Research in Service to Practice Grant

Producing Productive Public Library Programming for Older Adults: A Participatory Design Approach

As the Baby Boomer generation, a user group that is widely diverse in terms of culture, interests, and occupations, continues to age, it follows that there is a corresponding need for more library programs and services to accommodate them. Unfortunately, unlike with children's and young adult services that enjoy a long history of specialized research and education, there is little empirical research or education specific to older populations, meaning that practicing librarians may not be sufficiently equipped to determine what programming and services would best meet their older patrons' needs. To bridge this gap and to deepen understanding as to how to best develop meaningful, targeted programming for older adults, the proposed three-year (September 1, 2019 – August 31, 2022) *Research in Service to Practice* study will investigate the use of participatory design methods, specifically, those of Bonded Design, in design teams consisting of librarians and older adults. The specific audience for the research is public librarians serving older adult populations. Indirectly, however, the older adults who participate in the project will benefit from programming arising from the participatory design sessions.

The project establishes a partnership between the Department of Information Science at the University at Buffalo and the Buffalo & Erie County Public Library system to answer the primary research question: ***How can the Bonded Design framework promote communication and collaboration between librarians and older adults in the design of meaningful and relevant programming?*** From this question arise three more specific research questions: ***(RQ1)*** What components of the Bonded Design methodology best enable meaningful communication and interaction between older adults and librarians as they engage in collaborative inquiry to develop programs and services? ***(RQ2)*** Do the Bonded Design techniques differ depending on the location/type of public library (i.e., inner-city, rural, suburban)? If so, what conclusions can be drawn from observed differences? ***(RQ3)*** How can RQ1 and RQ2 inform a general model or set of models and educational resources to include in continuing education programs to help public librarians working in all types of public libraries to launch similar initiatives for older adults? To answer these questions and allow for comparison, the research will take place in three libraries in three different locations within the B&ECPL system: an urban library, a suburban library, and a rural library. These libraries were chosen due to the diversity of the populations they serve and will provide real-life operational settings in which to conduct the research.

Year 1 will focus on planning – trainings in participatory design and qualitative research data collection methods (e.g., survey design, participant observation, interviews) will be held with the librarians from the three library research sites. Researchers and librarians will work together in mock design teams to develop recruitment materials targeted to older adults which will then be distributed in each of the three library communities. Necessary resources (e.g., smartboards) to conduct design sessions at each site along with the participants for each design team will be identified. ***Year 2*** will focus on the local through the implementation of the planned design sessions (limit of 2 design teams per library with a maximum of 8 sessions per team). Ongoing data analysis of the collected data (e.g., questionnaires, interviews, videos, field notes, reflective memos, and design artifacts) will occur throughout the process and findings from each type of library compared. Informed by the findings, a general framework/model of the design process will be drafted and recruitment of a second set of participants (only one team per library) will be conducted. ***Year 3*** will focus on scaling the local findings to impact at the national and international levels. This will be done through testing the draft framework with the new user participants and making modifications/refinements based on the results. (For example, it may be that the model differs for each type of library.) Based on the process model(s), supplementary educational resources (e.g., guidelines for best practices, resource checklists, and online video tutorials) will be developed and disseminated through scholarly and practitioner journals and conferences, and an open access project website so that librarians in all types of libraries across the country and internationally can adapt the materials to their local contexts so that they can plan and implement their own participatory design process.

This ***Laura Bush 21st Century Research Project*** in the *Research in Service to Practice* category seeks to investigate the use of participatory design (PD) techniques, specifically those of Bonded Design, as a guiding framework for public libraries to attract and engage older adults by directly involving them in the co-design of programming and services. The project will provide insights into best practices and will inform a model and educational resources for librarian professional continuing education. As the Baby Boomer generation, a user group that is widely diverse in terms of culture, interests, and occupations, continues to age, it follows that there is a corresponding need for more library programs and services to accommodate them. Unfortunately, unlike with children's and young adult services that enjoy a long history of research that has informed specialized education, there is little research specific to older populations, meaning that practicing librarians may not be sufficiently equipped to determine what programming and services would best meet their older patrons' needs. To bridge this gap and to deepen understanding as to how to best develop meaningful, targeted programming for older adults, the proposed three-year (September 1, 2019 – August 31, 2022) *Research in Service to Practice* study will investigate the use of Bonded Design (Large & Nesset, 2009; Large, Nesset, Beheshti & Bowler, 2006; Nesset & Bible, 2018a, 2018b) in design teams consisting of librarians and older adults. The specific audience for the research is public librarians serving older adult populations. Indirectly, however, the older adults who participate in the project will benefit from programming arising from the participatory design sessions.

Statement of Need

As the Baby Boomer generation ages, it intensifies the need for more library programs and services, not only because of increasing numbers of potential library users, but more importantly, because many older adults are experiencing the loss of many state and personal benefit programs and are recognizing the library as a no- or low-cost alternative (Witteveen, 2017). This is reinforced by the American Library Association's *Guidelines for Library and Information Services to Older Adults* (2008) which recommends making the library a focal point for information services for older adults through specifically targeted programs and services that enhance their ability to remain independent and skillful library users, encourage lifelong learning, and take into account that information interests and needs can vary greatly between different groups or generations within the older population. However, despite these recommendations, prior research appears to deal with what older adults want to see in terms of library services, but has not focused on actual programs for this group (Bennett-Kapusniak, 2013). For example, an investigation of 50 public libraries in the US revealed that older adults tend to receive less targeted programming attention than other user groups (Bennett-Kapusniak, 2013). Other research studies have found that unlike the specialized services available to children, differentiated according to age (e.g., preschoolers, elementary school children, tweens, young adults) older adults are often placed in mixed-group adult programming which might not necessarily meet their needs (Bennett-Kapusniak, 2013, Perry, 2014; Piper, Palmer & Xie, 2009). Furthermore, although some practicing librarians are looking to these existing programs for new ideas (Witteveen, 2017) research indicates that older adults have different information needs and prefer different learning environments (Bennett-Kapusniak, 2013, Xie, 2007). Research also suggests a misunderstanding of these needs on the part of some library staff due to age stereotyping (Katapol, 2016) and difficulties with the vague definitions of the term "older adults" (Perry, 2014). Finally, the location of the public library can also play a role in terms of funding availability for specialized programs and services (Hughes, 2017; Perry, 2014).

All of these challenges are further exacerbated by the fact that there is little empirical research on developing library programs and services for older adults to inform practice. Furthermore, while local or regional professional education courses may include instruction regarding this user group, many libraries may not be able to afford to send personnel and the courses themselves may not necessarily address the broader need for practicing librarians with specialized expertise in this area (Angell, 2008). Finally, principles and practices of design thinking and participatory design, methods that could be used to engage these older users (and other user groups) are not taught in the vast majority of LIS programs (Clarke, 2018; Clarke & Bell, 2018).

To address this gap the proposed study which falls under the *LB21 Research in Service to Practice* category, will test the efficacy of incorporating the inclusive and collaborative learning techniques of Bonded Design, a

participatory design model that outlines a collaborative, co-design methodology to give users a voice in the design of products and services that directly affect them. We argue that the methods inherent in Bonded Design which has been used to unite disparate groups (children and researchers, faculty and IT professionals) in the shared experience of the design team can be used to unite librarians and older adults in the design of targeted programming and services to better address older adults' unique and myriad needs and establish the library as a community catalyst. The study will build upon the ground-breaking ongoing research using Bonded Design conducted by Nesset and Bible (2018a, 2018b) at the University at Buffalo (UB) as part of the Faculty IT Liaison (FITL) Program initiative. The FITL Program was created to bridge a perceived communication and interaction gap between faculty and IT professionals resulting from the rapid advances in information technology integration into all areas of higher education. As faculty members must increasingly rely on technology to perform their work duties and meet their unique needs they have specific ideas on how the technologies *need* to work to be effective tools. Meanwhile, while IT professionals may be experts in *how* the technologies are designed to work, they may not be aware of these unique needs. The problem, then, is the disconnect between these two distinct perspectives of information technologies, causing a gap in understanding of their purpose and use. The FITL Program brings these two disparate groups who typically have little to no contact, together within the shared experience of the design team to foster more meaningful communication and interaction through the process of mutual learning and learning-by-doing, the result being the development of products and services that they could not do alone or with their peers (Large & Nesset, 2009; Large, et al., 2006; Nesset & Bible, 2018a, 2018b). Similarly, in the proposed study, the older adults, who possess diverse knowledge, skills, and perspectives and librarians who have expertise in program development will engage in collaborative inquiry using the Bonded Design methodology as a framework to construct targeted programs and services. For the purposes of comparison, the research will take place in three libraries in three different locations within the B&ECPL system: an urban, suburban, and rural library. These libraries were chosen for their real-life operational settings and the diversity of the populations they serve.

Project Design

Conceptual Framework – Participatory Design. Our plan for the design and analysis of a participatory design process which brings together librarians and older adults, draws from the literature on user-centered and participatory design and from previous experience in developing new approaches to designing technology alongside elementary school students and in higher education, with faculty and IT staff members. Unlike some user-centered design (UCD) approaches that may only include end-users in certain stages of development such as system testing (Robertson & Simonsen, 2012), participatory design promotes a design process that is not just human-centered, but rather, human-involved, in which "users are not simply viewed as objects of study but as active agents within the design process itself…so those who will be affected by change have an influence on the kind of changes that will be made (Marti & Bannon, 2009, p. 8). In participatory design, users move from extrinsic roles (e.g., observer) to intrinsic roles (e.g., peer co-designer) (Bowler & Large, 2009; Druin, 1999; Nesset & Large, 2004). Participatory design has flourished in recent decades and has evolved into many different approaches with different methods of engaging end-user communities in the design process. For example, participatory design techniques have been used to design more user-friendly systems with and for children (Druin, 1999; Large & Nesset, 2009; Yip, et al., 2016), in planning library spaces (McLaughlin, 2015), in higher education (Nesset & Bible, 2018a, 2018b), and in business (Nielsen Norman Group, 2017). What unites these approaches is the over-arching concept of active participant involvement leading to better outcomes. What differentiates them is the level and duration of this involvement. As Bowler et al. (2011) assert, "participatory design recognizes that users are the experts in how *they* will use technology in the real world and that they should, therefore, be part of the design process. The single-most important characteristic of participatory design and one that distinguishes it from other methods which incorporate a face-to-face interaction with users, is that users are "in essence co-designers" throughout an iterative, circular process of design" (p. 734). Thus, PD takes on aspects of action research, promoting through a reflective process the collaborative solving of real-world problems directly affecting its participants (Atkins & Wallace, 2012; Rapaport, 1970; Wilson, 2013).

Bonded Design (BD) emerged from research investigating how children design web portals (Large, Beheshti, Nesset & Bowler, 2004). It integrates elements of participatory design and user-centered design approaches, especially those of Cooperative Inquiry (Druin, 1999) and Learner-Centered Design (Guzdial, 2016; Soloway, Guzdial & Hay, 1994). The original Bonded Design approach consisted of an intergenerational team comprised of researchers with expertise in technology design and children who had expertise in viewing the world from a child's perspective. A team approach where participants are considered equal but different, each sharing their own expertise with their teammates throughout the design process is integral to the success of the Bonded Design methodology. Although designed for work with intergenerational teams in the design of web portals for children, the Bonded Design methodology was chosen as the framework for the Faculty IT Liaison Program because of its flexible methodology that consists of seven different design techniques: Needs assessment, or determining what the user community wants in terms of design deliverable; evaluation through team discussion of exemplars of similar technology designs; discussion of design issues; brainstorming design ideas (where all ideas, no matter how whimsical, are given equal value); prototyping low-tech models of potential designs; and consensus building related to the final design of the low-tech prototype. Upon implementing the Bonded Design methodology in the FITL Program, however, it was very quickly realized that certain modifications needed to be made. These will be discussed in detail in the *Methodology* section.

As this adapted framework proved successful in promoting meaningful communication and interaction between the disparate groups of faculty members and IT staff and produced tangible results in the form of recommendations for modifications to existing information technologies and services to make them more user friendly and that could be implemented immediately, we believe that it will provide a robust methodology for the proposed study involving librarians and older adults in the co-design of targeted programs and services.

Research Questions. Building upon the research conducted as a part of the Faculty IT Liaison project, the proposed study seeks to answer the overarching question, ***How can the Bonded Design framework promote communication and collaboration between librarians and older adults in the design of meaningful and relevant programming?*** From this research question follow three research questions: ***(RQ1)*** What components of the Bonded Design methodology best enable meaningful communication and interaction between older adults and librarians as they engage in collaborative inquiry to develop programs and services? ***(RQ2)*** Do the Bonded Design techniques differ depending on the location/type of public library (i.e., urban, rural, suburban)? If so, what conclusions can be drawn from observed differences? ***(RQ3)*** How can RQ1 and RQ2 inform a general model or set of models and educational resources to include in continuing education programs to help public librarians working in all types of public libraries to launch similar initiatives for older adults?

The research questions are designed to guide work that will advance the ultimate goal of the project, the development of a practice-based user-centered model of participatory design, which can be included in professional development programming and contribute to the wider body of knowledge in the field of library science and information users. Furthermore, we assert that by reaching out directly to the main benefactors of this research – older adults – and by using the Bonded Design model to provide a means to include them as active participants in the design and delivery of meaningful programs, the public library can become a community catalyst, building capacity to further improve the well-being of the community it serves. Thus, we frame this study as a critical step towards understanding the role of Bonded Design as a method for enabling librarians to involve older adults as peers in the development of programs and services that will not only directly affect and benefit them, but also actively engage them in a mutual learning process. Furthermore, to respond to the call for more research into alternate approaches to attract and engage older adults through programs and services, public libraries need participatory design methods, such as Bonded Design, that are adaptable and encourage rapid results that can inform quick implementation. Older adults are one many user groups that come to the library voluntarily and are not required to commit to a library program. It is therefore critical to apply a participatory design method that evolved in the real world, and not in a laboratory removed from real life. Bonded Design is one such method, having evolved in the rough and tumble world of an elementary school, involving student volunteers during the free period at lunch when, like in the public library, students may or

may not be available, to its present incarnation in a university setting with highly educated adults where it again relies on volunteer faculty and IT staff whose free time is limited. The Bonded Design methodology has proven to be an effective tool for solving practical IT challenges in the university context by providing a cost-effective and easy-to-use method for encouraging meaningful communication and interaction between faculty and IT personnel, resulting in innovative solutions. Finally, in the proposed project, the varied location of the participating libraries (urban, suburban, rural) ensures diversity in the types of older adults who participate, providing opportunities for serendipitous discovery, while supporting the transferability of results to other contexts.

Methodology

This LB21 research project in the *Research in Service to Practice* category, aims to implement a three-year qualitative research study that explores how the participatory design methodology, Bonded Design as used in the Faculty IT Liaison Program (Figure 1), can be applied within the context of public library service to older adults. The goal is to develop and test a service model that is 1) grounded in the principles of participatory design, 2) provides another tool for librarians to use when planning programming and/or services, 3) includes older adults in all aspects of the development and design of these programs and services, 4) engages older adults in a process of lifelong learning, and 5) enhances the library's role as a community catalyst.

Modifications to the Bonded Design Methodology. As the FITL Program consisted of design teams of adults who were familiar with the technologies under investigation, and that any changes needed to be in the form of modifications that could be accomplished by the university IT staff, it became immediately obvious that some of the methods used with the children needed to be modified or omitted altogether. For example, although a needs assessment was included as a design technique, at the university level it took the form of a university-wide survey previously administered to all faculty members to determine their IT preferences. Indeed, it was through analysis of the qualitative responses to the survey that revealed the gap in meaningful communication and interaction between faculty and IT personnel. The FITL Program was created as a means to more deeply investigate and address this phenomenon. Further changes to the BD methodology included changing the sequence of some design techniques (brainstorming and prototyping) and omitting others (viewing of technology exemplars). Thus, the adapted model of Bonded Design (Figure 1) emerged.

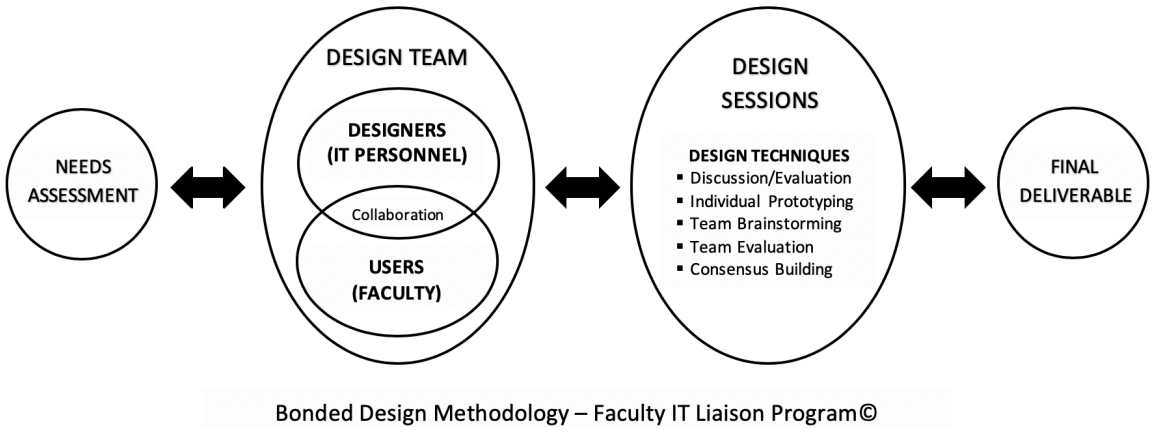


Figure 1: Adapted version of Bonded Design Model

Design Team Makeup. At least one librarian/programming staff member and if possible, either a graduate student researcher (GSR) or investigator will be on each team. The librarian/staff member will act as the team facilitator and engage in participant observation as an active member of the team. Ideally, the team will include six to eight (maximum) older adults.

Recruitment and Selection of Older Adult Participants. The proposed study will be marketed to older adults who live in the communities served by the three library research sites. Prospective participants will be asked to

fill out an online or printed "application" form that briefly explains the purpose of the study and provides a brief description of the Bonded Design methodology. Potential participants will be asked to provide basic demographic and contact information, programming and service interests, and availability. They will also be asked to sign a letter of informed consent to participate in the study. In the FITLP, this procedure was found to be a very effective tool in selecting participants from a large pool of volunteers in a process of purposeful sampling (Patton, 2003). Purposeful sampling was required for the Program to ensure that each design team was academically diverse, in other words, comprised of representatives from as many academic units as possible. It was also useful for scheduling purposes. In the proposed study, however, because the results will not be used for decision-making in the workplace, and is completely volunteer, for purposes of equity, selection of participants will be handled in the same way as in the original studies, that is, names pulled randomly until the design team(s) numbers are met. Volunteers who are not selected will be contacted and if desired, their names kept of file in case of attrition or for participation in the "testing" design team in Year 3.

Needs Assessment. In the university setting, this took the form of a university-wide survey administered to all faculty to determine technology preferences and issues. In fact, it was this survey that indicated the gap in communication and interaction between faculty and IT staff and gave rise to the Faculty IT Liaison Program as a way to more deeply investigate the phenomenon to find out *why* it was happening. In the original Bonded Design studies, however, the young students polled their classmates. For the proposed project we advocate an approach in the middle of these two. We propose drawing on existing community knowledge on the part of the library staff and if appropriate, verbally administering informal polls at social hubs within the community. Furthermore, as some of the participating older adults may have cognitive or other impairments that could hinder their full participation in the design teams, such strategies as active listening (Gordon, 1977) and those inherent in empathetic design (Leonard & Rayport, 1997; Mattelmäki, Vaajakallio & Koskinen, 2014) will be used.

Design Sessions. The process will consist of six to eight design sessions of 90 minutes each. The sessions will incorporate the following design techniques as developed or refined in the Faculty IT Liaison Program:

- Discussion and evaluation of the needs assessment data to inform decision-making as to what topic(s)/program(s) to address in the design sessions.
- Individual prototyping involving the drawing of design charrettes (mental models) of the ideal service or program will encourage team members to strip away the limitations of the phenomena being investigated, resulting in the sparking of innovative ideas and new ways of looking at things.
- Individual presentation of the drawings to other members of the team provides team members with insights into each other's thinking in terms of design. Subsequent brainstorming expands upon the ideas from the design charrettes and leads to the development of broad categories.
- Evaluation involves a "sticky-note" exercise where each team member is asked to write their three preferred ideas on sticky notes (one idea per note) and then places each note under the appropriate category.
- After idea categorization, team discussion ensues, involving the explanation of why certain ideas were preferred, the identification of duplicates (often indicating a key idea), and if necessary, discarding of ideas or re-categorization.
- Team evaluation enables decision-making regarding essential elements to be included in the final design
- Consensus building relates closely to evaluation as the team creates together the final deliverable.

Project Goals, Outcomes, and Assumptions

The following table outlines how each research question will be answered in terms of data collection instruments or research methods, data analysis, and outcomes to inform the overarching research question, ***How can the Bonded Design framework promote communication and collaboration between librarians and older adults in the design of meaningful and relevant programming?***

RESEARCH QUESTIONS	DATA COLLECTION	ANALYSIS	OUTCOMES
(RQ1) What components of the Bonded Design methodology best enable meaningful communication and interaction between older adults and librarians as they engage in collaborative inquiry to develop programs and services?	• Questionnaires, participant observation, individual semi-structured interviews of participants	• Coding of questionnaire responses, interview transcriptions, field notes and reflective memos (participant observation) for participant attitudes and perceptions	• Identification and understanding of participants' attitudes and perceptions towards the design sessions
	• Videos of design sessions, design artefacts	• Coding of videos for participant behaviors and design techniques used. Coding of design artefacts to determine appropriateness and efficacy of the design techniques in fostering team collaboration.	• Understanding of the efficacy of different design techniques
(RQ2) Do the Bonded Design techniques differ depending on the location/type of public library (i.e., inner-city, rural, suburban)? If so, what conclusions can be drawn from observed differences?	• Questionnaires, participant observation, individual semi-structured interviews of participants	• Coding of questionnaire responses, interview transcriptions, librarian/ researcher memos and field notes for attitudes and perceptions	• Understanding of which PD methods are best for each type of library and identification of the reasons why they do or do not differ • Development of programming and services for older adults best practices guidelines and resources for use in urban, suburban, or rural public libraries
	• Videos of design sessions, design artefacts	• Coding of videos for participant attitudes and behaviors and design artefacts to determine appropriateness and efficacy of the design team collaboration	
(RQ3) How can RQ1 and RQ2 inform a general model or set of models and educational resources to include in continuing education programs to help public librarians working in all types of public libraries to launch similar initiatives for older adults?	• Comparison of data codes for all libraries	• Meta-analysis of codes	• Development of an educational module (including model and resources) on participatory design in the library • Guidelines for working with and programming for older adults

Potential Risks. We do not foresee any risks to those participating in the project. We have identified and received permission to conduct research involving library staff in the three libraries within the B&ECPL (see letters of support). The project will be subject to rigorous ethics review by the University at Buffalo's Internal Review Board, but as the proposed study will be using a research design (e.g., data collection instruments, recruitment, informed consent) similar to that used in the Faculty IT Liaison Program which has already received renewal of its ethics approval the IRB approval process is expected to be smooth. To ensure privacy and confidentiality, all data will be stripped of identifying information (e.g., photos/videos of faces will be blurred and/or only non-identifiable body features will be shown, locale information will be generic and unidentifiable) and when describing the behaviors, attitudes, or actions of individuals, pseudonyms will be used. Two possible risks to the project itself are: 1) Lack of diversity in the teams. Since the design team relies on volunteers, perhaps only those older adults already affiliated with the library will show interest. To address this, we will offer stipends for each participant and engage in active recruiting in social hubs (e.g., senior centers, recreational complexes) outside of the library. 2) Attrition of the older adult participants. As volunteers, participants may drop out of the study at any time, meaning that some of them do not complete a full participation period. If this happens, each situation will be considered on a case-by-case basis. Depending on the amount of data collected and/or the number of participants who drop out from one team, we have several options: replace the former participant with another one; close the group and use the data already collected; or start another team anew.

Data analysis: As outlined in the table, the data will be analyzed in an iterative process throughout the study by the researchers with the assistance of the GSRs using a qualitative software package (e.g., NVivo, Atlas.ti). Analysis will address the concepts of *confirmability*, *dependability, credibility* and *transferability* (Guba & Lincoln, 1989; Lincoln & Guba, 1985; Miles & Huberman, 1994). As no version of Bonded Design has been used with older adults in the public library setting, we expect the coding of the data to reveal emerging themes such as ways of using the elements of Bonded Design in different ways to engage older adults in the co-design of programs and services. The data collected revealing perceptions and attitudes of the participants will shed insight on the efficacy of the adapted Bonded Design approach. To ensure trustworthiness of analysis the coding will be done by multiple coders in a process of triangulation (Glaser & Strauss, 1967).

Project Activities

Year 1: 1) Develop/adapt data collection instruments, complete IRB, build internal project website; recruit Graduate Student Researchers; 2) Recruit librarians from the research sites in the Buffalo & Erie County Public Library System (Frank E. Merriweather Jr. Library – urban – Buffalo, NY where several different languages are spoken; Clearfield Branch Library – suburban – Amherst, NY; Concord Public Library – rural – Springville, NY). 2) Hold trainings for the librarians in participatory design and qualitative research data collection methods (see table). 3) Together with librarians, develop and distribute recruitment materials targeted to older adults for each library design team (limit of 3 design teams per library with 6 to 8 older adults and a maximum of 8 sessions per team); 6) Selection of volunteer older adults to participate in each design team

Year 2: 1) Conduct the planned design sessions based on needs assessments, team decisions for topics and what "success" will look like. 2) Conduct ongoing data analysis throughout the design sessions (see table) and compare results from each type of library. 3) Informed by the results, develop draft general framework(s) or model(s) and supplementary educational resources (e.g., interactive tutorials, guidelines, best practices) to be integrated into learning modules for librarian professional development. 4) Begin recruitment of a second set of participants (one design team per library).

Year 3*:* 1) Implement the draft framework using the resources developed in Year 2 in the libraries with the new user participants and make modifications based on analysis of the results. 2) Finalize the framework/model and supplemental educational training resources on PD methods (e.g. online video tutorials, planning materials, manuals, and workshops) specific to each type of public library as indicated by the findings. The results of the ongoing data analysis will be shared throughout the project via scholarly and practitioner conferences such as ALISE, ALA, PLA, and ASIS&T, and publications such as *Library & Information Science Research, Public*

Library Quarterly, Library Trends, Library Journal, Library Quarterly, and *American Libraries.* Wider dissemination will be enabled by development of an open-access web portal hosted by the University of Buffalo which will contain all resources developed as a result of the study.

Efforts to Assure the Quality of Conclusions. Throughout the project, to determine the appeal of the adapted Bonded Design participatory design methodology as an appropriate tool for librarians to use to facilitate the development of programming and services for older adults, the investigators will use qualitative research methods (see table) to document practices for participatory design in the public library, as well as to document the perceptions of participants (librarians and older adults) regarding the process.

The following actions will further assure the trustworthiness of the study's findings: 1) The study's methods and procedures will be described in detail and in sequence. 2) Data collection protocols will be phrased in value-free ways so as to avoid leading the participants toward a conclusion. 3) The researchers will keep detailed memos in order to keep track of thoughts and insights. Interaction between participants during the design sessions will be video-recorded. Thick, rich description will be used as a means to provide evidence that is grounded in the participants' own thoughts, feelings, and actions. 4) The study will take place in the context of the participants' everyday lives rather than in a laboratory setting. (For the librarians, in their workplace; for the older adults, in their activities at the public library.) 5) Triangulation of coding will occur between researchers, within and across data sources and throughout the life of the project. 6) Data will be coded by three people (investigators and GSRs) thus assuring inter-coder reliability. 7) Before findings are shared, they will be reviewed by the participating librarians and if possible, the participating older adults. 8) Finally, following the completion of the study, aggregated data will be stored in a data repository and available to future researchers for confirmability and transferability.

Evaluation of the project

Formative evaluation will be ongoing and occur throughout each phase of the project. Results of the project will be benchmarked against the projected outcomes, objectives and associated activities as laid out in this proposal. Formative assessment will be recorded in the minutes from team meetings, research memos, and in written correspondence between the investigators and the advisors. *Summative evaluation* will be provided in a final report to IMLS at the end of the project. The summative report will include three components: 1) our written narrative of the project's history, findings, and an assessment as to whether further exploratory work is required to further test the model and the accompanying educational resources, 2) assessments and recommendations by members of our advisory committee and 3) feedback from librarians at the three Buffalo and Erie County public libraries participating in the project.

Project Director and Partners

The PI in this project is an associate professor at the University at Buffalo's Department of Information Science (DIS). The Co-PI is the Director of the Buffalo & Erie County Public Library System. This investigative partnership encourages a "meeting of the minds" in terms of research and practice, thus fostering a diversity of approaches to all aspects of the project.

PI: Valerie Nesset, Associate Professor, MS ILS Program Director, UBIT Faculty Fellow, Department of Information Science (DIS), University at Buffalo (SUNY), and currently editor of the *Canadian Journal of Information and Library Science*, has extensive experience conducting participatory design research in operational environments (specifically, elementary school and university). Dr. Nesset received both her PhD and Master's degree in library and information studies from McGill University, Montreal, Canada. During her PhD studies she was part of the research team that developed the original intergenerational Bonded Design model. While still continuing research into the intersection of information behavior and information literacy instruction (she has developed the Beginning, Acting, Telling (BAT) model for teaching the research process to elementary school students), currently, Dr. Nesset's research has focused on adapting the Bonded Design methodology to help promote meaningful communication and interaction between faculty and IT professionals with the goal of promoting the innovative modification of existing information technologies to better meet

faculty needs. As PI, Dr. Nesset will monitor the overall budget for the project, liaise with the project partners and advisors, and be responsible for reporting to IMLS on behalf of the research team. She will supervise the recruitment and training of graduate student researchers from the University at Buffalo.

Co-PI: Mary Jean Jakubowski, Library System Director, Buffalo & Erie County Public Library has extensive experience in library operations management of the 37 libraries within the B&ECPL system and the diverse populations they serve. She will act as the liaison between the PI and GSRs and the three participating libraries and staff in addition to providing vital contributions relating to the design and implementation of the project.

Advisory board

The role of the Advisory Board will be to will review project activities and provide ongoing feedback.

J. Brice Bible, VP-CIO, University at Buffalo, as a Co-PI with Dr. Nesset in an ongoing research study assessing the efficacy of the Faculty IT Liaison Program will provide valuable insights into practical implementation and IT issues such as data privacy and security and hosting of the project website.

Dr. Leanne Bowler, Associate Professor, School of Information, Pratt Institute, New York City, NY was a member of the same McGill research team that developed the Bonded Design methodology. Her expertise is in the areas of young people's interactions with technology, participatory research, and intergenerational design. She was the PI on the IMLS project, *Exploring Data Worlds at the Public Library*.

Dr. Mark Guzdial, Professor, College of Engineering, University of Michigan, has received numerous awards in computer education, is one of the pioneers in participatory design, and is the creator of the Learner-Centered Design methodology. He will provide valuable expertise in project design and implementation.

Dr. Jason Yip, Assistant Professor, University of Washington, whose current research with participatory design and intergenerational teams is funded by a 2018 IMLS grant. Dr. Yip will provide expertise in the area of project design and implementation.

TBD, We are currently looking for a person with expertise in working with older adults and resource design.

Roles and commitments of our partner organizations:

Three branches within the Buffalo and Erie County Public Library system (Frank E. Merriweather Jr. – urban/inner-city, Clearfield – suburban, Concord – rural, See Appendix ??) have agreed to be partners in this research. The libraries will:

- Assist in the identification and recruitment of potential older adult participants;
- Adjust staff schedules to accommodate data collection activities;
- Provide a space at the library to conduct team meetings and interviews;
- Offer feedback and recommendations with regard to the study's findings.

Budget Overview (See Budget and Budget Justification Forms for full budget breakdown)

The total budget for this 3-year project is $**451,667** which includes: 1 month per year summer salary + fringe ($33,217) + academic time + fringe for the PI ($63,345); dissemination of results including conference travel ($10,000); research software for data analysis ($3,000); stipends including tuition and fringe for Graduate Student Researchers (one for Year 1, two for Years 2 and 3) ($82,144); stipends for up to 50 participating older adults ($10,000); equipment for the design sessions (e.g., smartboards) ($10,000), hiring of an instructional designer to aid in development of educational resources including online tutorials, workshops, and manuals ($5,000); stipends, advisory board members ($6,000). For the B&ECPL, the subaward includes librarian and library staff wages and salaries ($90,005). Plus, UB indirect costs of $138,956

Diversity Plan

Planning for diversity is inherent in the research methodology. Firstly, and perhaps most importantly, older adults are themselves an under-served and often marginalized community for whom, as revealed in the little research available, appropriate and targeted programs and services are minimal. Secondly, while the voluntary, drop-in nature of library programming prevents us from controlling the cultural and socioeconomic make-up of

the study participants, having them come from three different types of library locations will facilitate the recruitment of older adults from a diverse range of backgrounds who represent the demographic makeup of their communities. The Frank E. Merriweather Jr. Library is in a neighborhood of Buffalo, NY, and home to a large and diverse immigrant and minority population, many of whom are socioeconomically challenged. The Clearfield Library is located in Williamsville, a middle-class suburb of Buffalo, and the Concord Public Library is located in the town of Springville, NY and serves a rural population from a range of socio-economic backgrounds. Finally, the Bonded Design methodology itself encourages what we would call "synergy through diversity" by bringing very different people together in the shared experience of the design team to design innovative products and services that could not be designed within homogeneous peer groups.

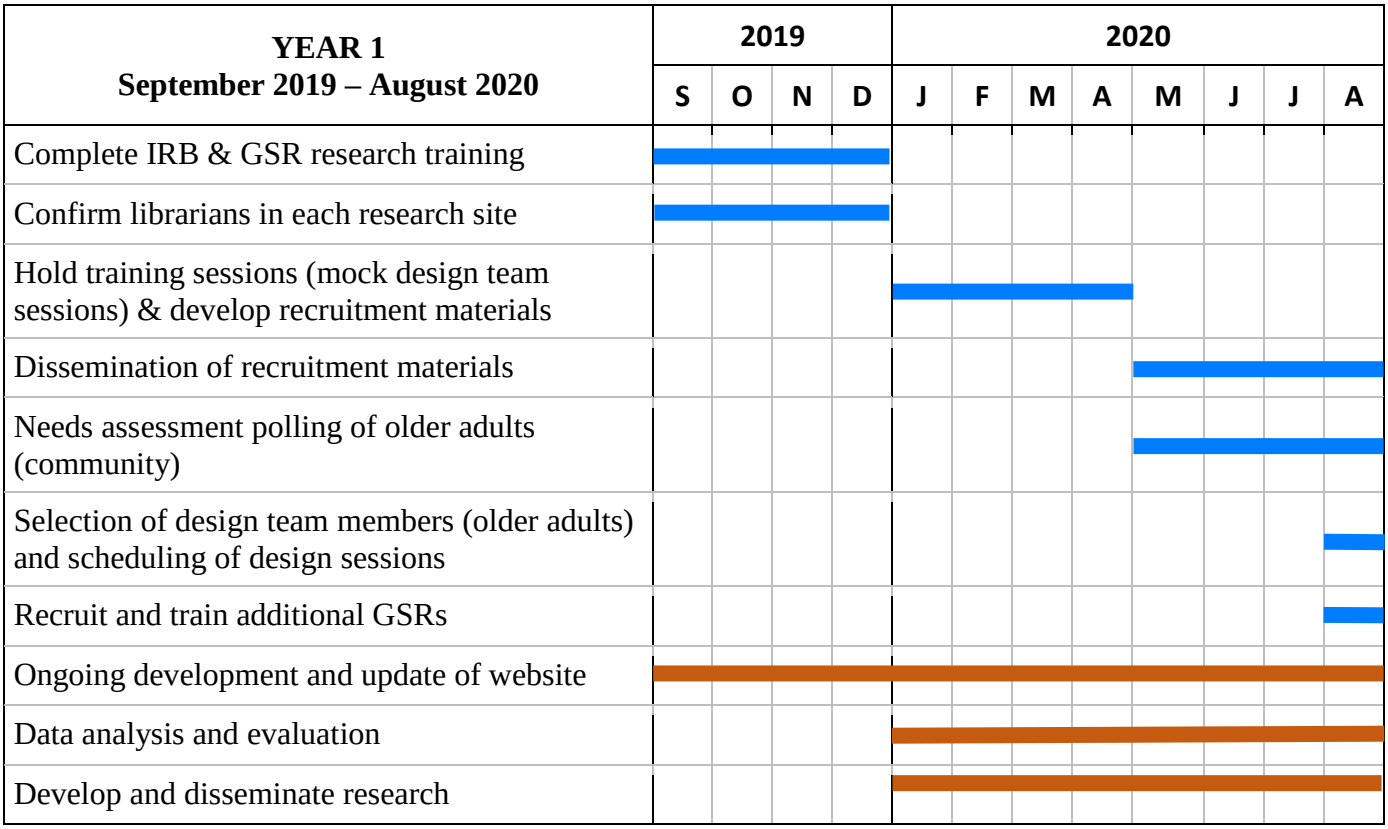
National Impact

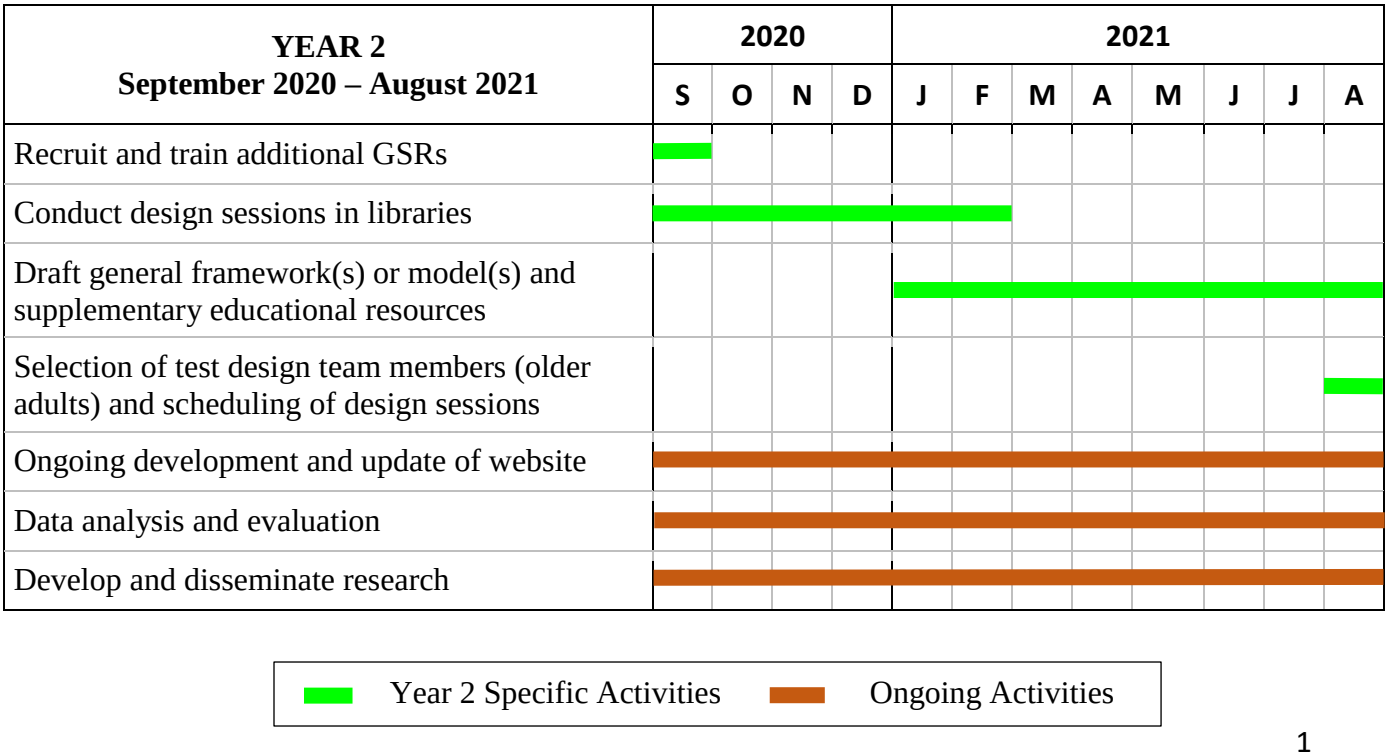
By partnering older adults and librarians in the co-design of library services and programming, the proposed project addresses many of the priorities identified by the IMLS in its strategic plan, *Transforming Communities 2018-2022*. Perhaps the most important priority is the project's aim to strengthen the role of libraries as *community catalysts* to, "adopt collaborative models in order to create positive community change" (p. 11). This is achieved by involving older adult users in community-focused planning activities that are framed by the participatory design methods of Bonded Design and by educating library staff to apply a unique and motivating method for developing community engagement. Other priorities addressed by this project include: the forging of connections between research and practice; the fostering of "the ability to collaborate, communicate effectively, and solve problems…inspire the pursuit of new information, [and] encourage a spirit of inquiry" (2018, p. 2); and the support of lifelong and/or adult learning. The project will impact three key stakeholders: **1) *Librarians and library staff members*** who will act as the facilitators within the design teams, will engage in one of the main tenets of participatory design, learning-by-doing. By learning how to plan the design session process, apply the Bonded Design techniques, learning from their older adult team members about their needs and preferences for programs and services, they become the main beneficiaries of this research. **2) *Librarians across the nation*** will benefit from professional development training models emerging from the research that will improve their knowledge and awareness of the information needs of older adults while also teaching them how to apply the inclusive co-design techniques of Bonded Design within their own contexts. **3) *Older adults,*** especially those directly participating in the research will benefit from library programming and services that acknowledge their point of view, value their participation, and increase their empowerment in the community. Older adults across the nation will benefit from the implementation of the Bonded Design methodology in their communities to promote their participation and engagement in the design of programs and services that directly affect them.

It is expected that the proposed project will produce resources, centered around a scalable, low-cost, easy-to-run and effective model of Bonded Design whose activities can be accomplished within a limited time frame. While in this study it is targeted to older adults, we argue that such a model is transferable to a wide variety of contexts and user groups, thus sustaining the results of the study long after the funding period has ceased. The project findings and training content will be disseminated via scholarly and practitioner journals and conferences and through a web portal hosted at the University at Buffalo and made freely available to the public.

Broadly, the study impacts national library practice and professional education by addressing three critical gaps: The first is the dearth of empirical research conducted with older adults, addressed by directly involving older adults in a research project that investigates the co-design of programs and services that directly affect them, providing much-needed insights into their needs and preferences. The second gap is the lack of instructional resources specifically focused on older adults, addressed through the development of educational resources such as tutorials and manuals that identify and define best practices and procedures. The third and perhaps broadest gap is the fact that to be truly user-centered and community-minded, libraries need to directly involve their constituents in service and program planning, but may not know how to initiate such an approach. The rich empirical data afforded by this research study will provide insights into how librarians can run similar design programs in their own libraries.

Schedules of Completion





Schedules of Completion

YEAR 3 September 2021 – August 2022	2021				2022							
	S	O	N	D	J	F	M	A	M	J	J	A
Conduct design sessions in libraries												
Refine model and supplementary resources into final forms												
Ongoing development and update of website												
Data analysis and evaluation												
Develop and disseminate research												

DIGITAL PRODUCT FORM

Introduction

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to federally funded digital products (e.g., 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. 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

All applications must include a Digital Product Form.

☐ Please check here if you have reviewed Parts I, II, III, and IV below and you have determined that your proposal does NOT involve the creation of digital products (i.e., digital content, resources, assets, software, or datasets). You must still submit this Digital Product Form with your proposal even if you check this box, because this Digital Product Form is a Required Document.

If you ARE creating digital products, 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.

The intellectual property status of any digital product we create (e.g., digital learning tools such as tutorials, guidelines, reports, resource website) will be licensed under a Creative Commons Attribution 4.0 - International. This is a "free culture" license, meaning that anyone who wishes to share, copy, or redistribute any of the above-listed digital products in any format, they are welcome to do so as long as proper attribution is given. Furthermore, the license provides the freedom for users to use the works themselves, use the information in the works, share copies of the works, and remix and share derivatives of the works for any purpose, even commercial. We have chosen this CC license because we want different libraries, LIS programs, designers, or other potential users to be able to adapt the materials to their loca

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

The ownership we will assert over any digital products we create will focus on appropriate attribution and credit. As the materials are open access and thus available to anyone, we only want to ensure that the creators receive the credit they are due. To facilitate this, a summary of the terms and conditions of the Creative Commons Attribution 4.0 - International license will be included in all materials.

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.

Because this project involves older adults, a potentially vulnerable population, extra precautions will be taken to ensure privacy and safety. All identifying data will be kept confidential, and any data that will be shared outside of the project team (all of whom will be required by the University at Buffalo IRB to complete appropriate ethical courses in human research) will be stripped of identifying data. For example, when referred to, pseudonyms will be used along with generic demographic information such as ethnicity, age, and gender. If sharing data in the form of photographs or videos, any faces will be blurred or only non-identifiable features will be shown (e.g., the backs of heads). To further ensure privacy and non-identifiability, any available photographs/videos will be taken in non-identifiable locales (e.g., an inner room).

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 the format(s) you will use.

1) An internal project data depository only available to the research team through the secure data storage system Box, licensed by the University at Buffalo. (Years 1 through 3). In this depository will reside raw data in the form of memos, field notes, videos, transcriptions, and design artefacts obtained using the data collection instruments during the design sessions. The depository will also contain analyzed data, publication and resource drafts.
2) A public project website hosted by the University at Buffalo with contact information and de-identified results in the form of publications and educational resources such as manuals and online tutorials. (Years 2 and 3)
3) 2 to 4 recorded online webinars hosted by the University at Buffalo related to programs and services for older adults and/or Bonded Design methods and library implementation. (Years 2 and 3)

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.

All hardware and software will either be provided by the University at Buffalo (e.g., computer workstations, Microsoft Office suite) or hosted on a secure server by the University at Buffalo (e.g., qualitative data analysis software, NVivo or Atlas.ti). The project will make use of Microsoft Office and Adobe Acrobat tools and HTML web editors to create and format educational resources and other digital materials for dissemination. Any generated data will be stored in the secure data storage repository, Box, licensed by the University at Buffalo. The public project website will be hosted by the University at Buffalo.

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).

The textual (digital) educational/learning resources will be in PDF, Docx (Microsoft Word), and HTML forms. Multimedia recordings, depending on content, will take the form of PPT (Microsoft PowerPoint), mp3, mp4 or MPEG using default resolutions of the recording software.

B. Workflow and Asset Maintenance/Preservation

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

Librarians and GSRs will be trained in qualitative research methods by the PI and required to take research ethics training as approved by the University IRB. Quality of content for the educational/learning resources will be informed by the members of the Advisory Board and librarian research participants. Final versions for the project website will be created by the professional instructional designer. The project website content and layout will be supervised by Dr. Nesset who has extensive experience with web usability. The actual web design will be done by MS ILS students within the Department of Information Science as part of Directed Study (LIS 598) courses and subject to ongoing usability studies by librarians to ensure quality of aesthetics and functionality.

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).

As they are being developed, and upon completion, any digital works or other materials will be deposited into secure storage on the University at Buffalo's secure data repository, UB Box, which is both HIPPA and FERPA compliant. Upon completion of works to be publicly shared the project website will be the primary site for disseminating this content.

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).

The project team, as either LIS educators, GSRs, or practicing librarians, will all have expertise in (or ready access to) information organization and metadata. Therefore, when necessary, effective decisions can be made concerning which metadata structures, whether they consist of existing standards or specialized approaches for internal use or for repository systems, are required. For the public dissemination of the digital works, the project website will adhere to existing metadata standards such as Dublin Core.

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

Any metadata created or collected are expected to persist after the grant period without the need for direct intervention or preservation.

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).

Both during and after the proposed project, research team members will routinely monitor developments and consult with University at Buffalo IT personnel and/or personnel within the B&ECPL system who are experts in the area of digital resource preservation and access. In this way, the necessary steps will be taken to ensure the creation and compatibility of metadata for any new systems or tools that might be selected to serve as a repository for digital works and materials. In addition to the project website, popular social media platforms such as Twitter and Facebook will also be used to facilitate widespread discovery and use.

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).

The project website will be the main venue for disseminating project-related information and digital works, materials, and products to the public. The website will be developed using a UB-hosted web development platform which will ensure high levels of compatibility across browsers and their respective versions. As appropriate, in order to broaden the range of publicity, other hosting platforms that exhibit a high rate of cross-compatability will be considered.

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.

While at McGill University, Valerie Nesset was one of the main creators of the web portal "History Trek" (historytrek.ca - URL no longer valid) a resource for teaching Canadian history to elementary students. The portal was designed in intergenerational teams as part of a Social Sciences and Humanities Research Council (SSHRC) funded project, and from which the Bonded Design methodology emerged.

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.

Not applicable to this project.

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.

Not applicable to this project.

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.

Not applicable to this project.

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

Not applicable to this project.

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

Not applicable to this project.

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

Not applicable to this project.

B.5 Provide the name(s) and URL(s) for examples of any previous software your organization has created.

Not applicable to this project.

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.

Not applicable to this project.

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

Not applicable to this project.

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

Name of publicly accessible source code repository:

URL:

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.

RQ 1, 2 : Questionnaires, recordings of interviews of participants, videos of design sessions, transcriptions of sessions and interviews, field notes, design artefacts (Y2, Y3), memos (Y1-Y3)
RQ 3: Coded data (Y2, Y3)

All data collected or generated will inform continuing education resources such as video tutorials and manuals which will address the overall research question, "How can the Bonded Design framework promote communication and collaboration between librarians and older adults in the design of meaningful and relevant programming?"

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?

All research activities and data collection are subject to review by the University at Buffalo's IRB. As yet, the project has not been submitted for approval, however a very similar project, the Faculty IT Liaison Program, which makes use of the Bonded Design methodology and the same data collection instruments as proposed for this study, received full IRB approval in 2018 and has been re-approved for 2019.

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).

Any collected personally identifiable information will be stripped of identifying data. For example, when referred to, pseudonyms will be used along with generic demographic information such as ethnicity, age, and gender. If sharing data in the form of photographs or videos, any faces will be blurred or only non-identifiable features will be shown (e.g., the backs of heads). To further ensure privacy and non-identifiability, any available photographs/videos will be taken in non-identifiable locales (e.g., an inner room).

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.

Consent agreements will be collected as required by ethical research practice as approved by the University at Buffalo IRB. Hard copies will be kept in a locked cabinet in the PI's office on the UB campus. Any digital copies of these agreements will be kept in a secure folder within the project folder in UB Box (HIPPA and FERPA compliant).

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).

We will be collecting video recordings, photographs, memos, and field notes through participant observation during the design sessions. As requested by the participant, either audio or audio-video recordings of interviews will be collected. Online questionnaires will also be administered. All videos and images will use manufacturer default settings and the surveys will be administered through a UB-hosted survey tool. It is not anticipated that there will be a need for any specialized technologies.

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?

We will be producing codebooks using either NVivo or Atlas.ti qualitative research software. All data will be stored on UB secure servers. All identifying information will be stripped from the data prior to upload and pseudonyms and/or identification numbers will be used.

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

All data will be stored on the University at Buffalo's secure servers. Any data for dissemination will be hosted by UB on a website available to the public. We will also be disseminating data through peer-reviewed journal and conference papers, books, book chapters, white papers, blogs, reports, design guidelines, online tutorials, and manuals for practice. All disseminated data will be stripped of personally identifiable information and only pseudonyms will be used.

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

Name of repository:

University at Buffalo (UB) Box

URL:

http://www.buffalo.edu/ubit/box.html

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

We will review this data management plan at least once every 6 months throughout the duration of the project. The PI will be responsible for ensuring privacy, confidentiality, and security of the data in consultation with UB experts. She will also ensure that all Graduate Student Researchers receive the appropriate research and data ethics training as required by the IRB. Random checks by UB IT personnel for data privacy, confidentiality and security will also be solicited.