



Framing: The Need for Innovation Thinking

The Workforce and Innovation Thinking: Nationally-recognized researchers, educators, businesses, and governmental studies point out that the United States' future in the global economy could be significantly impacted by how well today's students are taught to think innovatively.

STEAM Rapidly Expanding: The science, technology, engineering, arts, math (STEAM) movement is expanding exponentially in all levels of education and in a variety of venues. It is everywhere – from school classrooms to the district and state levels and into higher education. It is in museums and after school programs and even has its own caucus in the US Congress. STEAM projects are being funded by federal agencies such as National Endowment for the Arts, National Endowment for the Humanities, and the National Science Foundation.

Minimal Data on Effective Practices: With the need documented and these intersections being used so widely, the Collaborative asked how one would know what constitutes the most effective practices. Our researcher found that there exists very little data to answer that question. Although practitioners report important increases in critical, creative, and innovation thinking in experiences at these intersections, there is no research-based guide to the most effective practices.

Actions: Research and Dissemination

Research Thought Leaders

The Collaborative has assembled a stellar cast of nationally-famous researchers in the arts, sciences, neuroscience, creativity, and the arts/science intersections to advise the Collaborative and its research.

Effective Practices Research Project

The Collaborative is conducting a national research project to determine the most effective practices that promote vital creative and innovation thinking skills at the intersections of art and design, science, humanities, and engineering, use of technology, and creativity, cognition, and learning in both Pre-K-12 and informal settings. Additional advisors for this project include classroom teachers and local, state, and national education experts in each discipline.



Valuable Criteria

The research will produce valuable criteria, a framework, and a matrix of what constitutes effective practices that promote creative and innovation thinking at these intersections. These criteria will benefit all venues integrating the arts, sciences, and humanities.

DC Symposium

Results of this research will be presented at a DC symposium featuring our Thought Leaders and stellar practitioners. There will be additional briefings and events.

Dissemination

Dissemination of the results will be broad and comprehensive. Results will go to the Congressional STEAM Caucus and federal agencies funding the arts, sciences, and humanities.

About The Innovation Collaborative

Mission

The Innovation Collaborative serves as a national forum to foster creativity, innovation, and lifelong learning. It identifies and disseminates information about the many ways that effective integration of the arts, sciences, humanities, engineering, and the use of technology reinforces teaching and incorporates lifelong learning in both in-school (formal) and out-of-school (informal) settings.

Goals

The Innovation Collaborative promotes creativity and innovation in audiences of all ages and demographics, including underrepresented populations (gender, geographic, socioeconomic, and ethnic diversity; special needs; gifted and talented). It advances knowledge and positively shapes education practice by creating platforms for advancing collaborations among the arts, sciences, and humanities through the following goals. Research, Effective Practices, Policy, and Convening.

Institutions Represented in the Collaborative

AIM Academy, Philadelphia

Americans for the Arts (AFTA)

Art of Science Learning (AOSL)

Association of Science and Technology Centers (ASTC)

Beall Center for Art + Technology, Claire Trevor School of the Arts, University of California at Irvine

Drexel University

Educational Systemics

Exploratorium (Center for Arts and Inquiry)

Fairfax County Public Schools STEAM Project

George Mason University

ICEE Success (ICEE)

Maker Media

Michigan State University

National Art Education Association (NAEA)

National Science Teachers Association (NSTA)

National Association for Gifted Children (NAGC)

NASA Jet Propulsion Lab

National Museum of Women in the Arts (NMWA)

Parsons the New School for Design

University of Texas at Dallas

University of Texas at Dallas Center for Brain Health

Young Adult Library Services Assn. (YALSA), a subsidiary of American Library Assn.

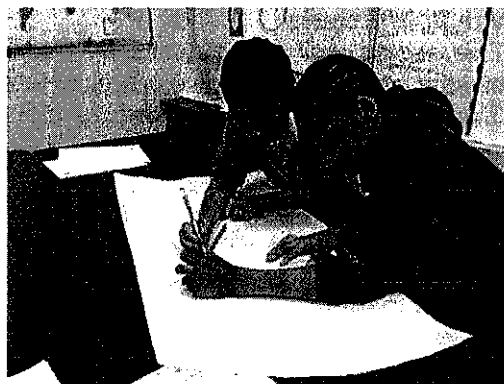
Italics: Board of Directors

For More Information:

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The Innovation Collaborative
Networking Arts, Sciences, and Humanities Education

Effective Practices Research Project

K-12 educators are invited to participate in an important national research project. It will develop a matrix of what constitutes effective practices that promote creative and innovation thinking at the intersections of the arts, sciences, and humanities.

Collaborators

- Collaborative member representatives from national K-12 and informal arts, science, and humanities institutions, in addition to representatives from higher education. These include: Americans for the Arts, Association of Science-Technology Centers, NAEA, NAGC, NSTA, the Exploratorium, Maker Media, NASA Jet Propulsion Lab, Drexel University, Michigan State University, Parsons the New School for Design, and University of Texas at Dallas.
- Nationally-known researchers in arts education, science education, neuroscience, creativity in learning, and the arts/science interface, in addition to classroom education PhD's and teachers.

Rationale

- Many teachers, schools, districts, education agencies, and institutions are embracing STEAM (sciences, technology, engineering, the arts, and math).
- However, research has shown that there is little data and no formal matrix of what constitutes STEAM effective practices that promote creative/innovation thinking in K-12 settings.
- Research is needed to document how these intersections promote the important thinking skills.

Objectives

- Develop an initial matrix of effective practices that promote creative and innovation thinking at the intersections of the arts, sciences, and humanities. The matrix will include a continuum of practice from arts integration to complex problem-based learning approaches.
- Stimulate further research and disseminate findings.

Methodology and Timeline

Phase I – Pilot (2014-15)

- Invite select teachers to submit an example of an effective STEAM lesson, unit, or project.
- Aggregate commonalities among successes.
- Consult with the Collaborative's experts to develop initial criteria for success.

Phase II – National Launch (2015-16)

- Deliver a national call for submissions (fall, 2016).
- Use the initial criteria for successes to develop a working matrix.
- Disseminate initial findings and research further.

Project results:

- Will be shared widely. Will stimulate further research and project development.

Collaborative Website: <http://www.innovationcollaborative.org/>

Questions or to Participate. Email: info@innovationcollaborative.org

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
MEMORANDUM FOR THE RECORD

TO: [Name] FROM: [Name] DATE: [Date]

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