

Services for Children of All Abilities in Libraries: An Exploration (SCALE)

Little is known about the effectiveness of library services to young children (ages birth to five years) with disabilities and/or developmental delays. The University of Kentucky, in collaboration with the University of Missouri and Emporia State University, and in partnership with the Kentucky Department of Libraries and Archives, the State Library of Kansas, the State Library of Missouri, the Kansas State Department of Education, the Kentucky Department of Education, and the Kentucky Governor's Office of Early Childhood, proposes a three-year exploratory stage, multi-state Research in Service to Practice project investigating the effectiveness of library services, practices, and behaviors effective for serving children with disabilities and/or developmental delays who span ages birth to 5-years. Aligned with the IMLS agency-level **Promote Lifelong Learning goal** and the **continuous learning for families and individuals with diverse backgrounds and needs** objective, this project will provide evidence to support the value of libraries as community resources for individuals with disabilities and will also provide information to help librarians better tailor services and programs to meet the needs of young children with disabilities and/or developmental delays as well as the families, educators, and interventionists who care for those children.

STATEMENT OF NATIONAL NEED

Quality learning experiences and interactions are important for all young children but critical for young children with disabilities and/or developmental delays. For all children, the quality of learning environments and interactions in the first years of life set the stage for school success and have lasting impacts on mental and physical health and wellbeing across the lifespan (Wong, Odom, Hume, Cox, Fettig, et al., 2014; Reynolds et al., 2011). However, the importance of quality early learning experiences is amplified for children with disabilities and/or developmental delays who in addition to needing access to mainstream child-focused programs and services promoting learning, play, participation, peer interaction and friendships—experiences that are essential for all children—also require targeted intervention services (World Health Organization, 2012).

Libraries are positioned to provide rich learning opportunities for young children and their caregivers (IMLS, 2013, 2015; Urban Libraries Council, 2007). Programs for young children, offered in nearly all public libraries in the United States, support school readiness and educate parents about meaningful ways to interact with their children (Becker, 2012; Burger & Landerholm, 1991; Cahill, Joo, & Campana, 2019; Campana et al., 2016; de Vries, 2008; McKechnie, 2006; Mills et al., 2018; Smardo, 1984; Williams, 1998). Parents who participate in these programs with their young children have opportunities to interact with other parents to share favorite titles and effective strategies (Burger & Landerholm, 1991), and they tend to engage in more literacy-supportive activities in the home (Canfield, Seery, Weisleder, Workman, Cates, et al., in press; Chen, Rea, Shaw, & Bottino, 2016; Wasik & Hindman, 2010) which further promote children's interest in literacy (Fritjers, Barron, & Brunello, 2000). Put differently, these programs have lasting impacts and implications in the lives of children and their caregivers. Naturally, these programs and all library services should be open to and accessible for all children, including those with disabilities and/or developmental delays.

The Americans with Disabilities Act of 1990, as amended in 2008, promotes full participation in all aspects of society for individuals with disabilities by guaranteeing them the same opportunities as everyone else to participate in programs, services, employment, and commerce activities. Thus, library services and programs should be available for and accessible to all. Indeed, libraries in the United States have long been philosophically committed to providing resources, services, and programs to people with disabilities, as evidenced by the American Library Association's (ALA) recent reaffirmation of "an open, inclusive, and collaborative environment" as a core organizational value. Additionally, ALA has made equitable access to information and library services by all people a key action area and focus in its updated strategic plan (ALA, 2017).

There are many more young children with disabilities and/or developmental delays than are being served through the federal programs to which they are entitled. The Individuals with Disabilities Education Act (2004) mandates a free public education to all children ages birth to 21 years who have one or more disabilities,

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and to children ages three to nine years experiencing delays in one or more of the following developmental areas: physical, cognitive, communication, social or emotional, or adaptive. According to IDEA, disability means “a child with intellectual disabilities, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance, orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities” (Section 1401 (3)).

Infants and toddlers who qualify for IDEA receive early intervention services (Part C), while those qualifying individuals ages 3 through 21 receive special education and related services (Part B). Approximately 2% of the population of children age birth through 2 years receives early intervention services through Part C; however, many more children likely qualify, with estimates suggesting children from minority groups, low-socioeconomic households, and households where a language other than English is spoken are disproportionately underrepresented in early intervention and early childhood special education (Morgan, Farkas, Hillemeier, & Maczuga, 2012). Adjusted estimates indicate that the number of children under three years of age who actually qualify for services is closer to 13% but could range as high as 78% (Rosenberg, Robinson, Shaw, & Ellison, 2013; Rosenberg, Zhang, & Robison, 2008). According to the National Center for Education Statistics (2019), 13% of the total school aged population in the U.S. receives disability services through Part B.

Libraries still have much work to do to provide equitable access to library services and programs for young children with disabilities and/or developmental delays. The extent to which libraries are serving young children with disabilities is unclear, yet it would be optimistic to contend that children with disabilities comprise 13% of the participants of library programs designed for children ages birth through five. “[I]t is not enough for librarians just to say that libraries are welcoming and accessible or that their programs and services are not restrictive. Librarians must take a proactive stance to include families of children with special needs in programs and services; they must develop strategies to seek out opportunities to reach these families” (Feinberg, Jordan, Deerr, & Langa, 1999, vii). Indeed, inclusion of children with disabilities has long been a challenge for libraries. During interviews conducted for an IMLS-funded multi-state study of public library storytime programs, numerous librarians reported that making accommodations for children with disabilities is not a factor they consider when designing and planning their programs (Cahill, Joo, & Howard, 2019).

While there is some evidence that libraries are making efforts to serve young children with special needs, it is not clear how effective nor widespread those efforts are, nor what specific strategies are ideal for overcoming barriers. A recent review of 20 urban public library websites reported only four images portraying children with physical disabilities and little indication that programs were designed for young children with disabilities of any kind (Prendergast, 2013). On the other hand, respondents of a recent survey of public libraries serving populations of 100,000 or more reported offering storytime programming open to all, and 38% reported providing specialized programming for children with disabilities; however, more than half reported significant challenges including lack of training and resources as well as resistance from other library staff and patrons (Adkins & Bushman, 2015). Though no scholarly investigations of services and programs for children with disabilities in libraries serving smaller or rural communities could be found, practitioner reports suggest that public libraries in rural communities are attempting to reach children with special needs and their families through efforts such as book mobile service (Gaines, 2012).

Even when libraries do provide programs for young children with disabilities, those children and their families may not feel welcome. As conveyed by one mother of two young children with disabilities, “As deep a love as I have for libraries, I have often felt let down by the library when it comes to my children and my friends’ children” (Holmes, 2007, p. 24). Another mother of a child with a disability confessed she “had stopped going to traditional storytimes because other parents would glare at her son when he was behaving in a way that was normal for him” (Burton, Ferrell, Olson, & Patrick, 2012, p. 13). Still other caregivers of young children with disabilities have reported similar reactions from other participants at regular storytime programs (D’Orazio, 2007), and parental concerns over keeping children quiet are a recognized barrier of library use (Schmidt & Hamilton, 2017). One recent Canadian study that explored the public library experiences of parents

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of young children with disabilities found great variability in the types of experiences the parents and their children encountered based on disability type: parents of children with physical disabilities reported having positive experiences attending library programs and utilizing library services, while those of children with “invisible” disabilities, or disabilities that affected their behavior, felt discouraged to participate and actually even “dreaded going” (Prendergast, 2016, p. 76) to library programs after multiple unsatisfactory incidents.

A recent investigation of public librarians’ practices with preschool children with special needs (Cahill, Joo, & Howard, 2019), conducted as part of a larger IMLS-funded investigation of public library storytime programs, found that some public libraries offer outreach programs to early childhood classrooms serving children with disabilities and developmental delays. When school library services are offered, preschool children learn important skills and tend to enjoy the experience (Cahill, 2004). To fully understand the library services landscape for young children with disabilities and/or developmental delays, it is necessary to appraise both in-house as well as outreach services of public libraries because IDEA Parts C (early intervention for infants and toddlers up to 3-years of age) and Part B Section 619 (services for children ages 3-5) bridge infancy through childhood settings, including preschools. Nearly 7% of the total population of children 3-5 years of age in the United States receives disability services through IDEA, Part B, section 619 (United States Department of Education, 2019), and approximately 60% of those receiving services attend an early childhood program or other school. Yet, it is unclear what, if any, library programs and services these children receive.

Lack of access to library services and programs for young children with special needs is particularly concerning given that the home literacy environments of children with disabilities may be significantly less supportive than those of their typically developing peers (Boudreau, 2005; van der Schuit, Peeters, Segers, van Balkom, & Verhoeven, 2009). Specifically, some studies report that children with disabilities have less access to books and other literacy materials than their typically developing peers (Light & Kelford Smith, 1993; Marvin, 1994; Marvin & Mirenda, 1993), and access to books and other literacy materials tends to decline in relation to the severity of a disability (Carlson, Bitterman, & Jenkins, 2012). Children with disabilities tend to struggle academically and are more likely to drop out of high school (Marino, 2010; National Science Foundation, 2011). Given the existing inadequacy of the home literacy environments of many young children with disabilities and the likelihood of later academic difficulties, library programs and services have the potential to be even more important for this segment of the population. As Downing (2006) contends, children with disabilities should not only have access to library services and programs equal to that of their normally developing peers, they should ideally have more.

Current Significance

The library community is seeking more information about how to best serve young children with disabilities and/or developmental delays. As conveyed in a recent IMLS report, “the library community needs to bring its services to people with disabilities to the forefront, so that libraries can learn from each other and build a shared investment in the outcomes” (Hill, Streams, Dooley, & Morris, 2015, p.11). Promisingly, library communities internationally recognize inclusion as a challenge area and are taking measures to discuss and overcome it (Djonov, Torr, & Stenglin, 2018). For example, ALA has had a disability policy since 2001, and it recently updated the “Services to People with Disabilities” interpretation of the Library Bill of Rights (ALA, 2018), and it has awarded the Schneider Family Book Award since 2004 to honor a book depicting the disability experiences for child or adolescent audiences (ALA, n.d.). Still, the association recognizes librarians need more support in this realm. The Young Adult Library Services Association is offering a course this spring focused on making library services more accessible to teens with disabilities, and ALSC has included the following question, which this project aims to address, in its National Research Agenda for Library Service to Children, “How do children with disabilities and their families perceive the services, programs, materials, personnel, and equipment provided by the public library?” Previous IMLS projects have focused on services for people with disabilities (e.g. RE-13-19-0051-19, RE-07-17-0048-17, RE-40-16-0028-16, and RE-31-16-0129-16), but none of those projects focused on young children and their needs.

PROJECT DESIGN

The overarching question we attempt to answer through this **exploratory** Research in Service to Practice project is **How can public libraries better meet the needs of young children with disabilities and/or developmental delays and their families?** To answer this overarching question, we will first address the following questions:

- **RQ1: What existing services and programs offered through public libraries are designed to address the early learning and social well-being needs of young children with disabilities and/or developmental delays and their families?**
- **RQ2: What elements of those services and programs are effective, and for whom? (e.g. children, parents, educators, librarians, intervention providers)**
- **RQ3: What best practices have emerged, and in what venues? (e.g. preschools; public libraries; community organizations; healthcare settings; urban, rural, and suburban settings;)**

We answer these questions through a qualitative research design aimed at exploring existing programs and services in three states and in rural, suburban, and urban communities. Because IDEA Part C (early intervention for infants and toddlers) and Part B Section 619 (preschool services) bridge infancy through childhood settings, including preschools, and also differ across U.S. states and territories, a multi-state exploratory research study that addresses both in-house and outreach services of public libraries is necessary to gain a comprehensive and meaningful picture. In answering the research questions above, this exploratory Research in Service to Practice project addresses the IMLS agency-level goal, **Promote Lifelong Learning**, and the objective, **continuous learning for families and individuals with diverse backgrounds and needs**. However, findings from the project will also position libraries to **build capacity** and **increase public access**. The designated project category for this project is **Lifelong Learning** as its primary focus is to identify the capacity of public libraries to provide learning opportunities for young children with disabilities and developmental delays, a segment of the population that faces many barriers that limit their access.

Strategic Collaboration

The research team will consist of six researchers, two in each state, in the fields of library science and early childhood special education. We will partner with state library agencies and departments of education in Kansas, Kentucky, and Missouri and convene a strategic advisory board comprised of partner agency and department personnel as well as individuals and researchers who have expertise in special education, library services and programs for young children, rural community health services, health services in libraries, and community organizations to support young children with disabilities and their families. Collectively, the research team, strategic partners, and consultants with expertise in key areas will convene as a project advisory board.

Project Design Overview

Adopting an appreciative inquiry approach (Bushe, 2007), which focuses on discovering positive examples in an effort to pinpoint “what works,” this project focuses on first identifying exemplar programs, then analyzing those programs using ethnographic research methods (i.e. observation and recordings, individual interviews, and focus group interviews) with stakeholders in those programs (children, parents, teachers, librarians, caregivers, administrators, and early interventionists). Based on the findings, we will highlight several model programs, identify the elements of those programs that are most effective for various stakeholders, compare and contrast features of programs across the rural to urban continuum as well as between small and large library systems, and identify best practices for providing outreach to particular venues such as preschools. As explained in more detail in the sections to follow, the project will be conducted in three phases. Phase I, in year 1, will incorporate research preparation, including developing and pretesting of the research protocol, identifying participants, and obtaining institutional review board (IRB) approval for research with human subjects. Phase II

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will involve data collection and occur during year 2. Phase III will consist of data analysis and dissemination of findings. Because data collection and analysis are simultaneous in qualitative research (Merriam & Tisdell, 2016), Phase III will begin in Year 2 with data collection and continue through Year 3.

Phase I: Research Preparation

Goal 1: Identify model library programs and services offered through public libraries to meet the needs of young children with disabilities and/or developmental delays and their families. On a regular basis, the research team will meet virtually with the strategic advisory board. Advisory board members will recommend model libraries in rural, suburban, and urban communities, with exemplary services for young children with disabilities and/or developmental delays and their families. The researchers will contact those model facilities to solicit more information and participation. Background information including location, community demographics, community support, and library staffing will be collected for the sites that are interested in participating.

Goal 2: Prepare research materials and permissions. The research team will seek permissions to conduct research with human participants. The University of Kentucky will serve as the lead institution for IRB purposes, and the team will follow the requirements and protocols designated by the other institutions (MU and ESU) and entities (e.g. public library boards of directors, child care facilities, etc.) as needed. The research team will design and create instruments and data collection protocols targeted for this project. Naturally, some instruments, such as interview guides for gathering information from adult participants through semi-structured interviews, will be completely original and designed from scratch by the research team to promote generativity of ideas, or identification of possible solutions, as is consistent with an appreciative inquiry approach (Bushe, 2007). However, most of the protocols will be modifications or adaptations of procedures previously employed in other studies. For example, the video recorded observation procedure we are planning to employ was initially developed by the Project VIEWS team at the University of Washington (IMLS project LG-55-09-0099-09) and replicated by the Storytimes for School Readiness and Community Learning team at the University of Kentucky (IMLS project LG-96-17-0199-17). We intend to use these recordings to categorize and analyze strategies employed using systematic observational techniques, as done in the projects mentioned, but we will also use the recordings in service of an adapted think-aloud procedure (Boren & Ramey, 2000; Ericsson & Fox, 2011; Zanov & Davison, 2010) with librarians to capture nonverbal aspects of consciousness of program delivery. To elicit feedback from young children, the research team intends to adapt for use with children with disabilities and/or developmental delays, one or more procedures previously tested and verified with typically developing preschool-aged children such as a laddering (Wang, Xu, & Wu, 2019), picture sorts (Guo, 2017; Hansen, Alfonso, Hackney & Luque, 2015), photovoice (Barriage, 2018; Bartie, Dunnell, Kaplan, Oosthuizen, Smit, et al, 2016), and/or draw and tell (Barfield & Driessnack, 2018). All protocols and questionnaires will be reviewed by the advisory board for sensitivity, validity, and trustworthiness. Additionally, the research team will pilot test adapted protocols to ensure validity.

Deliverables from Phase I: Model institutional review board proposals for investigating programming for young children with disabilities and/or developmental delays will be shared as open educational resources (OER) through institutional repositories (UKnowledge, MOspace, and ESIRC) to encourage investigators with similar questions to be able to conduct research, as institutional review board processes have previously been identified as barriers for conducting research with young children (Cahill, Morris, Agosto, Gavigan, & Barriage, 2019; Morris & Cahill, 2017), and one means proposed for overcoming challenges to community engagement is the sharing of strategies and stories of success (U. S. National Institutes of Health, 2011). Research protocols and adaptations of data collection techniques will be disseminated to researchers and scholars within and beyond LIS fields through journal publications.

Phase II: Data Collection

Goal 3: Collect data from libraries that have been deemed successful at serving young children with disabilities and/or developmental delays and/or their families, through in-library activities and/or through outreach efforts

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to preschools and community or healthcare organizations. In each state, at minimum, the study sample will include at least one public library in a rural, a suburban, and an urban community. In other words, at minimum, the project data set will consist of a robust collection of data obtained from multiple individuals with varying roles and perspectives at 9 different sites across the rural to urban continuum. The research team will work with the model facilities identified as successful in Phase I to schedule and collect a range of data, described below, to include observations, semi-structured interviews with librarians and administrators, and focus group interview sessions with key informants. As a token of compensation for participating library systems and outreach organizations (preschools and other community organizations), we will offer a \$100 payment, and for all participating individuals, we will offer \$25 gift cards.

- **Separate focus group interviews** with each of the following groups: public library directors in each of the target states; parents/caregivers of children between the ages birth-5 years with disabilities and/or developmental delays who attend in-library programs designed for young children; parents/caregivers of children between the ages birth-5 years with disabilities and/or developmental delays who participate in library outreach programs; and early intervention (IDEA Part C) First Steps Point of Entry managers.
- **Separate semi-structured interviews** with the following: children's librarians in public libraries; administrators, teachers, and school librarians in preschools that provide IDEA Part B Section 619 services where public library outreach programs are offered; and school district special education coordinators who oversee IDEA Part B Section 619 services.
- **Video recorded observations** of the following: programs in public libraries designed for all children between the ages of birth-5 years (i.e. programs based on an inclusion model); programs in public libraries designed specifically for young children with disabilities and/or developmental delays (i.e. programs based on a special services model); outreach programs offered in preschool settings that provide IDEA Part B Section 619 services to children with disabilities and/or developmental delays; public library outreach programs provided in community settings to children ages birth-5 years with disabilities and/or developmental delays.
- **Elicitation of child perspectives** with children with disabilities and/or developmental delays. The research team will facilitate task-centered activities to directly engage with young children to elicit their perspectives (Barriage, 2018).
- **Think-aloud protocol interviews** with children's librarians and other professionals who deliver programs specifically for young children with disabilities and/or developmental delays, sharing the video observation with them and asking them to make explicit their cognitive and behavioral strategies for creating positive programming (Ericsson & Simon, 1980).

Deliverables from Phase II consist primarily of select de-identified data sets made available through institutional research repositories. Given the primacy of participant confidentiality and the sensitive nature of some of the data being collected, (e.g. video recordings of programs for young children, audio recordings of semi-structured interviews and focus-group interviews), raw data will be accessible only to the research team. However, to the extent permissible and based upon IRB approval, data sets with de-identified data, such as transcripts of programs and interviews, will be placed in institutional research repositories for use by other researchers.

Phase III: Data Analysis and Dissemination of Findings

Goal 4. Analyze research data. Due to the large amount of data collected, data analysis is expected to take at least a year. As is typical in qualitative and mixed methods design, analysis will commence with data collection in Phase II. Researchers will use observational techniques to “to identify broad trends and patterns of behavior” (McKechnie, 2008, p. 574) to determine successful practices and corresponding participant behaviors; and we will conduct interviews and task activities to elicit perspectives of various stakeholders. Consistent with an exploratory approach, the team will employ open coding that is iterative, comparative, and primarily inductive to make meaning from the data and generate findings (Merriam & Tisdell, 2016).

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The research team will analyze data collected from recordings of observations, observation notes, transcripts from focus groups and individual interviews, and results of task activities with children to identify elements leading to successful programming, and relationships between those elements. Using NVivo qualitative data analysis software, which has collaboration capability, the research team will participate in iterative and comparative reviews of data as they are collected. Data analysis will be distributed among the members of the research team. A minimum of three researchers will be assigned to each data type (listed above) with overlap between the teams to ensure consistency across the full data set. For each data type, a subset of the data collected will first be coded independently by the assigned team of researchers who will then compare and discuss codes in order to arrive at consensus. The remaining subset of that data set will then be divided and coded by the same group of researchers. Then, after coding is complete, the same group of researchers will review one another's coding to ensure consistency, again discussing any differences and arriving at consensus. Where appropriate, such as when an instance occurs multiple times across observations, we will quantify qualitative data to allow for comparisons across library sizes, locations, and community settings (i.e., rural, suburban, urban). Researchers will summarize effective techniques and strategies, with information about why and with whom those techniques and strategies are effective. In addition to reviewing individual elements that contribute to successful programs and services, the researchers will review and compare programs and services among the three states to determine if best practices are emerging organically.

Goal 5. Develop guidelines and disseminate findings: The research team will consolidate the findings to identify best practices and develop evidence-based guidelines and rubrics for model library services and programs to young children with disabilities and/or developmental delays and their families. The guidelines and rubrics will be developed iteratively as follows: they will first be shared with advisory board members for feedback and review, necessary changes will be made followed by additional review from the advisory board; they will next be shared with at least one rural, one suburban, and one urban children's librarian in each of the three states involved in this study for proof of concept purposes. Necessary changes will be made based on feedback. After validation, we will disseminate the guidelines and rubrics via national and state library conferences, through existing professional library networks such as the ASGCLA Youth Services Consultants Interest Group and with targeted dissemination activities to include a series of webinars delivered to audiences of librarians, LIS educators, and LIS professional development providers. We will also identify information important to share with health organizations and caregivers and then work with the project advisory board to identify the best format for and channels of delivery to parents, childcare providers, and preschool teachers (e.g. a handout titled, "What services and programs for your child with special needs should you expect from your library?"). Following a validation and proof-of-concept process similar to that used to develop the guidelines, we will work with project partners, the project advisory board, and community health organizations to disseminate findings to practitioners within and beyond libraries who serve young children with disabilities. Findings will also be shared through traditional venues such as scholarly and practitioner-based journal articles and through scholarly research and education conference presentations. This plan allows for the project findings to further inform library practitioners as well as the library research and education communities about best practices for library service to young children with disabilities, while also alerting professionals beyond libraries to the role that libraries could and should play in meeting the needs of this significant segment of the population, and finally apprising parents and caregivers of services libraries can provide for them and their young children with disabilities and/or developmental delays.

Deliverables from Phase III consist of the following: evidence-based guidelines and rubrics for model library services and programs to young children with disabilities and/or developmental delays and their families intended for LIS practitioners and educators; information about library services and programs to young children with disabilities and/or developmental delays and their families presented in a format accessible to and designed for parents, caregivers, childcare providers, and preschool teachers; review of effective programs and services across rural, suburban, and urban areas; review of state and community support structures for providing programs and services for young children with disabilities and/or developmental delays. Deliverables will take the form of publications and articles discussing findings and oriented to both LIS researchers and LIS practitioners; OER evidenced-based guidelines and rubrics; webinars and instructional materials for LIS

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educators, professional development providers (e.g. state library agency youth services consultants), and professional associations addressing program management, engagement strategies, and tools for providing programs and services to young children with disabilities and/or developmental delays; parent- and caregiver accessible information about library services and supports for young children with disabilities and/or developmental delays.

Demonstrated Expertise

Research team: **Dr. Maria Cahill** will serve as the project director and PI. She will coordinate all research activities with the project personnel and will serve as the lead contact among the research team, partners, and coordinators. Cahill is currently serving as PI for the IMLS-funded *Storytimes for School Readiness and Community Needs*, which utilizes video-recorded observational methods with young children in public libraries. She has experience spearheading a multi-state project, conducting research in library settings and with young children, and collecting and analyzing qualitative data. **Dr. Denice Adkins**, co-Investigator, has expertise in public libraries, library services to children, and library outreach to underserved populations. This project builds on her prior work focusing on rural school libraries, library support for children's mental health, library programs and services for underserved populations, and how public libraries address community needs. **Dr. Bobbie Bushman**, co-Investigator, has expertise in public library children's programming. Bushman has actively engaged in deaf and hard of hearing early literacy research. This project is a natural extension of her research to underserved populations. **Dr. Caroline Gooden**, **Dr. Melissa Stormont**, and **Dr. Carol Russell**, co-Investigators, have expertise in early childhood special education. Dr. Gooden collects and analyzes state-wide child data to measure child progress; consults with and coaches local, state, and national staff for serve young children with disabilities, and conducts focus groups to guide technical assistance. Dr. Stormont brings extensive research experience addressing the needs of diverse children who are at risk for failure in school and with personnel preparation. Dr. Russell has varied experience implementing inclusive programs for young children, addressing family needs, and producing a video series for young children with differing abilities. Research team members have years of experience as scholars and practitioners and are qualified to carry out the activities planned methods in this study. In particular, the researchers have expertise in multiple forms of data collection including surveys, individual and focus group interviews, and textual analysis. As experienced instructors in online and face-to-face contexts, they have the skills to disseminate findings and develop professional learning webinars.

Graduate Students: We seek funding for three graduate research assistants who will support the investigators in the data collection and analysis phases of the project. The graduate students' involvement in this project, coupled with their concentrated coursework in librarianship, will position them to become leaders in children's programming and services, evidence-based librarianship, and programs and services to people with disabilities.

Partner Organizations: We will partner with the **Kentucky Department of Libraries and Archives**, the **State Library of Kansas**, and the **State Library of Missouri** and work closely with the children's services consultants in each of those agencies. Having close working relationships with children's librarians throughout their respective states, these partners are positioned to identify model programs and can facilitate entree to these programs for the research team. We will also partner with the **Kansas State Department of Education**, **Kentucky Department of Education**, and the **Kentucky Governor's Office of Early Childhood** and work closely with the representatives in those departments and offices who have expertise in programming and service for young children with disabilities. (Letters of support included as Supportingdoc2.pdf).

Expert Consultants: Four research consultants will also serve on the strategic advisory board and guide the research team in data analysis and translating results for evidence-based practice. **Katherine C. Pears, PhD**, is a research scientist with the Oregon Social Learning Center, a collaborative, multidisciplinary center dedicated to increasing the scientific understanding of social and psychological processes related to healthy development and family functioning, where she serves as the principal investigator on three randomized efficacy trials of the Kids in Transition to School Program including the Developmental Disabilities Project. **Tess Prendergast**,

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MLIS, PhD, is an early literacy scholar who conducted a qualitative multiple-case study that explored the inclusion of children with disabilities in early learning opportunities in their homes and communities in Canada. Dr. Prendergast served as a children's librarian with Vancouver Public Library for more than 20 years and developed five unique programs aimed at meeting the needs of developmentally diverse children. **Jeff Huber, PhD**, is Director of the School of Information Science, at the University of Kentucky. He has spent more than 25 years specializing in the provision of health information. Much of his research focuses on health information outreach/health information literacy programming for marginalized or underserved populations. **Patrick Kitzman, PhD**, is a professor in the UK Department of Physical Therapy and is the founding Director of The Kentucky Appalachian Rural Rehabilitation Network, a network of healthcare providers, educators, researchers, state and local organizations, and other community stakeholders committed to the health and well-being of people with neurological conditions, especially those in rural and underserved communities.

DIVERSITY PLAN

By its nature, this project addresses the needs of a diverse and underserved population: young children with disabilities and/or developmental delays. As noted in the statement of national need, this is an underserved segment of a larger underserved population (e.g. people with disabilities are considered an underserved population, but a review of the literature points to a lack of empirical research focused on library services and programs for young children with disabilities).

This project addresses another underrepresented group: small systems and those serving rural populations. As recently acknowledged, "...in the library and information science professional and academic discourse, rural libraries receive far less attention than seems appropriate given how numerous they are and how central they are to their communities" (Jaeger & Hesser, 2018, xvi). If funded, this project is designed to include library systems serving populations across the urban to rural continuum and involve library systems and branches with small, medium, and large public service areas.

NATIONAL IMPACT

Quality learning experiences and interactions are important for all young children, but they are critical for young children with disabilities and/or developmental delays. Libraries are positioned to provide rich learning opportunities for young children and their caregivers, but there are many more young children with disabilities and/or developmental delays than are currently being served through the library programs they are entitled to participate in, and the library community is seeking more information about how to best serve young children with disabilities and/or developmental delays. This project will not only provide that much-needed evidence to position public libraries as essential community anchors for the young children with disabilities and/or developmental delays and their families, it will also serve as a research model for other scholars interested in investigating children's library programming as well as programming in other informal learning contexts for young children with disabilities and/or developmental delays.

Young children with disabilities and/or developmental delays and their families: While public children's librarians, childcare providers, and early childhood special education professionals are the direct recipients of the guidelines and rubrics, webinars, OER resources, and learning modules produced during this project, **the more than one million young children with disabilities and/or developmental delays below age 6 in the US** (Dragoo, 2019; United States Department of Education, 2019), **and their families, are the primary focus of this project** and therefore will benefit from improved library programs and services in which quality interactions, strategies, and materials coalesce, resulting in a supportive learning environment which enables them to participate fully. Participation in quality library programs and access to library services in early childhood lead to school readiness, facilitate community engagement, and support development of dispositions that lead to lifelong learning. "Education for children with disabilities should focus on inclusion in mainstream settings. While inclusion is consistent with the rights of children with disabilities...it cannot happen without appropriate levels of support" (World Health Organization, 2012, p. 23). If funded, our Research in Service to

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Practice project will provide data to support the value of libraries in meeting the needs of young children with disabilities and/or developmental delays.

Public and library programs and outreach services: Development and dissemination of evidence-based guidelines and rubrics through this project will inform the practice of children's librarians in public libraries of all sizes and in rural, suburban, and urban settings. Because children's programming comprises a majority of public library programming efforts (Joo & Cahill, 2017) and outreach services (Campana, Mills, & Martin, 2019), identifying ways to make children's programming more conducive to participation by and accessible for young children with disabilities and/or developmental delays will position public libraries to better address the needs of this traditionally underserved segment of the population, thereby further substantiating libraries' roles as community catalysts.

Other informal learning environments: In addition to developing evidence-based guidelines and rubrics for public library service, we intend to modify and validate them for use in other informal learning environments for children. We intend to share guidelines and results with school librarians who provide preschool services, museum programmers and other organizations who provide informal learning opportunities for young children, thus informing the practice of other professional communities and further expanding inclusion opportunities for young children with disabilities and/or developmental delays.

Healthcare and early intervention providers: As part of the dissemination plan, we will also identify information important to share with health organizations and early interventionist and caregivers, particularly in rural settings where access to appropriate services is significantly less likely (Zablotsky & Black, 2020). Information sharing with healthcare and early intervention providers will spread the value of libraries to other professional audiences who can point parents and caregivers to libraries as community resources for their young children with disabilities.

Scientific impact: Very few studies of programs and services to support young children with disabilities and/or developmental delays have taken place in informal learning contexts beyond the classrooms and homes of young children (Reich, Price, Rubin, Steiner, 2010; Shtivelband, Roberts, & Jakubowski, 2016), and very little empirical evidence exists to measure or support the development of high-quality library programming for people with disabilities (Adkins & Bushman, 2015; Prendergast, 2013; 2016). Our contributions to the professional knowledge base in these areas should be valuable for other researchers and scholars interested in exploring similar issues in libraries and other informal learning contexts.

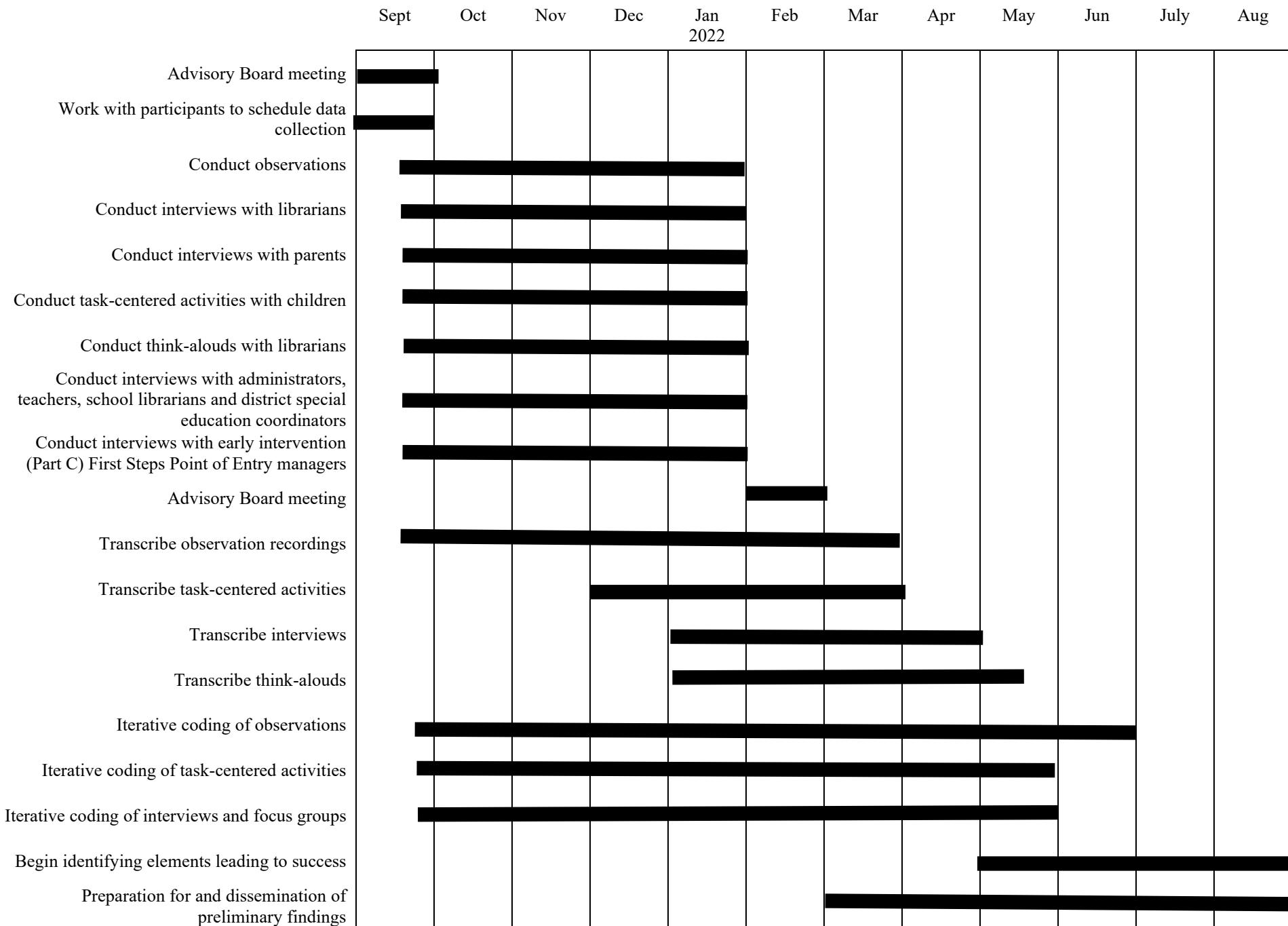
Three decades ago, a public library children's services consultant regrettfully declared, "libraries and librarians have been overlooked and underutilized as resources for children with learning differences" (Rovenger, 1987, p. 428). Yet, health professionals who provide early intervention services for young children with disabilities and developmental delays recognize the beneficial nature of public libraries as supportive community resources (Ordonez-Jasis & Myck-Wayne, 2012). Findings from this research project will bring libraries one step closer to serving as a recognized and valued resource for health professionals and **ALL** families of young children with disabilities.

References: Supporting document 1

SCHEDULE OF COMPLETION: Year 1 (2020 – 2021)

	Sept	Oct	Nov	Dec	Jan 2021	Feb	Mar	Apr	May	Jun	July	Aug
Advisory Board Meeting	[redacted]											
Develop task-centered activity and protocol	[redacted]											
Develop think-aloud protocol	[redacted]											
Develop interview protocols and instruments for the focus group interviews (PL directors, parents/caregivers, early intervention managers)	[redacted]											
Pilot task-centered activity and protocol		[redacted]										
Pilot think aloud protocol		[redacted]										
Develop interview protocols and instruments for the semi-structured interviews (children's librarians; and preschool admin, teachers, librarians and district special education coordinators		[redacted]										
Revise/refine task-centered activity and protocol		[redacted]	[redacted]									
Revise/refine think aloud protocol		[redacted]	[redacted]									
Pilot revised task-centered activity and protocol				[redacted]								
Pilot revised think aloud protocol				[redacted]								
Create research database				[redacted]								
Advisory Board Meeting				[redacted]								
Prepare and submit IRB application for conducting human subjects research and make revisions as required					[redacted]	[redacted]						
Solicit public library participation							[redacted]	[redacted]				
Purchase Recording Equipment									[redacted]			[redacted]

SCHEDULE OF COMPLETION: Year 2 (2021 – 2022)



SCHEDULE OF COMPLETION: Year 3 (2022 – 2023)

	Sept	Oct	Nov	Dec	Jan 2023	Feb	Mar	Apr	May	Jun	July	Aug
Advisory Board meeting												
Iterative coding of task-centered activities												
Iterative coding of interviews and focus groups												
Preparation for and dissemination of findings												
Begin adding notes to database												
Identify patterns of effective techniques and strategies												
Finalize patterns and techniques												
Create instructional materials for public librarians												
Create library promotional material for parents and health organizations												
Advisory Board Meeting												
Share instructional materials with select librarians for proof of concept purposes												
Prepare and host webinars												
Analysis of webinar evaluation data												



DIGITAL PRODUCT FORM

INTRODUCTION

The Institute of Museum and Library Services (IMLS) is committed to expanding public access to digital products that are created using federal funds. This includes (1) digitized and born-digital content, resources, or assets; (2) software; and (3) research data (see below for more specific examples). Excluded are preliminary analyses, drafts of papers, plans for future research, peer-review assessments, and communications with colleagues.

The digital products you create with IMLS funding require effective stewardship to protect and enhance their value, and they should be freely and readily available for use and reuse by libraries, archives, museums, and the public. Because technology is dynamic and because we do not want to inhibit innovation, we do not want to prescribe set standards and practices that could become quickly outdated. Instead, we ask that you answer questions that address specific aspects of creating and managing digital products. Like all components of your IMLS application, your answers will be used by IMLS staff and by expert peer reviewers to evaluate your application, and they will be important in determining whether your project will be funded.

INSTRUCTIONS

If you propose to create digital products in the course of your IMLS-funded project, you must first provide answers to the questions in **SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS**. Then consider which of the following types of digital products you will create in your project, and complete each section of the form that is applicable.

SECTION II: DIGITAL CONTENT, RESOURCES, OR ASSETS

Complete this section if your project will create digital content, resources, or assets. These include both digitized and born-digital products created by individuals, project teams, or through community gatherings during your project. Examples include, but are not limited to, still images, audio files, moving images, microfilm, object inventories, object catalogs, artworks, books, posters, curricula, field books, maps, notebooks, scientific labels, metadata schema, charts, tables, drawings, workflows, and teacher toolkits. Your project may involve making these materials available through public or access-controlled websites, kiosks, or live or recorded programs.

SECTION III: SOFTWARE

Complete this section if your project will create software, including any source code, algorithms, applications, and digital tools plus the accompanying documentation created by you during your project.

SECTION IV: RESEARCH DATA

Complete this section if your project will create research data, including recorded factual information and supporting documentation, commonly accepted as relevant to validating research findings and to supporting scholarly publications.

SECTION I: INTELLECTUAL PROPERTY RIGHTS AND PERMISSIONS

A.1 We expect applicants seeking federal funds for developing or creating digital products to release these files under open-source licenses to maximize access and promote reuse. What will be the intellectual property status of the digital products (i.e., digital content, resources, or assets; software; research data) you intend to create? What ownership rights will your organization assert over the files you intend to create, and what conditions will you impose on their access and use? Who will hold the copyright(s)? Explain and justify your licensing selections. Identify and explain the license under which you will release the files (e.g., a non-restrictive license such as BSD, GNU, MIT, Creative Commons licenses; RightsStatements.org statements). Explain and justify any prohibitive terms or conditions of use or access, and detail how you will notify potential users about relevant terms and conditions.

This project will produce research data sets collected from video recordings of library programs, and interviews. The datasets will be in the following formats: video files (program videos), audio files (interview recordings) and text files (transcripts of observations and interviews). The PI and co-investigators will hold the copyright of all datasets. As permissible by Institutional Review Board (IRB) approval, part of the datasets will be allowed for reuse for non-commercial research purposes, including transcripts without identifiable personal information. In addition, we will develop evidence-based guidelines designed to support librarians in providing effective programming for children of all abilities. For those potentially sharable data, the Creative Commons license of CC, BY, and NC will be assigned.

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 copyright of the datasets will be held by the PI and co-Is. The PI and co-Is will allow the sharing of selective data for non-commercial research purposes under the approval of the University of Kentucky IRB. The copyright of the evidence-based guidelines will be held by the PI and co-Is, and the Creative Commons license of CC, BY, and NC will be assigned to them.

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.

We plan to collect video recordings of library programs and will capture the images and voices of participants as well as librarians, and we will collect audio recordings that capture the voices of participants. We will work closely with the University of Kentucky, University of Missouri Columbia, and Emporia State University and their Offices of Research Integrity for research design to avoid any potential violation of participants' rights. We will collect consent forms according to IRB requirements. All raw data including audio and video recordings will be securely managed and only be used for research purposes; however, transcripts of the programs and interviews will be shared as indicated in the sections above.

SECTION II: DIGITAL CONTENT, RESOURCES, OR ASSETS

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

A closed-captioned webinar and evidence based guidelines will be created based on this research. The copyright of the evidence-based guidelines will be held by the PIs, and the Creative Commons license of CC, BY, and NC will be assigned to them. Model institutional review board proposals for investigating programming for young children with disabilities and/or developmental delays will be shared as open educational resources.

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

We will use presentation software (such as PowerPoint) to create digital modules. For video editing, we will use Camtasia software for Windows (<https://www.techsmith.com/camtasia.html>), which supports creating video tutorials and presentations with various functions for video editing. The modules will be delivered through a learning management system such as Moodle or Canvas.

We will create the evidence based guidelines using standard word processing software (such as Word) and convert the documents to a .pdf format.

A.3 List all the digital file formats (e.g., XML, TIFF, MPEG, OBJ, DOC, PDF) you plan to use. If digitizing content, describe the quality standards (e.g., resolution, sampling rate, pixel dimensions) you will use for the files you will create.

Possible digital file formats to be created include .doc(x); .xls(x); .ppt(x); .pdf; MP3 audio files, and MP4 video files. Appropriate quality standards will be maintained to ensure accessibility of all files via standard web browsers.

Workflow and Asset Maintenance/Preservation

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

We will create checklists to assess our workflow progress and production. We will evaluate the quality of products by asking our advisory board and co-investigators to review them against their knowledge of the populations to be served, and we will pilot them with members of the profession for proof-of-concept purposes.

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

Original master files will be stored in both the PI's personal storage and the research team's cloud storage. Backup files will be made in an external storage and will be kept by the PI for long term preservation. The modules will be uploaded and shared via a learning management system.

Metadata

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

Learning Object Metadata (LOM) will be adopted as metadata standard, which is specialized for educational objects.

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

The research team will generate an LOM-based metadata document for each module in XML format. Separate XML documents with document type definition will be separately preserved and maintained by the research team.

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).

It is expected that this project will produce a small number of digital objects (less than five). Therefore, metadata sharing on this scale is not necessary for this project. We will only share XML documents on request.

Access and Use

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

The guidelines and webinar will be available to the public through an online learning management system such as Moodle or Canvas, and will be accessible via standard web browsers. We will have no restrictions on access.

D.2. Provide the name(s) and URL(s) (Universal Resource Locator), DOI (Digital Object Identifier), or other persistent identifier for any examples of previous digital content, resources, or assets your organization has created.

<http://libraryleaders.missouri.edu/>
<https://schoolmentalhealth.missouri.edu/>

SECTION III: SOFTWARE

General Information

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

n/a

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

n/a

Technical Information

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

n/a

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

n/a

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

n/a

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

n/a

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

n/a

Access and Use

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

n/a

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

Name of publicly accessible source code repository:

n/a

URL:

n/a

SECTION IV: RESEARCH DATA

As part of the federal government's commitment to increase access to federally funded research data, Section IV represents the Data Management Plan (DMP) for research proposals and should reflect data management, dissemination, and preservation best practices in the applicant's area of research appropriate to the data that the project will generate.

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

This project will collect research data in multiple ways to achieve the research objectives. Data will be collected between Aug 2021 and May 2022. For the analysis of programs, we will collect video recordings of programming sessions. We will collect interview data from different stakeholders, both in-person and via a synchronous web conference tool. Interviews will be audio/video recorded and transcribed. Think-aloud protocol interviews with librarians will be conducted through a synchronous web conference tool—we will show the video recording of the program observation, and ask the librarian to verbalize the cognitive and behavioral strategies employed throughout the task. These interviews will be video recorded and transcribed. We will facilitate task-centered activities to elicit perspectives of children. We will video record and transcribe the activities.

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 data collection will require approval from the Institutional Review Boards (IRB) of the University of Kentucky, University of Missouri, and Emporia State University for video recordings, surveys, interviews, and focus groups. We plan to submit a new IRB application for the project in the spring of 2021.

A.3 Will you collect any sensitive information? This may include personally identifiable information (PII), confidential information (e.g., trade secrets), or proprietary information. If so, detail the specific steps you will take to protect the information while you prepare it for public release (e.g., anonymizing individual identifiers, data aggregation). If the data will not be released publicly, explain why the data cannot be shared due to the protection of privacy, confidentiality, security, intellectual property, and other rights or requirements.

The planned interviews, and focus groups will collect demographic information of each participant. We will use identification numbers and all responses will be aggregated for analysis. In interview transcripts, we will not disclose any personally identifiable information. Program, task activity, and think-aloud interview recordings will capture images and audio of participants. Only the research team members will be able to access those videos. Transcripts will not include any personally identifiable information. We will share transcripts only.

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

Only standard software such as Excel or Word would be necessary for retrieving and re-using the data.

A.5 What documentation (e.g., consent agreements, data documentation, codebooks, metadata, and analytical and procedural information) will you capture or create along with the data? Where will the documentation be stored and in what format(s)? How will you permanently associate and manage the documentation with the data it describes to enable future reuse?

The following documents are expected to be created: interview protocols and questions for public library directors, parents/caregivers (for in-library programs); parents/caregivers (for library outreach programs),and point of entry managers; librarians, preschool administrators, preschool teachers, school librarians, and school district special education coordinators; Video observation protocols for programs in public libraries and for outreach programs; Protocol(s) of task-centered activity/ies for eliciting child perspectives; Protocol for think-aloud interviews with librarians; a coding book for each will also be generated. All documentation will be stored initially in Nvivo and managed in cloud storage and PI's personal storage.

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

After the completion, transcripts of all collected data and the evidence-based guidelines and rubrics will be archived in the University of Kentucky institutional repository (uknowledge.uky.edu). The research team will upload those files with the assistance of the Department of Digital Scholarship at the University of Kentucky Libraries. Raw data will be accessible only to the research team. However, to the extent permissible and based upon IRB approval, data sets with de-identified data, such as transcripts of programs and interviews, will be placed in institutional research repositories for use by other researchers.

A.7 Identify where you will deposit the data:

Name of repository:

University of Kentucky Institutional Repository - UKnowledge

URL:

<http://uknowledge.uky.edu>

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

We will visit and review this data management plan every time we create and store data. In addition, we will review this plan regularly at least twice a project year during the research team meetings to check whether all data are well managed as planned.