

## **Abstract**

The Young Researchers project is a three year research study led by Rachel M. Magee, an assistant professor in the School of Information Sciences at the University of Illinois Urbana-Champaign. This early career research work, submitted under the Community Anchors project category, will iteratively design an informal learning camp curriculum to connect teens from diverse backgrounds to the original research process. The project will then partner with five public libraries across the country to run and assess the curriculum, engaging up to 100 youth as Young Researchers who will co-design, implement, analyze, and report on original research. Work will culminate with a tested model for youth co-research in libraries, accompanying workshops for library and information science (LIS) professionals on the model, and a publicly available report and project site that shares these resources so that any library can implement these techniques. This project will also contribute to LIS scholarship on youth culture, youth literacy development, the design of informal learning for library settings, and the impacts of experiencing the original research process.

Understanding the value and process of research is a crucial skill for youth, who navigate an information landscape that includes a significant amount of misinformation and disinformation. Literacy approaches highlight the ability to create and share content as key competencies of literacy, but youth have few opportunities to engage in the scholarly research process to develop these skills in this context. Researchers are increasingly recognizing the importance of including diverse voices in the development and implementation of research, and are adjusting approaches to recruiting and retention. But these changes can take time to have impact, and young people need opportunities to see themselves in the roles of researcher and scholar now in order to imagine pursuing these kinds of interests and career paths. This project addresses these gaps.

During the first year, the project will assess librarian, researcher, and teen needs and priorities for these kinds of informal learning opportunities using surveys, interviews, and focus groups. This will develop understandings of library needs and engagement practices, what scholars see as key for learning how to carry out research, and what teens appreciate in these learning settings. This will also inform the iterative development of the camp curriculum. The second year of the project will focus on running camps at five partner library sites, with capacity for up to twenty Young Researchers at each location. The project will examine how the curriculum works in the field by having staff from the partner libraries as well as the Young Researchers share their perceptions and experiences through surveys, interviews and focus groups, and reflections during the camp process. The project director and a research assistant will also make observations at one camp per site. This research will help develop understandings of how teens learn complex literacy skills in informal library programming and what libraries need for these programs to be successful. In the third year, the project will present the final model, which will include camp curriculum, relevant resources, and content created by youth from each of the partner sites. This model will be shared publicly through a report distributed to libraries, a website, and with workshops at a variety of LIS conference and meetings to share techniques and encourage libraries to pursue this kind of work.

By participating, diverse youth will have the opportunity to see themselves as researchers with important perspectives to contribute, and will develop literacy skills for creating and sharing original research. This project promotes research as an activity and career path and will develop and assess a model for youth co-research in libraries, connecting practice and research. Library staff at national partner sites will receive training and develop expertise in original research, and their experiences will inform the creation and distribution of the publicly available model that libraries across the country can use to connect with and support youth in their community. In addition to these practice oriented outcomes, the project will further LIS research on the perspectives and needs of youth, as well as the design of informal learning to support youth developing complex literacy skills. This work will build knowledge of how best to introduce youth to the original research process, the impacts of this exposure, and will extend methods for co-research with youth. This approach presents unique opportunities to harness the expertise of libraries to drive innovative literacy programming and research, and develops resources for libraries to expand the ways they engage with the youth they serve.

*Young Researchers: Collaborating With Youth and Libraries for Community Based Scholarship*

PI: Rachel Magee

**Overview**

The Young Researchers project is a three year research study led by Rachel M. Magee, an assistant professor in the School of Information Sciences at the University of Illinois Urbana-Champaign (UIUC). This proposal is submitted under the Community Anchors project category, and is for early career research support of \$484,570 with no cost sharing. The Young Researchers Project will connect teens from diverse backgrounds to the original research process, informed by pilot work conducted with youth in the state of Illinois. Through camp-based introductions to the research process, the Young Researchers Project will directly engage five partner libraries and up to 100 diverse teens across the country in developing research that addresses their local community interests and priorities. This will lead to a publicly available model that will support libraries and researchers in involving youth in the research process. With the planned launch that will introduce the resources developed during this grant, the model has the potential to impact library service and research design across the United States. The research interests of this project include understanding youth culture and perspectives on technology use, examining priorities for youth research experiences and their resulting impact, and identifying factors in the successful development of complex literacy skills like those used in conducting original research. This work endeavors to examine design of socially-embedded informal learning opportunities in libraries, and further understandings of the needs of libraries and librarians for this work to succeed. Driving research questions include: what priorities and needs do researchers, youth services providers, and teens have for understanding original research? How can libraries and librarians support youth in engaging in complex skills development, specifically research literacies, through socially-embedded, interest-driven informal learning?

This work will have impact on library practice with the development of publicly available resources that any library or librarian could use for youth services. The final model will include the iteratively designed camp curriculum for youth research in libraries. This model will address topics like why it is important to introduce teens to the research process, techniques for advocacy and making community connections to support this work, and suggested activities at different levels of complexity for libraries that cannot conduct full camps. The Young Researchers Project will address issues identified in the IMLS Community Anchors platform by iteratively developing and sharing a potentially replicable model for engaging diverse teens in original research. This work will investigate community priorities, build strong relationships between practitioners, researchers, and local communities, and promote techniques for others in the library and research communities to do so.

The project's conceptual framework connects digital and media literacy perspectives<sup>1</sup>, the Connected Learning framework<sup>2</sup>, and critical youth studies theories<sup>3,4</sup>. Concepts of digital and media literacy emphasize the importance of creating and acting as essential competencies, framing creating as composing or generating content, and acting as in part working "collaboratively to share knowledge and solve problems...[in] the community" (p. 19)<sup>1</sup>. Connected Learning<sup>2</sup> prioritizes socially-embedded, interest-driven learning that is oriented toward educational, economic, or political opportunity. Like the literacy approaches that focus on content creation and sharing knowledge, Connected Learning emphasizes production-centered activities that have shared purpose among community members (including friends and caring adults), and take advantage of

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<sup>1</sup> Hobbs, R. (2010). Digital and media literacy: A plan of action. *Washington, DC: The Aspen Institute.*

<sup>2</sup> Ito, M., Gutiérrez, K., Livingstone, S., Penuel, B., Rhodes, J., Salen, K.,... & Watkins, S. C. (2013). *Connected Learning: An Agenda for Research and Design.* Irvine, CA: Digital Media and Learning Research Hub.

<sup>3</sup> Best, A.L. (Ed.). (2007). *Representing youth: Methodological issues in critical youth studies.* New York, NY: NYU Press.

<sup>4</sup> Cammarota, J. & Fine, M. (Eds.). (2010). *Revolutionizing education: Youth participatory action research in motion.* New York, NY: Routledge.

online platforms and digital tools. Critical youth studies argues that youth “have the capacity and agency to analyze their social context” as well as the ability to engage in research collectively (p. 4)<sup>4</sup>. By incorporating these approaches together to design the project, this work extends on existing research, recognizes the importance of social interaction and socially relevant educational experiences for teens, and will build understanding of how informal learning programming in libraries can support these goals.

### Statement of Broad Need

Understanding the value and process of research is a crucial skill for youth, who need to navigate an information landscape that includes a significant amount of misinformation and disinformation. Literacy advocates<sup>1</sup> highlight the importance of the ability to create and share content and knowledge as essential, but youth have few opportunities to engage in these activities as part of the original research process. The ability to “understand the nature and development of scientific knowledge and participate productively in scientific practices and discourse” (p. 2)<sup>5</sup> are key factors in understanding science and research. Understanding “reports and discussions of science that appear in the popular media and teaching students to be informed citizens” are central elements of science literacy (p. 593)<sup>6</sup>. Ensuring that youth develop these skills contributes to a “well-informed citizenry,” a common goal in international understandings of the purpose of libraries and librarianship<sup>7</sup>.

At the same time, scholars are increasingly recognizing the importance of including diverse voices in the development and implementation of research and are adjusting approaches to recruiting and retention. Campus based models like the University of Illinois Urbana-Champaign’s guidelines for broadening participation in graduate education<sup>8</sup>, as well as larger scale initiatives like the American Library Association’s Spectrum Scholarship<sup>9</sup> and the iSchool Inclusion Institute<sup>10</sup> and aim to support diverse students in pursuing graduate education and experience with research and scholarship. A recent meeting hosted by the IMLS directly addressed this topic, highlighting how barriers like geography and funding for school impact the diversity of LIS practitioners and researchers<sup>11</sup>. These conversations and programs are important, nonetheless, these approaches can take time to result in inclusion, and young people need opportunities to see themselves in the roles of researcher and scholar now in order to imagine pursuing these kinds of interests and career paths.

Anthropological, human-centered design, and other research traditions discuss the importance of understanding the values and cultures of the communities being studied. However, techniques like participant observation and participatory action research often connect with adults rather than youth. Research with youth is

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<sup>5</sup> Duschl, R. A., Schweingruber, H.A., & Shouse, A. W. (Eds.). (2007). *Taking science to school: Learning and teaching science in grades K-8*. Washington, DC: National Academies Press.

<sup>6</sup> DeBoer, G. E. (2000). Scientific literacy: Another look at its historical and contemporary meanings and its relationship to science education reform. *Journal of Research in Science Teaching*, 37(6), 582-601.

<sup>7</sup> International Federation of Libraries Associations/ United Nations Educational, Scientific and Cultural Organization. (1994). *Public library manifesto*. Retrieved from: <https://www.ifla.org/publications/iflaunesco-public-library-manifesto-1994>

<sup>8</sup> University of Illinois. (2017). Faculty/Staff toolkit for broadening participation in graduate education. Retrieved from: <http://www.grad.illinois.edu/faculty-staff/toolkits/diversity>

<sup>9</sup> American Library Association. (2017). Spectrum scholarship. Retrieved from: <http://www.ala.org/awardsgrants/spectrum-scholarship>

<sup>10</sup> iSchool Inclusion Institute. (2017). i3 news. Retrieved from <http://www.sis.pitt.edu/i3/about-i3/i3-news.html#>

<sup>11</sup> Institute of Museum and Library Services. (2017). Positioning Library and Information Science graduate programs for 21<sup>st</sup> century practice. Retrieved from: <https://www.imls.gov/news-events/events/positioning-library-and-information-science-graduate-programs-21st-century>

sometimes seen as difficult or “tough” (p. 119)<sup>12</sup> to conduct. This arises from multiple perceptions, including the complexity of receiving ethics approval for study with youth<sup>13</sup> or concepts of youth participants’ developmental, experiential, or communicative skills<sup>14</sup>. Scholars argue that when research does work with youth, it tends to treat them as passive subjects, whose views and voices are neglected in favor of adult concerns<sup>15</sup>. For example, within information science research, much of the work examining the concept of information quality is “adult-normative,” focusing on “what makes information valuable for adults” (p. 31)<sup>16</sup>. Agosto highlighted the lack of LIS work that shares teen input, finding that in articles from a young adult services journal published in 2008-2010, only 2% of practice articles and 19% of research articles shared teen perspectives in any way (p. 40)<sup>17</sup>.

Critical youth theory<sup>3</sup> highlights that while there are inherent gaps between researchers and youth—including differences in power, autonomy, and legal status—involving youth as co-researchers can be to address these differences while providing new ways to understand youth needs and practices. In contrast, Dresang advocated a “paradigm shift from investigations that assume adults will study children to one in which adults and children learn from each other” (p. 1223)<sup>18</sup>. Druin developed cooperative inquiry<sup>19</sup> to bring children into the computing design process along with computer scientists, educators, and artists. This approach focuses on design-centered learning through technology prototyping, and develops technologies for children with children. Similarly, the Young Researchers Project provides novel ways to treat youth not only as rich sources of information, but also as co-producers and learners in the research process, where together we can develop deeper understandings of youth, their literacy and informal learning practices, and their technology use.

This idea of learning and developing together with youth is not just important in LIS research; libraries have long recognized the value of involving youth in the development of collections and programs designed for them with approaches like Teen Advisory Boards. In one IMLS funded example, the Nashville Public Library incorporated youth perspectives into the design of the physical space for teens, called the Learning Lab<sup>20</sup>. The Young Researchers Project will build on the shared community orientation that informs libraries and the traditions of co-research to engage youth in developing community-driven, community-oriented research. This approach presents unique opportunities to harness the expertise of libraries to drive innovative literacy development and progressive research and allows libraries to expand their techniques to engage with the youth they serve.

The proposed work of this grant builds on a pilot study conducted in 2017. Teens from a geographically dispersed community with a small population participated in developing, running, and analyzing a survey of their peers, which focused on social media use and its impacts on social and academic lives. These Young Researchers

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<sup>12</sup> Bassett, R., Began, B. L., Ristovski-Slijepcevic, S., & Chapman, G. E. (2008). Tough teens: The methodological challenges of interviewing teenagers as research participants. *Journal of Adolescent Research*, 23(2), 119-131.

<sup>13</sup> Rode, J. A. (2009). Digital parenting: Designing children's safety. In *Proceedings of the 23rd British HCI Group Annual Conference on People and Computers* (pp. 244-251). Swinton, UK: British Computer Society.

<sup>14</sup> Amato, P. R., & Ochiltree, G. (1987). Interviewing children about their families: A note on data quality. *Journal of Marriage and Family*, 49(3), 669-675.

<sup>15</sup> Hazel, N. (1995). Elicitation techniques with young people. *Social Research Update*, 12(4).

<sup>16</sup> Gasser, U., Cortesi, S.C., Malik, M., & Lee, A. (2012). Youth and digital media: From credibility to information. Harvard Berkman Center for Internet and Society Research Publication No 2012-1.

<sup>17</sup> Agosto, D. E. (2013). Envisaging young adult librarianship from a teen-centered perspective. *Transforming Young Adult Services*, 33-52.

<sup>18</sup> Dresang, E. T. (1999). More research needed: Informal information-seeking behavior of youth on the Internet. *Journal of the Association for Information Science and Technology*, 50(12), 1123-1124.

<sup>19</sup> Druin, A. (1999). Cooperative inquiry: developing new technologies for children with children. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 592-599). New York, NY: ACM.

<sup>20</sup> Institute of Museum and Library Services. (2012). Nashville Public Library Foundation. Retrieved from: <https://www.imls.gov/grants/awarded/lg-48-12-0417-12>

received modified ethics training, conducted data collection, and participated in analysis of data. Their engagement concluded with presentations about their findings to audiences at the University of Illinois as well to their local community. More details about this work are available in *Supportingdoc4*. This pilot study confirms the viability of the camp model for introducing teens to research and provides a baseline for the costs and practical needs addressed in the camp design of this proposal. This work demonstrates teens' capability for extended participation in interest-driven informal learning and shows the potential for impact on participants; as one said "*I'm interested in doing more [research]...I like being able to formulate questions that I could relate to...and see how people would answer questions differently than I would.*"

Though the pilot study validates the potential of this approach, work so far has been informed by my own experiences as a librarian and researcher, literature review, and collaboration with the first group of Young Researchers. To ensure that the model addresses key skills from a variety of research perspectives and is designed to best support teens and their libraries, I need to conduct research with other researchers, youth service providers, and teens. This work will reveal their needs and preferences for informal learning, their priorities for understanding the original research process, and any concerns they see as relevant. In order to identify and refine techniques that are transferable to the diverse communities served by the libraries in this country, the curriculum should be conducted in a variety of locations and evaluated with the input of teens and library staff from other backgrounds. This will yield a robust and relevant set of materials that will be made publicly available and supported with proactive dissemination to LIS practitioners and researchers. In addition to these practice oriented impacts, this work will further scholarship on how teens think about their own technology use, how they develop complex literacy skills, how libraries can design informal learning opportunities, and how co-research techniques can better incorporate youth perspectives. This project extends from my previous experience as a teen services librarian in a public library, as well as my background conducting research with diverse youth. Support would contribute to developing an extensive foundation for my continued research agenda centered at the intersection of youth, literacies, technology, and community oriented research. These are key areas for LIS practice and research. Understanding youth, technology use, literacy development, and informal learning have been the driving concentrations of my work to date, and this project will examine how co-research can connect across these areas.

### **Project Design**

One of the motivations of this project is well represented in the project's name: *Young Researchers*. By naming teens as researchers, this project values their experiences, abilities, and agency and acknowledges the unique perspectives they can bring to the original research process. The conceptual framing of this project connects a critical youth research perspective<sup>3,4</sup> to scholarly traditions that emphasize creation and sharing<sup>1</sup> and highlight the importance of interest-driven, socially-embedded learning opportunities<sup>2</sup>. This work will deepen understanding of youth perspectives on technology use, how they learn complex literacy skills for conducting original research, and how libraries and librarians can support their interest-driven informal learning. This project will assess and incorporate the perspectives of researchers, youth services providers, and teens into the design of a camp curriculum to introduce youth to the original research process. This project will run and evaluate this curriculum in multiple communities across the United States, and make a refined final model including the camp curriculum and supporting resources publicly available through printed reports, online resources, and workshops and trainings for LIS professionals. Key resources for the success of this project include time and funds for the PI to organize and manage the project, staff to support research including two doctoral students and one graduate student, financial support to run the camps, and remuneration to recognize the time and contributions of participants. Additional details on financial resources are described in the *Budgetjustification* documentation.

### *Research Methods and Data Collection*

The project starts with a *Stakeholder Needs Assessment Phase*, which occurs throughout the first year of the grant. This phase will use surveys, interviews, and focus groups to gather input from researchers, youth services providers, and teens on their needs and perceptions of informal learning and original research. I will then revise the camp curriculum to respond to the findings of this analysis, and the project will transition to the *Camp Phase*.

During this phase, the bulk of which occurs during the second year of the grant, library staff from five partner sites from across the United States will be trained on the new Young Researchers curriculum, which will then be run at their locations. The camps will occur in a series over the course of the second year of the grant, with five camps held at each partner site. Up to twenty teens at each partner library will participate in developing original research questions, co-designing a research study, collecting and analyzing data, and developing presentations and publications about their findings.

Training sessions for the partner library staff will be audio recorded, and the partner library staff will be invited to complete pre and post surveys about their experience. I will evaluate the camps using pre and post surveys of the library staff who run the camps and the Young Researchers. I will conduct interviews with library staff, and review written reflections they create after each camp. Young Researchers will also note their reflections at the end of each session, and participate in a focus group focusing on their learning experience at the end of the camp series. Each camp session will be audio recorded, and any materials developed during the camp sessions will be included in analysis, including but not limited to final presentations, written documentation, brainstorming notes, and drawings. Along with one doctoral research assistant (RA), I will travel to each partner library to observe at least once camp in person, and the field notes from this trip will also be analyzed. Data analysis across the project will include statistical analysis of survey responses. I will use thematic analysis<sup>21</sup> to analyze the audio recording transcriptions of interviews, focus groups, training and camp sessions, the text-based diary reflections from library staff and Young Researchers, and field observations from myself and the RAs. These methods are well-suited to developing understandings of practices and perceptions, and will yield rich data for answering the research questions of this project. For a table detailing the research activities, data collection techniques, and related research questions, see *Supportingdoc1*.

#### *Research Questions*

For the *Stakeholder Needs Assessment Phase*, the driving research question is: what priorities and needs do researchers, youth services providers, and teens have for understanding original research? This will inform understanding of library and librarian concerns, what scholars see as key for learning how to carry out research, and what teens look for and appreciate when engaging in informal learning. Specific research questions include:

- What preferences and attitudes do teens express about informal learning opportunities? Original research?
- What needs and priorities do youth services providers have for informal learning curricula?
- What perceptions do youth services providers have about original research?
- What priorities do researchers have for introducing teens to the research process?
- What perceptions do researchers have about libraries and teens?

In the *Camp Phase*, the main research question is: how can libraries and librarians support youth in engaging in complex skills development, specifically research literacies, through socially-embedded, interest-driven informal learning? This work in this phase will examine how diverse communities connect with the research process, how this exposure impacts youth, what priorities youth have for co-research, and how the curriculum functions, which will support the evaluation and assessment of the project. Specific research questions include:

- How do library staff and teens understand and perceive original research?
- How does experiencing the original research process impact understandings and perceptions of it?
- How do the socially-embedded and interest-driven elements of this curriculum operate in practice?
- What skills and abilities do teens develop during participation in the original research process?
- What research interests and priorities do teen researchers emphasize?
- What perceptions do library staff and teens have of the Young Researchers curriculum?
- What recommendations do library staff and Young Researchers have for the design of this curriculum?

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<sup>21</sup> Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.

The camp curriculum uses the subject area of youth and technology practices as a reference point for understanding original research. This was an exciting and engaging topic for the pilot, and it capitalizes on my research background experience with youth, literacies, and technology. I anticipate co-designed research studies focusing on this area, with the following research questions:

- What are the Young Researchers' perceptions of youth technology practices?
- How can youth perspectives inform research based understandings of youth technology practices?

### *Participants and Recruitment*

For the *Stakeholder Needs Assessment Phase*, the project will work researchers, youth services providers, and teens, with the goal of up to 50 participants in each category. Those who complete both activities will receive \$10 in recognition of their time. The project will recruit researchers during summer 2018, when they may have fewer teaching and service commitments. Scholars from diverse research fields, including STEM/STEAM fields and the humanities, working at Tier 1 Research institutions across the United States will be invited to participate. Youth services providers in libraries will be recruited after summer reading programming has ended and school is back in session. The project will recruit youth services providers from across the country, aiming for roughly equal representation of staff from libraries with small, medium, and large service areas. Researchers and youth services providers will be recruited with online social media posts and directed emailing. Interviews will be conducted at their convenience, over video conferences or in-person if possible. Prompted by feedback from the first round of review, this phase will also include teen participants. Teens will be recruited locally beginning during summer 2018, with potential to continue recruiting into the academic year. Working locally will enable for a focus group structure which is well suited to uncovering perceptions and attitudes<sup>22</sup>, and allows for social interaction amongst peers.

During the *Camp Phase*, the project will collaborate with five partner libraries from across the United States. Participants will include the five library staff who will run the program, as well as the Young Researchers at each site. Susan Westgate, the Library Director of the Carol Stream Public Library in Carol Stream, IL, has agreed for this location to be our first partner library (letter of support in *Supportingdoc5*). For the remaining four partner libraries, the process will involve careful sampling decisions to ensure our project reaches young people from backgrounds underrepresented in research, with additional details in the *Diversity Plan* section of the narrative. Partner librarians will receive \$500 in recognition of their time spent training, running camps, and sharing their experiences. The budget includes funding for each partner library to offer lunch during our workday for all participants, in an effort to address potential food insecurity<sup>23</sup> and ensure that participants have the needed energy for completing camp activities. All food provided for the camps will be shared during work tasks, including reviewing curricular materials like slideshows and videos, team-building exercises, and brainstorming discussions. In addition, transportation to programming can also be a concern, especially for geographically dispersed communities<sup>24</sup>. The budget includes \$2,000 per partner library to address this or other local needs as identified by the partner libraries. How this financial support is used will be determined by the library, but could include providing individual bus passes to participants, as well as funds to support librarian travel and space rental of a central location that is easy for participants to access.

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<sup>22</sup> Large, A., Beheshti, J., & Rahman, T. (2002). Design criteria for children's Web portals: The users speak out. *Journal of the American Society for Information Science and Technology*, 53(2), 79-94.

<sup>23</sup> Urban Institute. (2016). Impossible Choices: Teens and Food Insecurity in America. Retrieved from: <https://www.urban.org/research/publication/impossible-choices-teens-and-food-insecurity-america>

<sup>24</sup> Real, B., & Rose, R. N. (2017). Rural Libraries in the United States: Recent Strides, Future Possibilities, and Meeting Community Needs. Retrieved from: <http://www.ala.org/advocacy/sites/ala.org.advocacy/files/content/pdfs/Rural%20paper%2007-31-2017.pdf>

Because this project requires a significant time investment on the part of the Young Researchers, the project is structured to ensure a variety of supports that will allow participation and mitigate difficulties attending all of the camps. Young Researchers will receive remuneration for attending the camps, at a rate of \$100 at the completion of the camps (\$20 per camp attended in the case of 5 day offerings). Ultimately, having consistent participation also requires that the teens themselves see value in the program. Young Researchers will have the opportunity to meet new friends, pursue learning about topics that matter to them, and have their effort recognized by multiple audiences. These teens will be deeply engaged in topics that matter to them, with their voices not just heard, but respected and acknowledged at the same level of as those of professional researchers. Interest-driven inquiry is important for youth<sup>25</sup>, and research highlights that fostering production and creation and valuing the expertise of youth are for key for successful learning in library settings<sup>25</sup>. Learning sciences research highlights that “what makes many informal learning environments attractive is the consensual, collaborative aspect” (p. 56)<sup>26</sup>. In addition to research-based recommendations for engagement, this project incorporates teen feedback from our pilot study to capture what they described as most compelling reason for their extended participation in the research camps: socially-embedded learning with new peers. As one participant put it, “*it was a very enjoyable experience for me. I like how it gave me an opportunity to meet cool new people.*”

#### *Camp Structure and Considerations*

The camps will be attended consecutively over the course of one year. Each camp is focused on significant research activities that occur in different parts of the research process. In Camp One, topics include quantitative, qualitative, and mixed methods research, as well as the ethical considerations of conducting research and working with human subjects. Camp Two focuses on learning from literature and generating research questions relevant to the teens, with examples focused on youth and technology use. Providing the structure of a research area is crucial to a successful curriculum, and this is a broad enough research area to still allow the Young Researchers to let their own expertise and experience to drive their inquiry. Camp Three will focus on research questions and methods, with teens selecting a method and drafting research instruments. I will refine the study instruments after this camp with the assistance of the RAs, will file IRB amendments, and then coordinate and distribute materials to the Young Researchers. The teens will then conduct data collection. In advance of Camp Four, I will collate and prepare data for analysis and discussion with the support of the RAs, and the teens will collectively review and analyze the data at Camp Four. Camp Five focuses on sharing findings, with the teens creating a presentation for their local community and other documentation such as blog posts, podcasts, videos, or other multimedia.

Partner libraries will likely hold all the camps at their locations, and the budget includes funding for individual libraries to pursue space rental if not feasible. Like other library programming, these events would be covered by the library’s insurance and subject to local policies. The conditions necessary for libraries to implement the curriculum include a library staff member who is willing to complete training and run the camps, the ability to schedule program time for the camps, access to space, and the ability to recruit teen participants. Training will take approximately six hours. Though the curriculum is responsive and can be adjusted in collaboration with the partner libraries, in general, each library will offer 5 day camps with typically at least one month in between camps. Each day camp will last four to six hours subject to local needs. For additional details about camp structure and topics, see *Supportingdoc2*.

#### *Dissemination*

The final model, completed during year three, will include the iteratively designed camp curriculum, best practices for building connections between libraries and researchers, and any informational resources developed by Young

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<sup>25</sup> Martin, C. (2015). Connected learning, librarians, and connecting youth interest. *Journal of Research on Libraries & Young Adults*, 6.

<sup>26</sup> Sawyer, R. K. (2008). Optimising learning implications of learning sciences research. In Centre for Educational Research and Innovation, *Innovating to Learn, Learning to Innovate* (pp. 45-65).

Researchers and the partner libraries. The partner library staff will be invited to participate in this dissemination process. We will publish and present in practitioner venues like the Young Adult Library Services Journal (YALS) and the American Library Association Annual Meeting. These presentations will include substantive workshops to introduce and train practicing librarians and staff on the final model, with at least two planned and budgeted for in the final year of the grant. The project will print and distribute a project report to 100 libraries across the U.S., distributed geographically and across library population service size. The project will also generate a website that will be designed by a professional team and permanently housed online by UIUC. This website will share the final model, including the final camp curriculum, resources developed by the Young Researchers, and relevant materials generated by the five partner libraries and their staff. The model will also include recommendations and motivations for introducing teens to the research process, techniques for advocacy and making community connections to support research, and suggested activities at different levels of complexity, addressed to libraries that may not be able to conduct full research camps.

The research outputs of this work will be published and presented scholarly venues throughout the grant timeline and beyond. I plan to publish in a variety of venues, including ones focused on library and information science (such as JASIS&T, The Information Quarterly, ASIS&T) social computing and learning (New Media & Society, CSCW, CSCL, The Connected Learning Summit), youth and libraries (Journal of Research on Libraries and Young Adults), as well as research methods (Qualitative Inquiry). Our research work will also be describe our research work in practitioner venues, such as the YALS Journal, the YALSA blog, and presenting at the American Libraries Association Annual Meeting. Publishing will include findings from the co-research developed with Young Researchers, which, given the curriculum's grounding in youth and technology, will advance understandings of youth technology practices. Research dissemination will also include work on youth perceptions of research, youth complex literacy and informal learning practices, and co-research methods.

#### *Project Members and Staff*

Principal Investigator: Rachel M. Magee will serve as director of this project, which extends on her professional background in youth services in public libraries as well as her extensive experience coordinating youth research. She is an assistant professor at the iSchool of University of Illinois Urbana-Champaign. Magee holds a Ph.D. in Information Studies from Drexel University, a Master of Information Resources and Library Science from the University of Arizona, as well as a B.S. in Radio-Television-Film and a B.A. in English from the University of Texas at Austin. Over the past fifteen years, Magee has worked with youth ranging in age from 0-22, with the majority of her experience focused on 12-18 year olds. During her work as a teen services librarian in the County of Los Angeles, she developed and implemented informal educational programs introducing teens and fellow librarians to various media technologies, running multiple programs in the camp style. Magee's research agenda focuses on youth, literacies, technology, and community oriented research. She has been leading research with teens for more than five years, and has worked with geographically and racially diverse youth. She has experience as a co-PI on the IMLS funded App Authors grant (LG-80-15-0185-15) and was awarded a National Science Foundation Graduate Research Fellowship. Her experience collaborating with formal and informal educators, designing informal learning opportunities, and working with youth situate her to effectively carry out this project.

Student Staff: During the course of the grant, the PI will supervise two doctoral research assistants, one employed for three years, and one or two. A graduate hourly staff member will also be hired to support the administrative needs of the project. Margaret Buck, who supported the pilot work, will fill one of the doctoral positions. Before attending UIUC, Buck worked as a middle school librarian in Baltimore, MD, where she innovated library services and developed progressive curricular materials, making her an excellent fit for continuing on this work. In addition to Buck, the PI will coordinate with the UIUC Graduate College during the first year of grant work to recruit a doctoral student from a background traditionally underrepresented in graduate study. More details are described in the *Diversity Plan* section of the narrative.

Young Researchers: The Young Researchers are research participants, but will ultimately be considered researchers on our co-designed research studies. Because this work builds on existing pilot work, the project has

an existing protocol approved by our Institutional Review Board (protocol #17108). Future study instruments will need to be amended for approval, but the overarching structure of this research is already approved, including the approach of including teens as researchers who receive ethics training and are able to collect and analyze data and present research. In our currently approved protocol design, any Young Researcher has the opportunity (as elected on consent documentation) to use their own name in presentations and publications, in recognition of their intellectual contribution to our work.

**Advisory Board:** This project includes an advisory board, which will help guide and assess the project. The full advisory board will provide commentary on research instruments and the design of the camp structure. They will also examine and assess the findings of the study and all publicly available outputs, and make recommendations about their dissemination. The advisory board will share feedback throughout the project timeline, and the full board will meet synchronously online once a year. The board includes Leanne Bowler, Ph.D., Linda Braun, Julia Burns Petrella, Lauren Gray, and Mega Subramaniam, Ph.D. The board members all have experience in conducting research with youth and youth culture. Bowler, Braun, and Subramaniam will focus their attention on guiding and assessing the research elements of this work, capitalizing on their extensive expertise in research with youth, the development of informal learning opportunities within libraries, and curriculum/instruction development and support.

Gray and Petrella currently work as librarians and will help guide the partner library selection process. As part of the App Authors project, Gray developed a curriculum to introduce youth to coding and app development. She ran this curriculum with multiple libraries and also trained library staff at libraries in multiple states to implement this work. This experience will help inform curriculum design and dissemination. Petrella will serve as the first partner library staff to run the camp curriculum at the Carol Stream Public Library. In addition to her work in school and public libraries, Petrella is doctoral student researching youth online cultures and is familiar with the research process. Her insight into the partner library staff training and how the camp curriculum works in the field will be invaluable as the curriculum is refined and disseminated. Board member letters of commitment are available in *Supportingdoc6*, biographies are in *Supportingdoc3*, and resumes are in the *Resumes* documentation.

### **Diversity Plan**

Including diverse youth and libraries is at the center of this project. In order to do so, the project will invite participation from libraries that have diverse populations as determined by services sizes, geography, and levels of poverty. I will use the IMLS Public Libraries Survey in conjunction with the U.S. Census to stratify, identifying libraries across the spectrum of population service sizes. The project was piloted with a small, geographically dispersed community and the currently selected partner library has a small service population. Going forward, in order to ensure that the curriculum speaks to the experiences of libraries and youth from diverse geographies, this project will partner with two additional libraries with mid-size populations, and two libraries with large service populations. One library will be selected from each of the four different geographical regions of the United States as determined by the U.S. Census bureau, including the west, the south, the mid-west, and the northeast<sup>27</sup>.

The project will combine these geographical considerations with race and ethnicity data from the U.S. Census to select libraries with service populations that have significant populations of individuals who identify as Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, or of Hispanic origin. To work to address diverse economic statuses, the project will use school and/or district level percentages of students eligible for free and reduced lunch through the National School Lunch Program<sup>28</sup>. Eligibility for this program is derived from the federal poverty level, and though this is a not a direct

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<sup>27</sup> US Census Bureau. (2000). Census Regions and Divisions of the United States. Retrieved from: [https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us\\_regdiv.pdf](https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf)

<sup>28</sup> USDA. (2017). National School Lunch Program. Retrieved from: <https://www.fns.usda.gov/nslp/national-school-lunch-program-nslp>

measure of poverty, can give some general indication about relative numbers of children experiencing poverty<sup>29</sup>. When working with two libraries of similar population service sizes, I will select one library that serves a school(s)/district(s) from the lower 50<sup>th</sup> percentile, and one from the upper 50<sup>th</sup> percentile of these categories.

These are not our only considerations. This project aims to include teens who come from backgrounds traditionally under-represented in research, including LGBTQIA+ youth, first-generation and immigrant youth, and youth who may become first-generation college students. Because these identities do not have the same level of nationally representative data available, the project will work to identify and invite partner libraries that have demonstrated an explicit commitment to serving diverse youth, as evidenced by their programming, outreach, and professional presences online and at conferences. To ensure that youth from all backgrounds can participate, the budget includes remuneration that recognizes the time commitment of participation, funds to have food available during the camps, and funds (\$2,000 per partner library) to address any youth or practical needs like transportation. I will work with selected partner libraries to emphasize inclusion in recruiting strategies.

It is also important to include diverse voices on the staff of this project. In the first year of grant, I will coordinate with the iSchool and the Graduate College at UIUC to proactively recruit an incoming doctoral student from a background underrepresented in graduate education. Programs for of recruitment include the Community of Scholars Initiative<sup>30</sup> and the Summer Pre-Doctoral Institute<sup>31</sup>. The iSchool's Director of Enrollment Management, Moises Orozco Villicana, Ph.D., has an existing collaboration with Daniel Wong, Ph.D., the Associate Director of Educational Equity Programs at the Graduate College. In the last year alone the iSchool had 6 students recruited through these programs, showing great promise for recruiting for this position.

### **Broad Impact**

I am applying for support to better understand what happens when diverse teens are involved in the original research process and how libraries can support this as an informal learning activity. This project will address *IMLS Agency-Level Goal 1: Learning*, with a focus on the performance goals of training and developing museum and library professionals, and developing and providing inclusive and accessible learning opportunities. I will collect data related to these goals in our post-camp surveys with partner library staff and Young Researchers, and report findings in the final IMLS report, the final project report, and project website. Support would enable research at national level and iterative development of materials specifically designed for broad and diverse audiences. The resulting resources will be permanently shared online at no cost. This project will engage 100 teens in conducting original research and identify best practices for connecting youth to the research process, which has the potential to impact informal learning nationally. Diverse youth will have the opportunity to see themselves as researchers with important perspectives to contribute and to develop their complex literacy skills. This project promotes research as an activity and career path and will develop and assess a camp curriculum for youth co-research in libraries, connecting practice and research with a community orientation. Library staff at national partner sites will receive extensive training and support, and their experiences will inform the creation and dissemination of a publicly available model and accompanying workshops for LIS practitioners. In addition to these practice oriented outcomes, this work will further LIS research on youth perspectives on technology use, build understanding of priorities for youth co-research and the impacts of participation in co-research, and identify factors in the successful development of complex literacy skills like those used in conducting original research. This work will contribute to techniques for designing socially-embedded informal learning opportunities in libraries, and deepen understandings of the needs of libraries and librarians for this work to succeed.

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<sup>29</sup> Snyder, T. & Musu-Gillette, L. (2015, April 16). Free or Reduced Price Lunch: A Proxy for Poverty?.

Retrieved from: <https://nces.ed.gov/blogs/nces/post/free-or-reduced-price-lunch-a-proxy-for-poverty>

<sup>30</sup> University of Illinois. (2017). Community of Scholars – Spring Campus Visit Program. Retrieved from: <http://www.grad.illinois.edu/diversity/cos>

<sup>31</sup> University of Illinois. (2017). Summer Pre-Doctoral Institute. Retrieved from: <http://www.grad.illinois.edu/diversity/spi>

Young Researchers: Collaborating With Youth and Libraries for Community Based Scholarship  
 School of Information Sciences, University of Illinois Urbana-Champaign  
 PI: Rachel Magee  
 Funding Period July 1, 2018 - June 30, 2021

Activities	Pre-Award	Year One				Year Two				Year Three			
		Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
<b>Project Management</b>													
<b>Staff/Students</b>													
Recruit Graduate Hourly Student													
Recruit Doctoral Research Assistant Postion 2													
<b>Stakeholder Needs Assessment Phase</b>													
File IRB Amendment for Data Collection													
Recruit Researchers													
Recruit Teens													
Recruit Youth Services Providers													
Conduct Interviews & Surveys with Researchers													
Conduct Focus Groups & Surveys with Teens													
Conduct Interviews & Surveys with Youth Services Providers													
Stakeholder Data Analysis													
<b>Partner Library Identification</b>													
Strategic Sampling of Potential Partner Libraries													
Recruit and Confirm Potential Partner Libraries													
<b>Camp Phase</b>													
Train Partner Library Staff													
Conduct Camps (5 day camps at each site)													
File IRB Amendments for Co-Designed Studies													
Conduct Data Analysis with Young Researchers													
Camp Assessment Data Analysis													
<b>Iterative Development</b>													
Iterate Curriculum Based on Stakeholder Needs													
Iterate Curriculum Based on Camp Assessment													
<b>Practice Oriented Dissemination</b>													
Publish Final Model in Practitioner Venues													
Conduct Practitioner Workshops on Final Model													
Print and Mail Report with Final Model (100 Libraries)													
Design and Launch Web-based Report with Final Model													
<b>Research Dissemination</b>													
Conference Presentations													
Research Publications													
<b>IMLS Final Report</b>													

## DIGITAL PRODUCT FORM

### Introduction

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

### Instructions

- 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 *educational materials* including the camp curriculum and web-based resources will be open for re-use, re-distribution and production of derivatives. I will use a Creative Common Attribution 4.0 license (CC-BY) to encourage reuse and adaptation while allowing for attribution.

I support reuse and remixing of *data products*. I will likely use a Creative Common Attribution 4.0 license (CC-BY) or Creative Common Universal Public Domain Dedication 1.0 license (CC0), subject to any restraints imposed by the UIUC Office for the Protection of Research Subjects (OPRS).

For *research publications and presentations*, I will pursue the use of Creative Common Attribution 4.0 license (CC-BY) when possible. I will pursue publication and presentation in open access venues when possible. However, when relevant venues do not support these licensing approaches, I will honor agreements with publishers and conferences.

For potential re-users, I will provide clear language on the license, attribution recommendations, and links to license details in our products and website.

**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.

Ownership of *educational materials and data* will reside with the PI. If individuals add to these products, the ownership will reside with the creator. However, *research publications* ownership will vary depending on the agreements with publishing bodies.

The PI and all research staff will promote access and use of all products through the website and professional channels.

**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.

It is possible that *data* may contain potentially sensitive information, and a significant portion of the research participants will be minors. We will follow guidance from our UIUC’s Office for the Protection of Research Subjects and Research Data Services (RDS) on the best ways to make data accessible and usable while protecting confidentiality of participants. I will likely use the following disclosure risk management procedures:

- Redaction of sensitive material in the data products,
- Limiting access to data and requiring a data confidentiality agreement from re-users, and/or
- Sharing aggregate data, codebooks, and code reports containing no sensitive information.

I do not anticipate that *education materials, metadata, or research publications* will contain any sensitive information.

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

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

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

<b>Asset</b>	<b>Description</b>	<b>Quantity</b>	<b>Format</b>
Educational materials	Curriculum, training materials, assessment instruments, recommendations, etc.	1 model	pdf, html, paper
Stakeholder survey data	Aggregate survey data of researchers, youth services providers, and teens	1 data set	csv
Stakeholder qualitative data	Interview transcripts, codebook, analysis database	150 transcripts, 1 codebook, 1 database	pdf, NVivo database
Partner Library Staff survey data	Aggregate survey data of Partner Library Staff	1 pre and 1 post camp data set	csv
Partner Library Staff qualitative data	Interview transcripts, training and camp session recordings, field notes, codebook, analysis database	5 interview transcripts, 5 training transcripts, 25 camp session transcripts, 5 field notes sets, 1 codebook, 1 database	pdf, NVivo database
Young Researchers survey data	Aggregate survey data of Young Researchers	1 pre and 1 post camp data set	csv
Young Researchers qualitative data	Focus group transcripts, camp session recordings, field notes, codebook, analysis database	5 focus group transcripts, 25 camp transcripts, 5 field notes sets, 1 codebook, 1 database	pdf, NVivo database
Co-designed studies data	To be determined with Young Researchers, likely interviews, focus groups, and or/surveys	TBD.	TBD. Likely csv, pdf, NVivo database
Research publications	Publications and conference papers and posters	Multiple	pdf

**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.

Microsoft Office or Open Office products will be utilized to generate educational materials, transcripts, publications, and other assets. Data files and databases will be created using R and NVivo software.

Research publications will be hosted by the journals in which we publish. If possible, I will deposit a copy in the UIUC's IDEALS document repository, using DSpace.

The website will be based on the Wordpress platform using the University web hosting service.

**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).

Educational material, transcripts, codebooks, and code reports will be stored in .docx and .pdf formats. I will use .csv format for survey data. The qualitative analysis database will be stored in .nvp format. Web content will be stored in .html. All documentation will be made available at or above relevant quality standards.

## **B. Workflow and Asset Maintenance/Preservation**

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

The PI will train graduate students in quality control procedures and guidelines as well as provide oversight for monitoring and evaluating the quality of document and data production.

**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).

I will utilize the Illinois IDEALS repository for final project documents and Illinois Data Bank for shareable research data products during and after the grant period. The project site which includes the camp curriculum and other relevant resources will be permanently housed by the University. UIUC supports the Wordpress platform and their hosting service, and this support will extend beyond the end of the grant period.

## **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).

Metadata will be produced in the IDEALS and Illinois Data Bank repository interfaces. IDEALS repository complies with DublinCore, OAI-PMH, among other standards (see <https://wiki.illinois.edu/wiki/display/IDEALS/Metadata+Policy>). Illinois Data Bank complies with DataCite standard.

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

Both UIUC's IDEALS repository and Illinois Data Bank will support metadata beyond the grant period.

**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 UIUC's IDEALS repository and Illinois Data Bank provide a GUI and API for search and discovery. The PI and research staff will promote them to professionals at conferences, meetings, and other communication channels.

#### **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).

Assets will be available online through the project website via standard web browsers as well as deposited in IDEALS repository, using DSpace, and Illinois Data Bank, based on Ruby on Rails application.

**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.

Illinois Data Bank: <https://databank.illinois.edu/datasets>

IDEALS: <https://www.ideals.illinois.edu/handle/2142/150>

### **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.

**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.

#### **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.

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

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

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

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

### **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.

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

**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.

In Year 1 during the *Stakeholder Needs Assessment Phase*, the project will use survey, qualitative interviews, and focus group methods to collect data. This data will inform the iterative design of the camp curriculum to be run in the *Camp Phase* of the project.

Beginning near Year 2, the project will transition to the *Camp Phase*. This part of the project includes additional surveys, qualitative interviews and focus groups, field observation, and audio recordings of training and camp sessions. This data will be used to inform the final camp curriculum shared in the third year of the project.

During the *Camp Phase*, the Young Researchers will co-design additional research studies (five total). The selected methods will likely include surveys, interviews, and /or focus groups. Examples from this work will be shared as a part of the final camp curriculum and project website.

All data collected throughout the three years of the project will contribute to research and scholarly publications and presentations.

**A.2** Does the proposed data collection or research activity require approval by any internal review panel or institutional review board (IRB)? If so, has the proposed research activity been approved? If not, what is your plan for securing approval?

The project will require approval and oversight by the UIUC's Office for the Protection of Research Subjects. The structure of the Young Researchers camp project has current approval under protocol #17108. As currently approved, new partner sites, co-designed study instruments, and documentation of partner library staff and

Young Researchers who will be conducting research require amendments to the approved protocol. As partner library sites and staff are identified and research studies are co-designed with the Young Researchers, the PI will submit amendments. The camp structure accounts for time to submit for ethics approval in the timing between Camp 3 and Camp 4.

Approval will be secured before the project start for the surveys, interviews, and focus groups in the *Stakeholder Needs Assessment Phase*. This phase includes only straightforward, minimal risk studies, and the PI will submit documentation by the end of March 2018 for ethics review. Approval should be confirmed before the grant funding period.

**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).

When joining the project, the Young Researchers will have the option to consent to using their names in presentations and on publications to recognize their intellectual contributions to the co-designed research. This option will be clearly discussed during the consent/assent phase of the project, as well as when the teens are generating presentation and publication materials.

In general, the nature of this project's research and study instruments are not designed to collect sensitive information. However, it is possible that a participant could reveal these types of information. The project will store data on secure machines with password protection, and only project staff will have access to them. As discussed previously in this form, we will consider disclosure risk management techniques when creating shareable data products.

**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.

We will collect consent, permission, and/or assent for the following participants:

- Researchers, youth services providers, and teens in the *Stakeholder Needs Assessment Phase*
- Partner Library Staff in the *Camp Phase*
- Young Researchers in the *Camp Phase*

For the *Stakeholder Needs Assessment Phase*, the PI and/or research assistant will collect and document consent, permission, and assent via in-person contact, mail, fax, or email (using a dedicated project email housed by the University). Printed/paper records will be kept in paper format in a locked file cabinet in the PI's office, for at least 3 years from the study's end (traditional timing for this kind of documentation with the UIUC OPRS/IRB). For these participants, a key of unique identifiers will be the link between consent/permission/assent documentation and study responses. This key will be password protected and only accessible to the PI and research staff.

For the *Camp Phase*, we will consent partner library staff, and they will return their consent documentation via mail, fax, or email (using a dedicated project email housed by the University). This same library partner staff will complete ethics training and be included on the research protocol as research team members able to document consent, permission, and assent. They will collect and document consent, permission, and assent with the teens who participate as Young Researchers, and mail, fax, or email (using a dedicated project email housed by the University) completed documentation to the PI. After receipt, the PI will maintain the physical copies of consent/permission/assent documents in a locked file cabinet in her office for at least 3 years from the study's end. For these participants, a key of unique identifiers will be the link between consent/permission/assent documentation and study responses, though when participants elect to use personal identifiers in publications and presentations, the project will maintain this practice. The key will be password protected and only accessible to the PI and research staff.

The Young Researchers' co-designed studies will likely also have human subjects participants. We may also collect consent, permission, and/or assent for the participants in the Young Researchers' co-designed studies. This will depend on the study structure and UIUC OPRS/IRB requirements.

In our pilot and currently approved OPRS/IRB protocol, I worked collaboratively with the UIUC ethics board to incorporate ethics training into the camp curriculum so that the teens were considered a part of the research team. For the pilot, we structured the co-designed study so we did not collect personally identifiable information, and received a waiver of informed consent documentation. Going forward in the project, I anticipate continuing with this approach, or designing studies that will at least qualify for a waiver of consent documentation. If the Young Researchers want to pursue a study where documentation is needed, they will conduct consent/permission/assent under the supervision of the PI and the partner library staff, who will in turn return documentation by mail, fax, or email (using a dedicated project email housed by the University) for locked storage in the PI's office, kept for at least three years.

**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).

Survey data will be captured via Qualtrics web survey software and exported in .csv format, which can be readable by many statistical and spreadsheet applications. Qualitative data will be captured via audio recorders. Audio files will be downloaded to secure machines, password protected, and transcribed into .docx and .pdf formats. Any field notes of observations taken by the PI or research staff will be generated and maintained in .docx and .pdf formats. These will also be password protected. Across the project, only the PI and the research staff will have access to raw data.

**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?

Codebooks, code reports, and project notes will be created and stored on local, secure machines in .docx and .pdf formats. Documentation will include identifiers for data collection type (e.g., stakeholder survey, teen interview) and participant as needed.

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

We will deposit any shareable data sets and data products into the Illinois Data Bank for long term preservation and dissemination.

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

Name of repository: Illinois Data Bank

URL: <https://databank.illinois.edu/>

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

This data management plan will be reviewed monthly with project staff. The PI will monitor the compliance with the plan as well as makes modifications to the plan to accommodate project developments or technological advancements.