School Librarians as Co-designers and Innovators in the Future of Cyberlearning[1]

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Abstract:
The need for this research stems from the integration of two central research challenges facing K-12 education: (1) the underrepresentation of young women and youth from lower socioeconomic backgrounds in science, technology, engineering and mathematics (STEM) fields and the need to understand how to engage underrepresented youth in STEM (National Research Council, 2011); and (2) the underutilization of school libraries as hybrid spaces for STEM learning and school librarians' expertise in literacy, media, technology based instruction (Mardis & Hoffman, 2007; Subramaniam, Ahn, Fleischmann & Druin, 2012).

Through generous funds from the National Science Foundation's Cyberlearning program, the research team is working with middle school librarians in an underserved school district in the mid-Atlantic. In partnership with the librarians in these schools, the team is designing (1) an after-school program that will engage youths in science-infused activities of storytelling and digital media production that leverages their interest in a variety of media such as books, technology and social networking tools; and (2) a virtual peer network (VPN) that will be an online social network for youth to share, remix, and publish their science-based stories.

Through design work and implementation of an innovative cyberlearning program with partner librarians, the research team aims to highlight how school libraries can be a central place for new initiatives to improve STEM education in K-12 schools. The objectives of this research are to:
a) Determine ways that school librarians can be co-designers and co-implementers of science-infused technology programs in schools; and
b) Identify the skills that school librarians possess that can be leveraged to increase youth participation in science-infused technology programs in schools.

To fulfill the two objectives outlined above, partner librarians are currently participating in a process of cooperative inquiry (Druin, 1999, 2005; Guha et al., 2005) with the research team, utilizing a variety of unique prototyping strategies for the design of the after-school sessions and the VPN. During the cooperative inquiry design sessions in the first year of this project, the research team and the librarians are collaboratively brainstorming lesson plan prototypes of the after-school sessions and co-designing the VPN that can facilitate creative science storytelling activities among youths. The research team will present design activities and analysis of data collected in these sessions such as artifacts from the sessions, observation notes, audio and video recording analysis.

Preliminary analysis reveals that the research team is able to tremendously leverage the expertise of the librarians in the design of the after-school program and VPN. School librarians have a tremendous role to play in designing innovative education reform efforts in STEM learning with their knowledge in areas such as science fiction, popular science materials, and pedagogical strategies to motivate youths to participate in creative endeavors in the school library that extend youths' interest in STEM topics. The presentation will further expand on this findings based on research conducted through June 2012. The research will highlight the rising role that school librarians can play in the design and implementation of technology, education, and science learning.

References:

Druin, A. (1999). Cooperative inquiry: Developing new technologies for children with children. In *CHI '99: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, pp. 592-599.

Druin, A. (2005). What children can teach us: Developing digital libraries for children with children. *Library Quarterly*, *75*(1), 20-41.

Guha, M.L., Druin, A., Chipman, G., Fails, J.A., Sims, S., & Farber, A. (2005). Working with young children as technology design partners. *Communications of the ACM*, *48*(1), 39-42.

Mardis, M. & Hoffman, E. (2007). Collections and Connections: Science Content in Michigan Middle School Libraries. *School Library Media Research,* 10 (2007). Retrieved from: http://www.ala.org/aasl/aaslpubsandjournals/slmrb/slmrcontents/volume10/mardis_collectionandcollaboration

National Research Council. (2011). *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas.* Washington, DC: The National Academies Press.

Subramaniam, M., Ahn, J., Fleischmann, K. R., & Druin, A. (2012, April). Reimaging the role of school libraries in STEM education: Creating hybrid spaces for exploration. *Library Quarterly, 82*(1).