Field of Dreams: If You Build it, Will They Come?
Jamie Bell, Project Director, CAISE
Informal Science Education Association of Texas
Anyplace, Anytime Science
Wimberley, Texas February 27, 2014

Images courtesy of ISE PI Meeting 2012 attendees
From left to right: Geoffrey Haines-Stiles; Mohini Patel Glanz, NWABR; Scot Osterweil; April Luehmann
High School Explainer Program - 1987-1995
Espaço Ciência Viva, Rio de Janeiro, Brazil 1992
Jamie Bell, Trevor Nesbit, Kalie Sacco, Grace Troxel (Association of Science-Technology Centers)

John Falk (Oregon State University, Free-Choice Learning Program)

Kirsten Ellenbogen (Great Lakes Science Center)

Kevin Crowley (University of Pittsburgh Center for Learning in Out-of-School Environments)

Sue Ellen McCann (KQED Public Media)
• CAISE is located at the Association of Science-Technology Centers (ASTC)

• Over 485 science center members in 45 countries & every U.S. state (over 600 members total)

• In 2012, ASTC estimates that there were 93.4 million visits to science centers and museums worldwide
Figure 1. Two-dimensional representation of current ISE Landscape as a function of identification with informal education and public understanding of STEM. NOTE: Axes are qualitative scales representing “High” (H) to “Low” (L) importance. (Falk, et al., 2008)
http://timeline.informalscience.org/
CAISE major initiatives for 2012-2015
STEM Education & Funding in the United States
Results from the Program of International Student Assessment (PISA):

- In 2012, 22 education systems scored higher than the U.S. average on science (18 did in 2009)

- In 2012, 29 education systems scored higher than the U.S. average on math (23 did in 2009)

Source:
http://www.npr.org/blogs/the_two-way/2013/12/03/248329823/u-s-high-school-students-slide-in-math-reading-science
• **PISA**: In 2012, U.S. students scored slightly lower than average on math literacy, and close to average on science literacy, on PISA (1)

• **NAEP**: In 2011, the National Assessment of Educational Progress (NAEP) found that frequency of “hands-on science” activities for 8th graders was correlated with higher science proficiency scores (2)

• **TIMSS**: In 2011, students in the United States (as well as other countries) assessed by the Trends in International Mathematics and Science Study (TIMSS) were found to have higher science achievement when instruction was “engaging” (3)

Sources:
(3) [http://timss.bc.edu/timss2011/downloads/T11_IR_S_Executive_Summary.pdf](http://timss.bc.edu/timss2011/downloads/T11_IR_S_Executive_Summary.pdf)
Findings from the 2011 Committee on Science, Technology, Engineering, and Math Education (CoSTEM) Report

Source:
(2) The Federal Science, Technology, Engineering, and Mathematics (STEM) Education Portfolio: A report from the Federal Inventory of STEM Education Fast-Track Action Committee. Committee on STEM Education at the National Science and Technology Council, December 2011, pp. 68
Over a 16-year period, the ISE/AISL budgets remained relatively consistent until a ~22% cut between FY 2012 and FY 2013. In January, the program was restored to 50 million in FY 2014.
Federal STEM Consolidation

• Administration proposed a “consolidation” of federal STEM programs for FY 2014

• There was bipartisan disapproval of the consolidation in both chambers of Congress

• In January, Congress passed (and the President signed) an Appropriations bill for FY 2014 that did not include the consolidation

• On March 4th, President will announce FY 2015 budget request
Changes in the NSF AISL Program

• Solicitation for both FY 2014 and FY 2015

• New program types introduced: Research in Service to Practice & Innovations in Development

• Other program types: Pathways, Broad Implementation, & Conferences, Symposia and Workshops

• Common Guidelines for Education Research & Development introduced

Learn more at: http://informalscience.org/nsf-aisl
What’s/Where’s the Evidence?

Key Research & Reports in the Informal Learning Field


CAISE Inquiry Group Reports, 2008-2010. Available at: http://informalscience.org/about/about-caise/inquiry-group-reports


Game-Changers and the Assessment Predicament in Afterschool Science: [http://informalscience.org/research/ic-000-000-007-604/Game-Changers_and_the_Assessment_Predicament_in_Afterschool_Science](http://informalscience.org/research/ic-000-000-007-604/Game-Changers_and_the_Assessment_Predicament_in_Afterschool_Science)

What are We Measuring?

This Wordle represents constructs measured by six informal STEM education assessment projects.
Informal STEM Education Assessment Projects

- Advancing Technology Fluency (PI: Brigid Barron, Stanford University)
- Developing, Validating, and Implementing Situated Evaluation Instruments (DEVISE) (PI: Rick Bonney, Cornell University)
- Common Instrument (PI: Gil Noam, Harvard University)
- Framework for Observing and Categorizing Instructional Strategies (FOCIS) (PI: Robert Tai, University of Virginia)
- Science Learning Activation Lab (PI: Rena Dorph, University of California, Berkeley)
- SYNERGIES (PI: John Falk, Oregon State University)

Learn more at: http://informalscience.org/perspectives/blog/updates-from-the-field-meeting-on-assessment-in-informal-science-education
Find and contribute statements of evidence on the ISE Evidence Wiki.

Learn more at: http://informalscience.org/research/wiki
A guide for program and project leaders working with professional evaluators

Learn more at: http://informalscience.org/evaluation/evaluation-resources/pi-guide
InformalScience.org: a Resource Repository for the ISE Field
• Outgrowth of the Museum Learning Collaborative (1997-2002)

• Established in 2006 at UPCLOSE

• CAISE refunded in 2012 with a Web Infrastructure Initiative

• Redesigned and re-launched by CAISE in May 2013

Learn more at: http://informalscience.org/about/informal-science
• 3 main types of resources collected: Projects, Research, Evaluation

• Search is organized by metadata

• Ability to search InformalScience.org and the Informal Commons

• Perspectives: news, blog posts, newsletter

• Community: groups, calendar, member directory
Characteristics of InformalScience.org Membership
N=515; data was self-reported or inferred from member organization. Members could choose multiple options.
N=220; data was self-reported or inferred from member organization. Members could choose multiple options.
N=87; data was self-reported or inferred from member organization. Members could choose multiple options.
N=229; data was self-reported or inferred from member organization. Members could choose multiple options.
Characteristics of Informal Commons Content

As of February 14th, 2014:

• 8,193 records in the Informal Commons

• 4,139 project, evaluation, and research records in the Informal Commons

• 2,431 project, evaluation, and research records derived from InformalScience.org
Public educational programs

Media and technology

Exhibitions

Professional development, conferences, and networks

K-12 and Higher Education Programs

N=1,548; records can exist in multiple categories.
N=1,914; records can exist in multiple categories.
Exhibitions
Public educational programs
Media and technology
Professional development, conferences, and networks
K-12 and higher education programs

Research and evaluation instruments
Evaluation reports

N=1,001; records can exist in multiple categories.
YOU can build & strengthen the field
How You Can Strengthen the Field

When you join InformalScience.org, you can...

- Start and join interest groups
- Find and share opportunities for professional development & funding
- Search & contribute project, evaluation, & research resources
- Find collaborators in the member directory

Friday, May 16, 2014
Project Pages on InformalScience.org

• Submit project pages
• Link your profile to existing project pages
• Add related evaluation reports, research products, & images
Learn more...

Jamie Bell, Project Director & PI of CAISE
jbell@astc.org

InformalScience.org

Facebook.com/informalscience

@informalscience
@jamiecaise