

# Experiencing Science in Informal Learning Environments:

## Tales from the Field

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### Abstract

Informal learning environments such as libraries and museums can play a vital role in attracting youth and children to science learning. Libraries and museums offer potential opportunities for children and youth to explore science in creative ways that are freed from the formal identities and stigmas attached to the academic classroom, by engaging in technology, media, information and pedagogy that is appealing to them. Research on the potential of these information institutions is currently still in its infancy, and a handful of researchers in the information field are exploring such opportunities. Information institutions can offer several unique benefits to science learning -- engaging young people in inquiry, which includes vital information literacy skills, providing access to diverse resources and materials, connecting to young people's personal interests, and making science relevant to their lives. In this event, we will share stories from innovative research that highlight how information institutions offer the above-mentioned benefits to science learning.

*Keywords:* informal learning, science learning, digital media, socio-cultural, participatory culture

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### Purpose and Intended Audience

We present a participatory event that will involve researchers who will share stories and artifacts of successful learning environments in libraries and museums that encourage scientific inquiry, appreciate diversity, connect to the interests of youth and children and encourage their socialization. The stories and artifacts (which may include zines, digital journals, websites) are drawn from ongoing research that the authors are leading. Audiences will be encouraged to share their own stories as they relate to the thematic presentation of the unique roles of information institutions. We anticipate that this session will be appealing to researchers who are involved in scholarly work related to digital media, participatory culture, literacy development, design of technologies, scientific inquiry, K-12 education, youth and children services in libraries, museums informatics, and informal learning among youth and children.

### Agenda

Mega Subramaniam will lead the session by introducing the unique roles that information institutions play in science learning via stories and/or video presentations. Researchers will share lively narration of experiences and artifacts produced by youth and children from their respective research

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projects, as they relate to each unique role of information institutions being discussed. As they share stories and artifacts, the researchers will highlight the role that information professionals play in creating and sustaining successful science learning environments, the role that technology and media plays in such environments, the mastery of science and participatory practices, and the intersection of all these components in the design of socio-scientific learning environments for youth and children.

Mega Subramaniam and June Ahn will share stories and artifacts from their research on Sci-identity <<http://scidentity.umd.edu>>, a project in which researchers are collaborating with school librarians to design ways to incorporate science storytelling, new-media literacies, and participatory culture to ignite students' interest in science. Sci-identity is an after-school program that encourages reading of science fiction, popular fiction, and graphic novels, watching sci-fi movies, and playing science-infused games among middle school youth. In this program, youth imagine the underlying science that inspires these popular forms of media, create their own science-inspired stories, and write and share these stories on a private social media site. This research is funded by the National Science Foundation.

Nicole D. Alemanne and Michelle M. Kazmer will share stories and artifacts from the Habitat Tracker project <<http://tracker.cci.fsu.edu>>, which is providing teachers with better support for linking field trips to a wildlife center with a standards-based, scientific inquiry curriculum while engaging fourth and fifth grade children with their own science education. Using an iPad application and a website, children interact with digital journals, collaboration and analysis tools, and a shared online observations database to develop, refine, and answer their own scientific research questions. Almost 1,400 children in 25 schools have participated in Habitat Tracker during the three-year project, recording over 4,600 habitat, animal, and weather observations to-date. This research is funded by the Institute of Education Sciences.

Mike Eisenberg and Sean Fullerton will share about the early development of the Personal Education Record (PER) system, which they are investigating as a way to allow young people to document learning experiences in museums, libraries, virtual spaces, and other places where learning occurs outside of school. The PER is designed to provide a well-organized system to connect young peoples' interests and learning experiences outside of school to a framework that allows young people to record these experiences and show how the various activities fit within broader curriculum areas such as biology or physical science. Our hope is that the PER will allow young people to see how interest-driven, but sometimes isolated learning experiences fit within a more cohesive curricular framework like those traditionally provided by courses and textbooks.

We will conclude with an interactive conversation with the audience (led by Marcia Mardis) on the potential of innovative research in creating science learning environments in libraries and museums. The discussion will be centered on the types of research problems that can be pursued, and the unique contribution that library and information science scholars can offer to K-12 science learning.

## References

National Research Council. (2011). *A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. *Committee on a Conceptual Framework for New K-12 Science Education Standards, Board on Science Education, Division of Behavioral and Social Sciences and Education*. Washington, DC: The National Academies Press.

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