

# Policy Development for Learning Technologies at NSF

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# Policy Development at the US National Science Foundation (NSF)

- NSF is an Executive Branch, Independent, Agency – Executive Policy is guided by the National Science Council, OMB, and the National Science Board
- NSF is a key player in Network and Information Technology Research and Development Committees
- NSF is a key player in the America Competes Act (a science and mathematics education reform initiative headed by the Department of Education)

# Policy Input Sources

- Public and Business
- Professional Organizations (with and without NSF encouragement)
- Congress and States
- President and his advisors
- International Organizations
- NSF and the NSB
- Government Coordination - NITRD

# New Trends

- Transformative and translational research
- Increased emphasis on the use and influence of cyberinfrastructure on science and education
- Increased emphasis on 21<sup>st</sup> Century Workforce
- Willingness to consider new models of schooling – Blue Sky Workshops

# Examples

- Many series of workshops on cyberinfrastructure and <science>
- America Competes Act, ITEST, CI-TEAM, Cybercorps
- Multiple new programs on the development of cyberinfrastructure for science (e.g. datanet, interop, VOSS, CDI)
- New education R&D – CI in all DRL announcements, new multi-directorate cyberlearning initiative, ALT

# Blue Sky Workshops

- Intended initially to address Mathematics Education in 21<sup>st</sup> Century
- Expanded to consider alternate models of schooling beyond the factory model
  - Home Schooling
  - Virtual Laboratories
  - Community Mentoring
  - Virtual Schools
  - Jeremy Roschell's combining of long tail phenomenon and deeper, narrower learning

# Roadmaps for Learning Technologies

- Federation of American Scientists (Henry Kelly head at the time) published a road map for learning technologies
- A group organized by the Computing Research Association (CRA) and funded by NSF has just produced (April 7, 2010) and updated and more detailed road map

# Latest Roadmap Recommendation Areas

- Personalizing Education – models, datamining, simulations
- Assessing – DBs, Educational datamining
- Supporting Social Learning – learning communities, infrastructure
- Mitigate boundaries – eg. Formal and Informal
- New teaching modalities
- Enhance stakeholder roles – eg technology affordances enable participation of parents, employers, teachers, administrators in learning



# Some References

- Blue Sky Workshop Report
  - <http://www.mathcurriculumcenter.org/conferences/sstem/index.php>
- NSF Programs
  - OCI Programs  
<http://www.nsf.gov/dir/index.jsp?org=OCI>
  - EHR Programs  
<http://www.nsf.gov/dir/index.jsp?org=EHR>
  - CISE Programs  
<http://www.nsf.gov/dir/index.jsp?org=CISE>

# More References

- Roadmap Report  
[http://udrive.oit.umass.edu/bwoolf/GROE/Roadmap\(R5\).pdf](http://udrive.oit.umass.edu/bwoolf/GROE/Roadmap(R5).pdf)
- Cyberinfrastructure and Education Research Report  
<http://www.cra.org/resources/research-issues/>
- Roadmap Report (FAS Reports)  
[http://www.fas.org/programs/itp/policy\\_and\\_publications/roadmaps/index.html](http://www.fas.org/programs/itp/policy_and_publications/roadmaps/index.html)

# More References

- Cyberlearning Report to EHR and OCI

[http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08204](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08204)

- America Competes Act

[http://thomas.loc.gov/cgi-bin/bdquery/z?d110:SN00761:](http://thomas.loc.gov/cgi-bin/bdquery/z?d110:SN00761)

- OSTP/NITRD

[http://www.nitrd.gov/about/about\\_nitrd.aspx](http://www.nitrd.gov/about/about_nitrd.aspx)

# PCAST Report

- This report spawned the Interagency Education Research Initiative - \$250 Million for scaling up Technology Based Interventions
- "Report to the President on the Use of Technology to Strengthen K-12 Education in the United States"
- [http://www.eric.ed.gov:80/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?\\_nfpb=true&\\_&ERICExtSearch\\_SearchValue\\_0=ED410950&ERICExtSearch\\_SearchType\\_0=no&accno=ED410950](http://www.eric.ed.gov:80/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_&ERICExtSearch_SearchValue_0=ED410950&ERICExtSearch_SearchType_0=no&accno=ED410950)