

## National Forum on Integrating Computational Thinking into LIS Youth Services Courses

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Queens College Graduate School of Library and Information Studies and Texas Woman's University School of Library and Information Studies request funding of \$150,000 from the IMLS for a National Forum Grant to host two participatory design workshops where 1) faculty from Library and Information Studies (LIS), Learning Sciences, and Educational Technology collaboratively develop a framework for a model curriculum, course modules, or class activities integrating computational thinking (CT) into LIS youth services courses and 2) selected library professionals use these resources to collaboratively develop CT-focused training materials to be disseminated through professional channels, thereby creating a community of practice (CoP) that will further develop, increase the reach, and ultimately sustain the course-related products. This project addresses the IMLS goal of Lifelong Learning, focusing on cultivating creativity through resource development, communication through various media, collaboration among interdisciplinary faculty and library professionals, and developing library professionals' skills to facilitate patron literacy development.

### **Statement of Broad Need:**

To discover how libraries support computer science (CS), coding, and computational thinking (CT) skills acquisition by youth, the American Library Association led the Libraries Ready to Code (RtC) research project, funded by Google. Dr. Joe Sanchez (PI) and Dr. Jennifer Moore (PI) were members of the RtC Phase II faculty cohort where they piloted CT activities and identified multiple challenges in embedding CT in LIS youth-focused tech courses. This proposed project extends the RtC initiative and responds to initial findings identifying a need (1) for pre-service librarians to have access to courses preparing them to embed CT and CS in youth programs and (2) for targeted support for LIS faculty to develop CT activities for their courses. Findings from Phase II also indicated that having a CoP among participating faculty facilitated the integration of CT into their courses and helped them recognize that by so doing, they prepared their pre- and in-service librarians to implement CT in library programming. Students in these courses noted the importance of librarians serving as facilitators for youth CT skill development, indicated a greater comprehension of CT and related concepts after completing the courses, and expressed intent to integrate CT into library programming.

### **Project Design**

Our proposal has three goals: (1) Extend the current LIS understanding of CT by inviting faculty scholars from outside the LIS domain who are teaching and researching in the areas of CT to create CT class activities or modules with LIS faculty; (2) Connect faculty with projects and resources completed by school and public librarians in the RtC program in order to enhance LIS youth-centric courses; (3) Broaden the CoP formed through RtC Phase III by sharing resources created by interdisciplinary faculty with library practitioners to improve the research practice continuum, especially as it relates to further developing CT as a critical literacy and embedding the concept in library programs for youth. Through this CoP, the project will contribute to new knowledge concerning a common understanding of the impact of CT on youth learning beyond learning to code and contribute to youth becoming lifelong learners.

*Part I. - Pre-workshop concept development (Sept - Dec 2019):* The co-PIs, Marijke Visser (Associate Director, Public Policy, ALA and the RtC liaison) and [Caitlin K. Martin](#) (evaluator), and select RtC librarians collaborate to determine which RtC themes and support materials are most relevant to serve as a foundation for the design workshops and to select an interdisciplinary team of workshop participants. This pre-workshop will be conducted virtually in multiple 90-minute sessions. Google, a partner of RtC, will be invited to participate in the planning sessions. A written summary from these conceptual planning sessions will be shared with

participants for workshop preparation. **Outcome:** The development of pre-workshop reading materials, an agenda, and an attendee list for participatory design workshops.

**Part 2. - Participatory design workshops (Jan - June 2020):** During the faculty workshop (Workshop 1), 12 participants from LIS, Learning Sciences, and Educational Technology will actively engage in developing youth-focused LIS course activities, modules, or curriculum grounded in CT. This meeting will provide a strategic collaboration opportunity for faculty who are teaching and researching in the area of CT but whose work straddles different disciplinary conferences to share their knowledge and expertise to inform the creation of best practices and design of CT modules for LIS that align with current best-practice from the learning sciences disciplines and that ensure youth have access to quality CT programs regardless of where they learn-through a library or other formal or informal environment. During workshop 2, 20 library professionals, will collaborate to further develop these resources into products for mass dissemination to other practitioners.

**Outcome:** The creation of CT course activities, modules, or lesson plans for LIS youth focused courses and training materials for library professionals

**Part 3 –Community of practice and dissemination (June - Aug 2020):** Workshop participants will produce tangible products to either implement in their courses (Workshop 1) or distribute nationally through multiple communication channels (Workshop 2). Project PIs will disseminate the results of the forum via webinar (up to 500 participants), podcast, the RtC website, and ALISE and/or ALA conference presentations. Slack will be used to facilitate communication between the participants and the RtC cohorts both before and after the forum.

**Outcome:** Workshop materials, podcast of “How to use the materials,” webinar, and conference presentations, all of which will be incorporated into the RtC Collection website.

### **Diversity Plan**

A search for diverse faculty participants in the workshop will be conducted by inviting faculty working in CT who are members of organizations such as the iSchools Inclusion Institute, the Multicultural, Ethnic, and Humanistic concerns SIG of ALISE, the Multicultural / Multiethnic Education: Theory, Research, and Practice SIG at AERA and other similar groups. Workshop 2 selection criteria will include a plan on how the proposed project would connect with diverse youth in their communities.

### **Projected Impact**

Project outcomes have far-reaching implications. The interdisciplinary collaborative work both informs work in the field of LIS and also helps legitimize the work LIS is doing within the broader education community and other disciplines. The mass dissemination of these collaboratively developed resources can be utilized to expand the formal education of pre-service librarians and various training programs for practicing library professionals. In turn, the library professionals will educate youth and potentially other community stakeholders about CT, facilitating the development of critical literacies applicable to STEM learning, college and career readiness, and everyday life issues, as well as fostering their desire to become and remain lifelong learners.

### **Budget**

The proposed budget includes travel, lodging and meals for participants in the design workshop (\$19,960) and participation stipends (\$12,000). The workshop will be held at the ALA Washington Office so no costs for meeting space will be necessary, participatory design workshop facilitator (\$3,000), research consultant (\$2,500), RtC liaison (\$1,500), outreach and dissemination (\$3,458), stipends for up to 20 participants of the practitioner workshop (\$4,000 ) to be held at ALA Annual, catering and workshop 2 costs (\$1,500), six weeks summer salary and fringe benefits for PI Sanchez (\$19,232), PI Moore six weeks summer salary and one course release plus fringe benefits (\$34,873), indirect cost of Queens College at 39% suggest a total budget of \$150,000