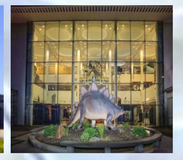
The Art of SCIENCE Learning

Harvey Seifter, Director and PI

INCUBATORS FOR INNOVATION

Balboa Park, San Diego

Museum of Science and Industry, Chicago



EcoTarium, Worcester

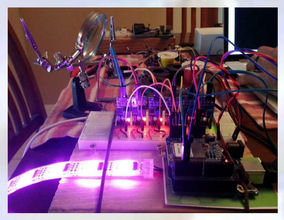
STEM INNOVATION CHALLENGES

- Water Resources
- Urban Nutrition
- Transportation Alternatives

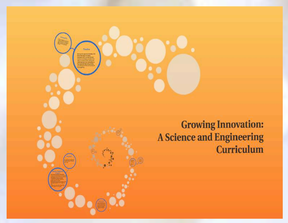
26 TEAMS, 26 INNOVATIVE SOLUTIONS

Filtration system using Tijuana River trash and wetland plants to treat waste water

"Moveable Feast" mobile community nutrition festival



"Kate's Place" model house and garden: integrated sustainable water system sculpture



Middle school nutrition-based science and engineering curriculum

"Smart transit" data hub for healthcare

research

HYPOTHESIS

"Integrating the arts into innovation training results in enhanced creative thinking skills and more robust innovation processes" among:

- **High School Students**
- **Early career STEM professionals**

MEASUREMENT

- 2 Experimental studies
- Creativity skills testing
- Assessment of collaborative behaviors
- PDMA/OCI-based assessment of innovations/team outcomes

evaluation

KEY QUESTIONS

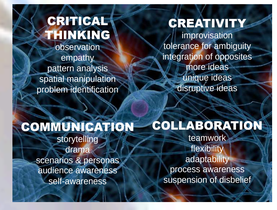
- Did the innovation curriculum and its implementation in the incubators strengthen innovation skills?
- Did the incubators generate implementable and potentially impactful innovations?
- Did project strategies and activities increase public understanding of creativity's role in STEM education and innovation?

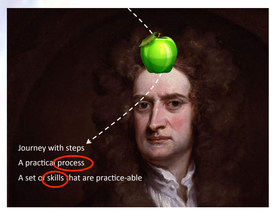
MEASUREMENT

- Pre-post survey of 300+ incubator participants and other stakeholders
- Ethnographic research at all incubators
- Expert assessment of 28 innovation team outcomes
- Summative evaluations of exhibition and public engagement events
- Data anticipated: 2016

AISL GRANT #1224111: Integrating Informal STEM and Arts-Based Learning to Foster Innovation

NEW INNOVATION CURRICULUM, 300 LEARNERS AGE 15 – 85, PUBLIC EVENTS





Innovation at the Intersection of ART, SCIENCE and LEARNING

Goals

Generate innovation within informal STEM learning;

Spark creativity in STEM learners and professionals;

Foster STEM engagement in the general public;

THROUGH ARTS-BASED LEARNING

Art of Science Learning Fellows

300+ STEM professionals, teachers and educators in formal and informal settings, artists, business leaders, entrepreneurs, museum professionals, researchers, policy experts, high school and college students and retirees.

Primary Challenges Encountered

Complexity of the learning (process, domain, project skills, team skills, etc.); transitioning between learning and doing; the linear framework of a research project vs. the iterative process of real-world innovation.

National Partners

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STEM INNOVATION

ARTS-BASED LEARNING