Educational Quality through Instructional Partnerships (EQuIP):
Assessing the Efficacy of Collaboratively Implemented Guided Inquiry Design on K-12 Student Learning
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Statement of Broad Need: Guided Inquiry Design (GID) is an instructional framework that scaffolds student-driven inquiry through activity sequencing, information resource use, and problem-solving; using elements such as teacher facilitation, tech-enabled learning, and curation of information resources (Kuhlthau, Maniotes & Caspari, 2015). GID enables focus on student-centered learning that targets individual student learning needs in more self-paced activities versus other direct approaches that presume all learners are at the same starting point (Reynolds, 2016). GID is particularly well-suited to student exploration of STEM concepts, aligning with Next Generation Science Standards: observe, experience, reflect, reason, and communicate scientific findings with others (Green & Chassereau, 2015).
Challenge: GID activities allowing students to tackle complex and ill-structured problems commonly found in real-world settings, are not typically part of K-12 school curricula. Moreover, school librarians and teachers struggle to establish the instructional partnerships necessary for long-term GID implementation (Rawson, Anderson, & Hughes-Hassell, 2015).

Research Proposal: While a positive correlation between school library-classroom collaboration and student standardized scores (library Research Service, 2015), as well as between GID and K-12 student complex problem-solving and systems thinking (Akcaoglu & Green, 2018) has been found, there is a paucity of research directly linking GID, developed and delivered through school librarian-teacher instructional partnerships, to student learning. Building on recent IMLS funded efforts *using design-based action research to investigate the viability of implementing GID* in K-12 school curricula through school library programs; USC requests support for a **research in service to practice grant** to *examine and assess the efficacy of GID units*, collaboratively designed and implemented by school librarian-classroom teacher instructional partners, *on K-12 student learning outcomes*.

Research Question: How does student completion of a GID unit, designed and delivered by **EQuIP**-trained school library-classroom instructional partners, affect student mastery of target curricular learning outcomes?

Theoretical Framework: Research will be conducted through the sociocultural perspective provided by the Five Standards for Effective Pedagogy, as identified by the Center for Research in Education, Diversity, & Excellence: a) teachers and students producing together, b) developing language and literacy across the curriculum, c) making meaning by connecting school to students' lives, d) teaching complex thinking, and e) teaching through conversation (Doherty & Pinal, 2002). The five standards "establish principles for best teaching practices…effective with both majority and minority students in K-16 classrooms across subject matters, curricula, cultures and language groups" (CREDE, 2017).

Methodology: Data will be collected and analyzed using mixed-methodology: collection of both qualitative and quantitative data highlighting complex and interdisciplinary phenomena present in educational settings so that results further inform each type of data set (Johnson & Onwuegbuzie, 2004). Quantitative data: statistical models for causal-comparative study. Qualitative data: context-dependent and inductive data analysis of classroom observations, participant interviews, student artifacts of learning. **Participants:** A) 40 librarian (1) – teacher (2) instructional teams (120 total participants) recruited from summer institutes offered by the grant team in four major geographical regions, NJ (Northeast), Wisconsin, (Midwest), South Carolina (Southeast), and Texas (Southwest). B) K-12 students affiliated with participant instructional partner teams ranging in number from 2000 to 6000.

Project Design: During the 3-year grant period, the Instructional Specialist, with input from the advisory council, will design and deliver 4 **EQuIP** summer institutes on Guided Inquiry Design (GID), equipping 40 school librarian-teacher instructional teams (120 total) to implement GID units at their respective schools. Educator participants will enroll in an online Community-of-Practice (COP) during the lifetime of this research project for professional support, and for secure data collection purposes (IMLS Performance Goal 1: Lifelong Learning). Using instruments developed and validated with the Project Statistician (PS), the PI will conduct data collection during the delivery of summer institutes and the school years immediately following delivery of each institute.

Project Goals: 1) Offer 4 summer institutes over the 3-year grant period to establish a critical mass of geographically-diverse GID practitioners, 2) Assess the efficacy of collaboratively designed and implemented GID units on K-12 student learning outcomes, 3) Develop an online COP that supports and encourages long-term GID implementation, school librarian-teacher collaboration, and patterns of reflective practice, 4) Establish an open-access data repository for continued research on GID, instructional partnerships, and student achievement. 5) Establish an open-access repository of GID K-12 units aligned with curricular objectives.

Proposed Work Plan: Year 1 (Fall 2019-Spring 2020): The Project Statistician will develop, test, and validate data collection instruments. The Instructional Specialist (IS) will design the **EQuIP** summer institutes on GID by expanding on

current workshops, survey results from previous GID workshop attendees, and individual expertise. By May 2020, 30 summer institute participants for each of the Northeast and Southwest regions will be recruited using state organizations and institutional contacts. Baseline data will be collected from these participants prior to institute attendance. The Advisory Council will recruit and review all participant scholarship applications to ensure a diverse and committed group. Year 1 (Summer 2020): The IS will deliver 2 regional **EQuIP** institutes (Northeast & Southwest). The research team will collect data on school-librarian and teacher understanding of GID, pre- and post-institute. K-12 student participants will be identified, and permission for data collection on student mastery of learning objectives covered by GID units during the 2020-2021 school year obtained. The online COP will expand to provide pre- and post-institute support for attendees and to aid in data collection during the 2020-2021 school year. Year 2 (Fall 2020-Spring 2021): By May 2021, 30 summer institute participants for each of the South and Midwest regions will be recruited. The research team will collect data from K-12 student participants and educator teams during the 2021-2022 school year. Year 2 (Summer 2021): The IS will deliver 2 regional **EQuIP** institutes (South & Midwest). The research team will collect data, recruit K-12 participants, and obtain permissions as in Year 1 Summer. Year 3 (2021-2022): The research team will conduct robust data analysis of all data collected during Year 1 and 2 and begin dissemination of findings. The PI will use research findings to determine how student completion of a GID unit, designed and delivered by **EQuIP**-trained school library-classroom instructional partners, affect student mastery of target curricular learning outcomes. Arrangements for the USC data repository and webinars will be finalized.

Diversity Plan: Grant-funded scholarships will support institute attendance by educator teams from varying grades and content areas working with students from as broad and diverse a population as possible, with focus on rural, economically disadvantaged, or other underserved communities. Each workshop region will include expanded recruitment efforts toward specific target populations: Northeast (urban, ELL/ESL); Midwest (rural and economically disadvantaged); South (suburban, economically disadvantaged, African American); Southwest (urban, ELL/ESL, Hispanic, Asian American).

Dissemination Plan: In addition to submission of findings to peer-reviewed journals and presentations at conferences, data gathered as a result of this project will be made available for future research teams through the University of South Carolina open-access data repository. A website with accompanying materials for both researchers and practitioners will be developed. Webinars on how to use the data repository and website, including guidance on implementing GID, will be presented.

Impact: This project aligns with IMLS Performance Goal 1: Lifelong Learning. First, it supports the goal of establishing research-based and engaging guided inquiry experiences for learners in libraries, which "foster attitudes of discovery and cultivate critical thinking, creativity, communication, and collaboration." Second, this research project endeavors to develop, implement, and evaluate "programming models and tools that provide cross-disciplinary and inquiry-based learning," supporting rich partnerships between librarians and K-12 schools. Third, this research investigates how "library services impact patron [K-12 teacher and student] learning," developing "mutually beneficial relationships between researchers and practitioners." The project concludes with a wide dissemination of findings, leading to "demonstrable improvement in library services" for libraries serving K-12 students. Finally, **EQuIP** will establish foundational research on the efficacy of GID delivered through librarian-teacher instructional partnerships, while educating 120 school librarians and classroom teachers from diverse areas across the U. S. to support implementation and mastery of Guided Inquiry Design. **EQuIP** will also contribute to the body of research on embedded librarianship, further defining the instructional role of the school librarian.

Estimated Budget: $314,523 is requested from IMLS for the **EQuIP** research project of which $128,431 goes to Project Personnel 1) PI $82,431 (41% fringe/insurance/salary) 2) Instructional Specialist, $35,000 (over 3 years), 3) Project Statistician, $5000 4) Advisory Council $6000 (over 3 years). Travel Support of $45,000 for data collection, institute delivery, and dissemination of findings. Scholarships for participant summer institute attendance totaling $78,000. Scholarships assist in recruiting participants, ensuring diverse representation. **EQuIP** Workshop Facility & Materials totaling $18,000. Total indirect costs will be $45,092 (at rate of 26%; no IDC on student support).

Personnel: PI Dr. Green teaches and researches on school librarianship, instructional partnerships, guided inquiry, and instructional design. **Instructional Specialist** Dr. Leslie Maniotes is co-creator of GID and education specialist for BLV Consulting with 25 years of PD experience. **Project Statistician** Dr. Melissa Johnston is associate professor of instructional technology and school librarianship at the U. of West Georgia, with 15 years of library research experience. **Advisory Council:** Dr. Carol C. Kuhlthau, Professor Emerita, LIS at Rutgers; Priscila Dilley, Director of Innovation & Transformation, Fort Worth Independent School District; and Dr. Eileen Schroeder, School Library Program Coordinator U. of Wisconsin-Whitewater.