

Understanding STEM Identity Using Live Cultural Experiences

1) Overview

In collaboration with the Pratt Institute and Guerilla Science, the Center's [Martin Storksdieck](#), [Kari O'Connell](#), and [Brianna Keys](#) are exploring how audiences with little or no affinity for science, technology, engineering, and math (STEM) can become more engaged with STEM ideas through live cultural experiences.

This four-year project will investigate the potential of cultural festivals (with art serving as proxy) to serve as immersive STEM learning environments for audiences that would not normally seek out science or STEM related experiences in their spare time. The project has involved the production of a series of unique STEM events at art festivals in Oregon (2017) and in New York City (2018). During and subsequent to these events, the project team will conduct a research study exploring who chooses to participate in Guerilla Science events and their motivation for participation as well as the impact of the events on participants and the volunteer scientist-partners with limited science communication experience or expertise.

2) Scope of Work

The research team is investigating the following research questions:

1. Who participates in the Guerilla Science Events and what are their motivations for participation?
2. How did their participation in Guerilla Science events impact them?
3. What are the motivations and goals for artists and scientists participating in the Guerilla Science art-residency and what is the impact on their participation?

The research effort will consist of short paper surveys and short entry and exit interviews of participants to Guerilla Science events at the Oregon Eclipse Festival in August of 2017 and again at the Figment Festival in June of 2018 in New York City. In addition the team conducted pre- and post-interviews with the artists and scientists participating in the Guerilla Science art-sci residency in 2017 and 2018. Data from these interviews will support Mark Rosin of Pratt Institute, in producing a “how to” handbook with promising practices for designing and implementing STEM experiences at live cultural events.

3) Broader Impacts

The broader impacts of the project are educational, civic, and economic. The project's educational impact will directly provide accessible Informal Science Learning (ISL) activities and advance STEM literacy for 2,000 hard-to-reach STEM underserved adults, and training for 30 scientists and 30 artists, who will improve their science communication abilities. The project's civic impact will help meet what Miller (2010a) calls 'one of the most important challenges of the twenty first century', namely 'the education of citizens to be sufficiently scientifically literate to sustain democratic political systems'. The economic impact of the

project will be made through its contributions to two cultural festivals that generate income, attract tourists, and support local commerce.

On the broadest level, by examining how to effectively embed ISL activities within cultural activities and providing evidence that this technique works, the project has the potential to advance methods for serving specific difficult to reach groups using “forms of participation familiar to nonscientist learners” (NRC et al., 2009, p. 5).