.

- Dr. Carolyn Cannuscio - Director of Research and Associate Professor of Family Medicine and Community Health at the University of Pennsylvania Center for Public Health Initiatives. Founder and director of the Healthy Library Initiative
- Dr. Aaron Hipp - Associate Professor of Community Health and Sustainability at the North Carolina State University's Department of Parks, Recreation and Tourism Management
- Dr. Bharat Mehra - Professor, EBSCO Endowed Chair in Social Justice in the University of Alabama's College of Communication & Information Sciences
- Jessica Stroope – Research Associate in the Louisiana State University Cooperative Extension Service
- Monica Lopez Magee – Director, Cities and Nature at Children & Nature Network
- Jarrod Irwin – Consumer Health coordinator for the National Network of Libraries of Medicine, Southeastern/Atlantic Region
- Jenn Carson – Director of the L.P. Fisher Public Library (Woodstock, New Brunswick), author and expert on physical literacy in the public library context
- Kendra Morgan – OCLC/WebJunction Senior Program Manager and WebJunction lead on the IMLS-funded *Public Libraries Respond to the Opioid Crisis with Their Communities* project

Finally, in addition to working with our multi-sectoral advisory board, the P.I. will leverage the expertise of the Advisory Board from *Let's Move in Libraries*. These public librarians proved instrumental in identifying the communities that have agreed to participate in HEAL, and their advice will continue to be drawn upon.

Diversity Plan

HEAL aims to empower public library professionals to provide inclusive services to diverse communities, while also striving to broaden participation in LIS. The latter goal can in part be accomplished by fostering and sustaining connections with outside sectors, thus building a more diverse profession. In *Positioning Library and*

Information Science Graduate Programs for 21st Century Practice, the IMLS states we need to be “going to where diversity is.”⁴⁹ This project does that through site selection and Advisory Board composition.

Working with local librarians and their partners in diverse communities, we will ensure that the theme of diversity is reflected in this study’s results. The project’s final reports will include perspectives and experiences of the librarians that serve diverse communities at the center of this study. As discussed above, diversity and health equity are frequently conjoined at the national level. However, we do not currently know **how** or **if** public libraries working on co-developed HEAL programs at the local level see their efforts as contributing to health equity and inclusion in multi-cultural America. Our research **explores** this topic, generating evidence needed to spark conversations on inclusion and diversity in public library programming and partnerships, as well as more generally in the field of LIS. These measures also allow for this understanding across multiple forms of diversity that are not well represented in LIS,⁵⁰ including socioeconomic status and geographic distribution, as well as racial and ethnic diversity.

This project has also assembled a diverse, gender-balanced Advisory Board, including multiple members of minority groups, and individuals who represent a diverse coalition of interests and expertise. By drawing upon these diverse advisors’ mentorship and support, we will include new and important voices and viewpoints into the LIS profession, ultimately building a more diverse and resilient network of support for public librarians.

Broad Impact

A primary mechanism used to achieve broad, national impact is by working with and through the national library agencies that have written letters of support for this project: The Public Library Association, the Association for Rural and Small Libraries, OCLC/WebJunction, and the National Network of Libraries of Medicine. We will gratefully participate in their networks, and draw upon their expertise, to most effectively empower public library staff to support health equity through co-developed programs in diverse communities. Of special importance is our sustainability and dissemination partner, OCLC/WebJunction, which has agreed to work with HEAL to produce practical and actionable information shared through articles on WebJunction.org and based on the white papers that will result from each of your three research phases.

It is expected this project will address a gap in library service by identifying a set of best practices for co-developed programs between libraries and community partners. Few best practices have been developed to support this type of programming, according to the American Library Association. Although this project focuses on the public library as a space to support health equity, its findings can be applied across multiple domains, including economic or workforce development. This lends HEAL the ability to have a broad impact while also addressing the critical issue of public health and wellness. Strategic multi-sector collaborations are at the heart of this research, which will ultimately elevate the role of librarianship at the national level.

Theoretically, this study has the potential for broad impact through its efforts to weave together the concerns of public health with those of library and information science in novel ways. This **exploratory** endeavor, using the IMLS’s stages of maturity framework, will better define the scope of what may be possible when we think about public libraries as partners in public health. Methodologically, the use of the Wilder Collaboration Factors Inventory explores a new tool that has the potential to become widely used throughout the field of LIS. HEAL will also enable us to speak directly to the disciplinary concerns of our colleagues in public health, paving the way for future multi-disciplinary research in service to practice projects at the **scaling** and **maintenance** mode.

Another broad impact centers around how this **Early Career Development** project will help P.I. Dr. Lenstra further develop his long-term research aim: to develop and sustain a collaborative research network at the national level that parallels the rich multi-sector partnerships already evident at the local level in public libraries. By studying how public libraries and their partners support healthy communities through co-developed programs, this project will produce an evidence-based model that will help public librarians become deeply connected to the field of public health, a trend already underway.



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.

All files created will be released with open source licenses except in cases where there is a need to protect personal privacy, pursuant to Institutional Review Board protections. So, for instance, we will release the anonymized dataset of all responses to the Wilder Collaboration Factors Inventory included in our interview protocol, but out having that data-set tied to individual respondents. The release of data, white papers, and other files produced through this project will occur through NC DOCKS, the institutional repository of the University of North Carolina at Greensboro. All peer reviewed articles will also be made available through NC DOCKS, with provisions made to ensure that articles published in journals that normally require subscriptions will be available in pre-print form in the institutional repository. Creative Commons licenses will be attached to all digital files.

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.

We will not impose any conditions on access or use of any files released through this project. The only potential conditions that could emerge would be from peer-reviewed articles published in journals that normally require subscriptions to access. We will navigate this potential challenge by depositing pre-print copies of articles in our institutional repository and by pursuing all options available in terms of open access scholarly publishing. All files will be released with Creative Commons Attribution-NonCommercial-ShareAlike CC BY-NC-SA licenses.

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.

This product will create some files that will have privacy concerns associated with them, including audio files of interviews and community conversations. These files will not be released publicly, but will instead be securely stored on UNCG server space, pursuant to the rules and regulations of the UNCG Office of Research Integrity. All research participants will give their informed consent prior to participating in these audio recordings, and part of that informed consent includes protecting their privacy by not sharing the digital files. Wherever possible, however, anonymized versions of this data will be broadly shared. For instance, the full data-set of responses to the Wilder Collaboration Factors Inventory could easily be shared as an excel file. Similarly, the white papers and research papers deriving from this data will be publicly shared to the fullest extent possible.

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.

Digital audio files of one-on-one interviews - 194 - WAV
Digital audio files of library community conversations - 10 - WAV
Digital audio files of librarian community conversations - 3 - WAV
Digital White Papers - Three - PDF
Peer reviewed research papers - Three - PDF
Social Media Posts - 60 - Variable depending on platform
Website for National Online Summit - 1 - Wordpress
Digital recording of national on line summit - MPEG

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.

For audio files: MacBook Pro, iPhone, Yeti Room Microphone
For social media posts: Canva
For white papers and research papers: Microsoft Word, Adobe Acrobat Pro
National Online summit recording - WebEX
Website for National Online Summit - WordPress/Dreamhost

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.

WAV, PDF, HTML/CSS (WordPress), MP4, MPEG

Workflow and Asset Maintenance/Preservation

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

As soon as files are complete and ready for public dissemination, they will be assigned a CC license and deposited into our university's institutional repository (NC DOCKS), which has robust preservation environments. They will also be made available to our partners and in particular OCLC/WebJunction for broad dissemination. Through these mechanisms, we will ensure that digital products are preserved as they are created.
In terms of maintaining the quality of research data, we will coordinate content development via our regular project team meetings involving the P.I. and GRA, as well in meetings with our advisory group.

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).

By utilizing NC DOCKS, we will ensure the continued availability of digital assets that are publicly accessible, during and after the award period of performance.
In terms of sensitive research data, the PI and Graduate Research Assistant will be responsible for assuring all data files are secure and backed up weekly. Each set of data will be stored on a password protected computer and only accessible to the PI and Research Assistant. Data will be maintained for the specified period of each academic institution and original files will be deleted after the mandated period for storage.

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).

Our digital assets will be processed using the technical, descriptive, administrative, or preservation metadata embedded into NC DOCKS institutional repository information architecture.
In terms of research data, an Excel spreadsheet accessible in the secure environment of Box (to which UNCG has an institutional subscription) will be used to document each project file. A file naming convention will be used for each file generated by the project. The PI and GRA will complete the metadata for each file on the shared Excel spreadsheet.

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

The shared Excel sheet will be kept with the other documents generated by the project for the specified time mandated by the UNCG IRB.

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).

In addition to dissemination in NC DOCKS, digital assets will be shared with OCLC/WebJunction and other partners. Notification of the availability of these assets will be shared on listserves, via social media, and through other communication channels used by librarians and in the fields of LIS and public health. OCLC/WebJunction has robust experiences making available content that come from third parties, as their copyright webpages illustrates: <https://www.webjunction.org/about-us/terms.html> In terms of sensitive research data, the metadata generated by this research project is only of use to the PI and the graduate research assistant and will not be made publicly available.

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).

The digital assets will be openly available online on NC DOCKS, as well as on WebJunction webpage.

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.

Let's Move in Libraries - LetsMoveInLibraries.org
eBlack Champaign-Urbana - eBlackcu.net
Noah Lenstra professional website - NoahLenstra.com

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.

Not applicable

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.

Not applicable

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.

Not applicable

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

Not applicable

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

Not applicable

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

Not applicable

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

Not applicable

Access and Use

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

Not applicable

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

Name of publicly accessible source code repository:

Not applicable

URL:

Not applicable

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.

All sources of data to be collected will be generated and used to answer the project's stated research questions. These data include:
Phase 1, (Aug. 2020-Jan. 2022): 194 interviews recorded either using a MacBook Pro with Yeti Mic (face-to-face) or WebEX videoconferencing software (virtual)
10 community conversations recorded using a MacBook Pro with Yeti Mic
Phase 2 (Feb. 2022-Oct. 2022): Three community conversations recorded using a MacBook Pro with Yeti Mic (face-to-face) or WebEX videoconferencing software (virtual)
Phase 3 (Nov. 2022 - July 2023): National Online Summit recording made using WebEX videoconferencing software

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?

IRB approval is required. We will submit the protocol to the University of North Carolina Office of Research Integrity in August, 2020 Based on similar past projects, we feel confident that the time allotted in the project schedule is more than ample for receiving necessary permissions. (Note: No data will be collected from minors or other protected classes that would require more time than allotted for the IRB)

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.

We collect PII only for the purposes of providing stipends with a small stipend to thank them for their time. The data themselves will not be tied to individuals, and we will read all the data before releasing it to ensure that there is no PII released to the public. Participants will also have the opportunity to review excerpts of publications to ensure they have been thoroughly anonymized.

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

The data will be stored, coded, and managed in Atlas.TI, to which the P.I. has a full subscription with a license that will enable the graduate research assistant to fully utilize. Data will also be backed up in Box, to which UNCG has an institutional subscription and two-factor authentication protections.

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?

The consent agreements will be stored in locked locations in each of our three Universities accessible only to the PI. They will be destroyed after a certain period of time, to protect participant privacy, in accordance with rules and regulations of our universities IRBs. The codebook will reside within Atlas.TI and backed up in Box. The data documentation file will be in an excel file preserved in Box. Each participant's data will be anonymized using a numeric code. No association is necessary between the participant and the numeric code so this data will not be recorded in a separate document.

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

The original data (interview transcripts and community conversation transcripts will be archived on a password-protected laptop in accordance with IRB requirements. The public products will remain available in our institutional repositories, and on our partners' websites, indefinitely. The anonymized Wilder Collaboration Factors Inventory dataset will be shared via NC DOCKS

A.7 Identify where you will deposit the data:

Name of repository:

NC DOCKS

URL:

<https://libres.uncg.edu/ir/>

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

We will thoroughly review the project data management plan on a quarterly basis at advisory board meetings. Implementation will be further monitored weekly during meetings between the P.I. and Graduate Research Assistant. These regular check-ins supplemented by periodic in-depth audits will ensure success.