

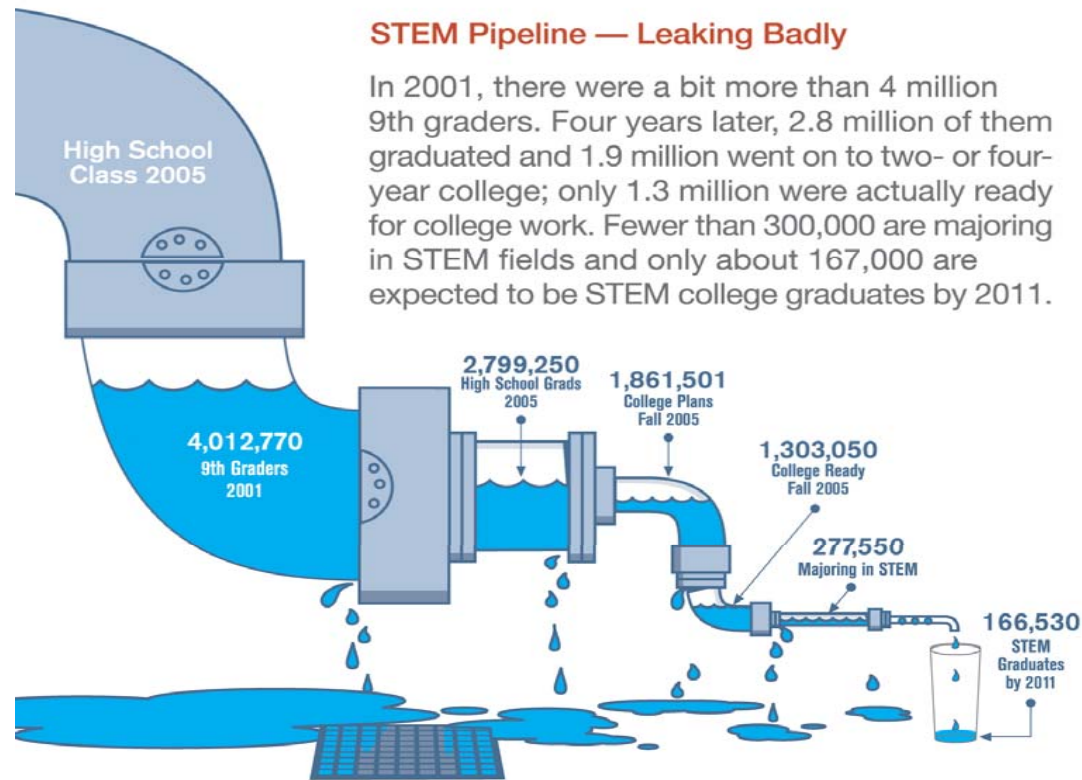
STEM Research and Modeling Network Webinar

October 21, 2009

Agenda

- Welcome and Introduction – Brian Fitzgerald, BHEF
- Update on SRMN Activities – Chris Roe, BHEF
- Demonstration of the U.S. STEM Education Model – Natalie Nielsen, BHEF
- Demonstration of a System Dynamics Framework for Federal Student Financial Aid Policies – Chris White, viaSim
- Expert Reactions and Audience Discussion – Brian Fitzgerald (moderator)
- Wrap-up – Brian Fitzgerald

U.S. STEM Education Pipeline Concerns



Courtesy of the Bill & Melinda Gates Foundation

Source: NCES Digest of Education Statistics; Science & Engineering Indicators 2008

BHEF's STEM Education Modeling Project

Background

- Raytheon Chairman and CEO Bill Swanson launched effort as part of BHEF STEM Initiative in 2006

Goals

- Assist in understanding the U.S. education system
- Identify potential solutions to help strengthen U.S. STEM outcomes

Lead Partners

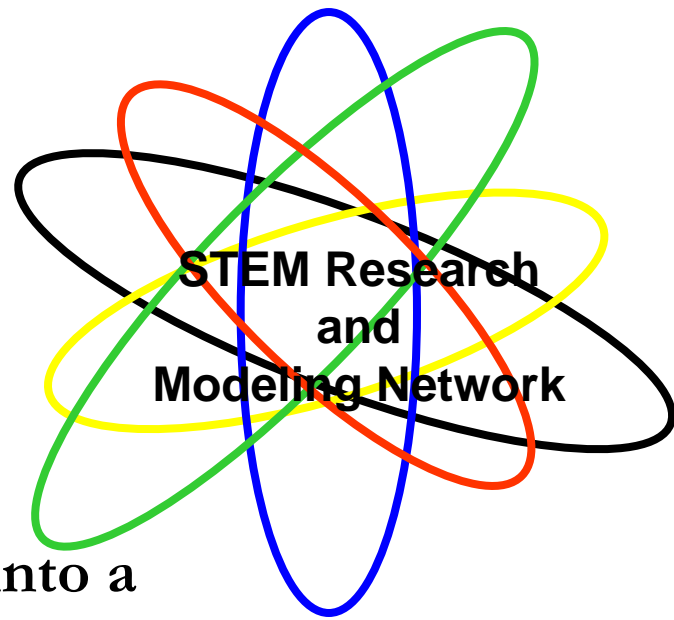
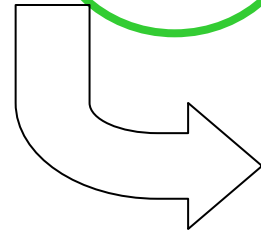
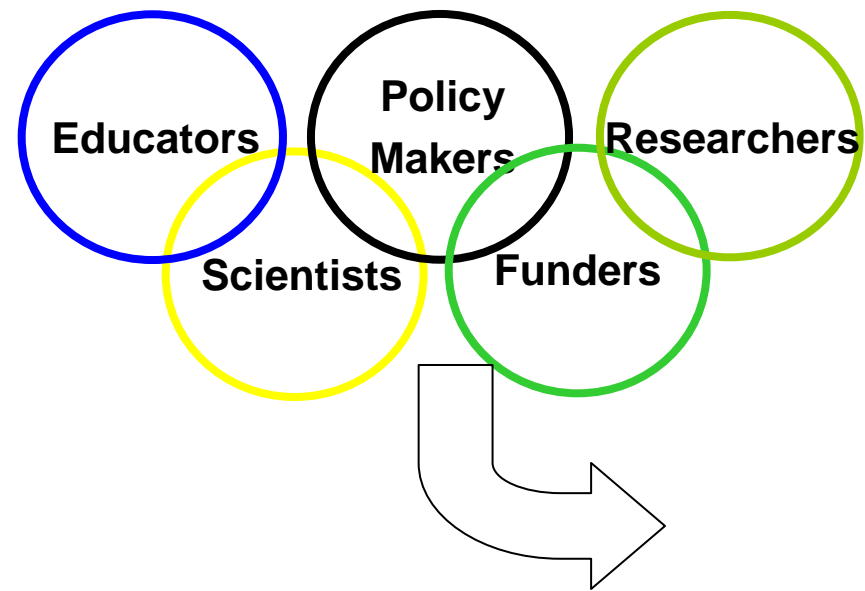
- Business-Higher Education Forum
- Raytheon Company
- The Ohio State University, Battelle Center for Math and Science Education Policy



SRMN

STEM Research and Modeling Network

Research, Policy Making, and Funding – A New Vision



Changing Loose Collaboration into a Powerful & Integrated Open Innovation Platform



Raytheon

SRMN: Recent Activities and Upcoming Plans

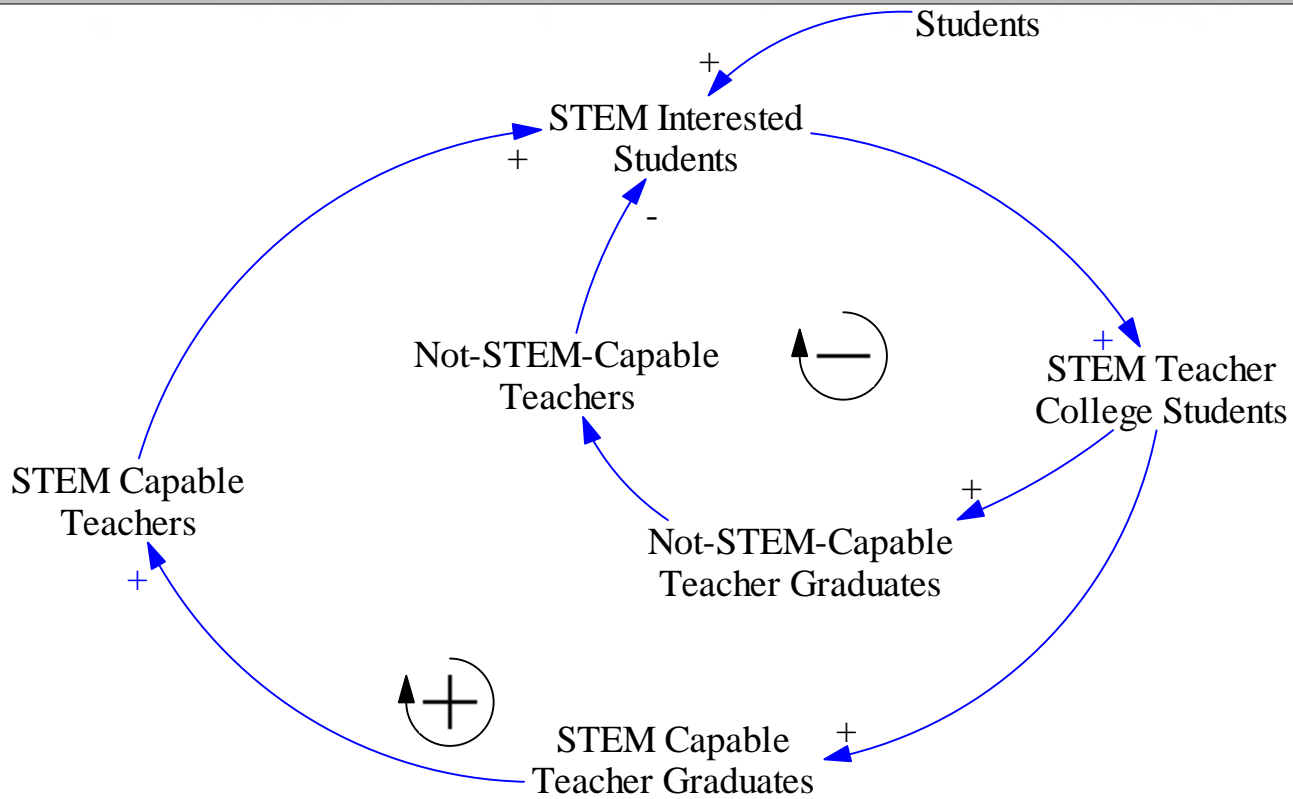
- Almost 900 attempts to download the model
- Ohio State continues to serve as model administrator
- System Dynamics Society conference workshop in July
- Briefing of policymakers, including House Science & Technology staff
- Focus on simulation
 - Upcoming briefing at Interservice/Industry Training, Simulation and Education Conference in Dec.
 - Exploring development of web-interface to facilitate use of model by non-modelers

SRMN: Ways to Get Involved

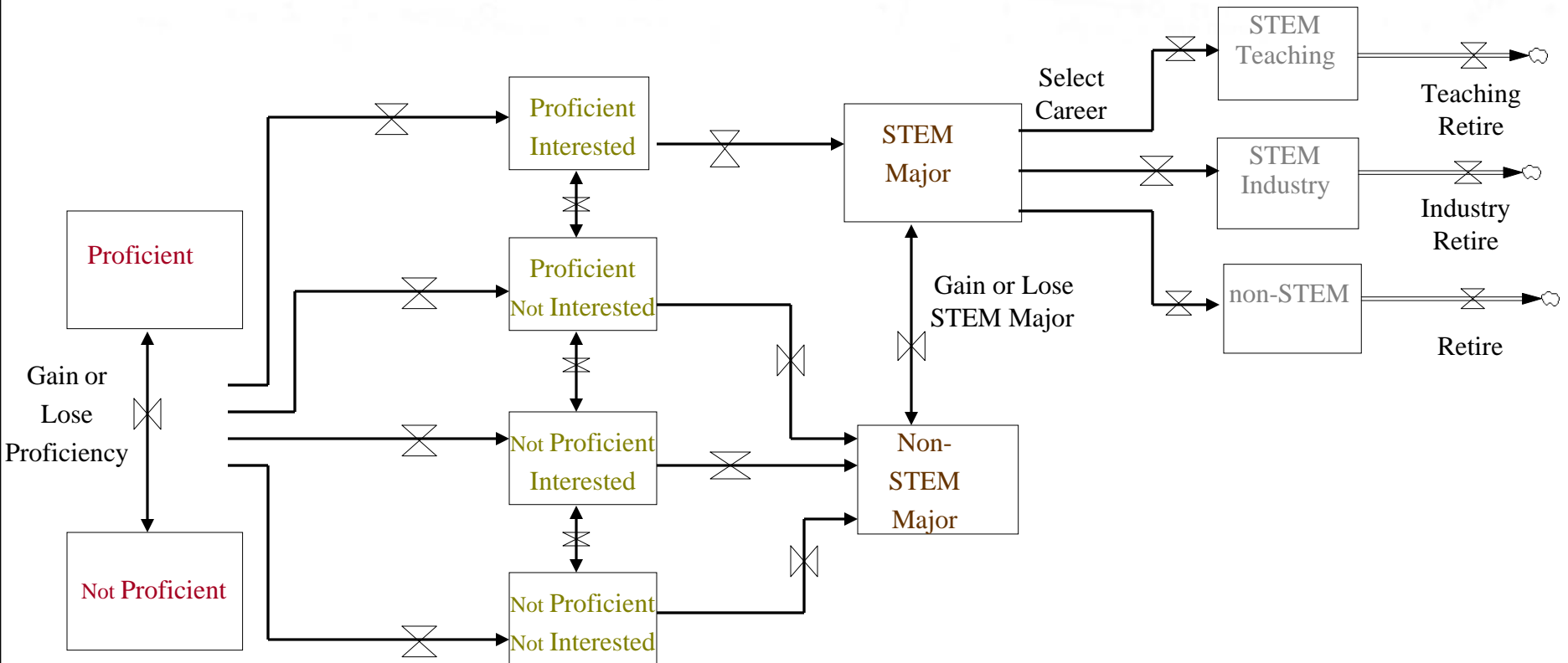
- Suggest ideas/speakers for future Webinar
- Outreach to other groups
- Participate in SRMN list serve
 - ▶ Sign-in page and instructions at:
<http://groups.google.com/group/srmn>
 - ▶ Requires initial registration
 - ▶ Message board, document sharing, member profiles

Model Demonstration – Natalie Nielsen, BHEF

Modeling the Behavior



U.S. STEM Education Model: Simplified Representation



Elementary

Secondary

College

Career

Not Proficient and Not Interested

Proficient and Interested

Men

Interested and Not Proficient

Proficient and Not Interested

Women

Born

Time

U.S. STEM Education Model: Key Leverage Points for Increasing STEM Graduates

- STEM-capable teacher corps
- Freshman year persistence
- Combined K-12 and postsecondary strategies

What if:

- School districts reduced the number of STEM non-capable teachers and increased the number of STEM-capable teachers?
- Colleges and universities scaled up social networking programs for STEM students?
- States implemented comprehensive P-16 strategies to increase STEM graduates?

Downloading the Model

- Follow the links for the model at www.stemnetwork.org
- Requires Vensim PLE Plus or Professional (purchase from www.vensim.com)

Reaction/Discussion Questions

- What are the key issues in the current student financial aid policy environment?
- Are they currently or could they be addressed by either the U.S. STEM Model or the framework presented by Chris White?
- What utility and benefits do modeling and simulation provide in education policymaking/decision-making?
- What are the limits? Barriers to adoption?

Thank you for participating in the STEM Research and Modeling Network Webinar

For further information, visit SRMN at:
www.STEMnetwork.org