

What are we learning: STEM Across State Lines



Iowa and Massachusetts

- have been linked through the Governor's STEM Advisory Council in both states & despite the differences in geography, history & culture, there are many similar challenges & solutions.

- Reinventing unnecessarily wastes valuable & scarce intellectual & other resources.
- Sharing how to work with K-12, Higher Education, Business & Industry & Legislators has many benefits.

MUSINGS.1

MUSINGS.2

- Search4STEM...lost & found & in abeyance in MA
 - Adopting the committee structure
 - Seal of approval in IA
- Global STEM Education...started & in abeyance in MA, proposed for IA

A little pre-history...MA.1

Starting in the mid 1990's:

- STEM professionals/ STEM corporations/ workforce development professionals realized there is a significant shortage of skills/workforce
- STEM professional organizations expressed concerns re: a shortage of STEM-ready-workforce & diversity in STEM workforce

A little pre-history...MA.2

- Beginning of STEM Pipeline movement in MA in late 1990-early 2000 - STEM professionals & K-20 education - worked together from 1999-2003)
- NSF responded with SMET (later STEM) funding in late 1990s to early 2000

A little pre-history...MA.3

- Beginning of a plan under aegis of UMass President's Office
 - >First MA STEM Summit in 2003
- MA STEM Caucus in the Legislature..started as Tech Caucus
- MA STEM Pipeline Fund & MA STEM Networks

A little pre-history...IA

- The IA Math/Science Partnership
- Its evolution to State STEM coinciding with NGA meeting, viewing MA model
- Connecting of two members at NASSMC (*National Alliance of State Science & Mathematics Coalitions*)
<http://www.nassmc.org>

A little history

- MA Council created by executive order, end of 2009
- IA Council created by executive order, July 2011 (74), May 2013 (81)
- MA Council member appointed to IA, 2011, reappointed 2013

MA Codification

- “July 2014, the STEM Council was officially codified into law by the legislature... The codification of the Council authorizes the body to meet across administrations and restructured it to include a more diverse group of educators from all levels. Council members are appointed for two year terms.”
- (from <http://www.mass.edu/stem/home/council.asp>)

Agreements

- To share materials, plans, ideas with proper attribution
- To avoid mistakes (same or different)
- To appoint a member in common

Shared resources/ideas.1

- The state STEM plans (MA at v2)
- Ideas about website development & use
- Ideas about process, structure (e.g. committees) & meetings

Shared resources/ideas.2

- Museum education in STEM; out of school STEM; Informal STEM learning
- Teacher preparation
- Advocacy strategies
- Organizational refinements

Consequences

Learning from the other's experience

- One plan led to another
- Lieutenant governors providing leadership
- MA Regional networks (9) →
IA Regional hubs (6)
- STEM Summits (MA at 11 in 2015 & IA at 2 in 2015)
- @Scale → Scale Up

Similarities.1

Both located at higher education

- MA in the office of the Commissioner of Higher Education...website part of the Dept
- IA at University of Northern Iowa where the ED is a faculty member...website stands alone

Similarities.2

- Meetings of Council move around the state to various companies, regional sites
- Stakeholders invited
 - IA: Gov held press conference
 - MA: Rep of site presents the site's work

Similarities.3

- Financial support from the State
 - IA: 2016 budget approx \$5M
 - MA over the years Pipeline Funding

Differences.1

- Iowa received an NSF Grant in 2013
- Lt Gov still the leader with business CEO; co-chair from (in MA it is Rep Kennedy & Vertex CEO)
- MA is on hold--new administration is assessing

Differences.2

IA moving ahead with:

- Seal of Approval
- STEM Day at The Capitol
- STEM Day at the Iowa State Fair

Lessons learned

- It is about
 - people and relationships
 - two way generosity
 - not duplicating unnecessarily
 - building on success
 - exploring/filling gaps
 - adopting new pathways

Tangible results

- Research undertaken in both states
 - The Donahue Institute, UMass
 - University of Northern Iowa
- Creation of Search4STEM in IA and renewed interest in it in MA
- Increase in numbers of students interested in STEM in both states

MA STEM Talent Overview

2011

% Talent 31.3%

2012

% Talent 32.2%

2013

% Talent 32.8%

2014

% Talent 34.1%

2015

Projected Talent 35%

Subjects: Agriculture, Architecture, Biological Sciences, Computer Sciences & IT, Eng. & Eng. Technology, Health & Related Sciences, Math & Statistics, Natural Resources, Physical Sciences

Source: John Hodgman analysis July 2015

The Future

- Other states asking questions
e.g. NH: individualized learning plans
- How to take advantage of what has happened in a systematic manner
- Using the tangible results to increase student interest & preparation

More information:

- <http://www.iowastem.gov/council>
- <http://www.mass.edu/stem/home/council.asp>
- ikz1@verizon.net