

Improving STEM Education through Data-intensive Research

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Online Education: A Catalyst for Higher Education Reforms

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Opportunities

- Scaling effective, research-based practices into online environments
- Scale of online coupled with advancing educational research methodologies
 - Disaggregate data to learn what works best for whom
 - Feed evidence-based findings into all learning environments

More than MOOCS: Innovative hybrid community college examples

- Online Global Entrepreneurs (City University of New York)
- Real time remote access
- Modular, hybrid online lecture and in-person lab curriculum
- Simulation-based competency assessment









Data-intensive research in education



Data-intensive - more nuanced than "Big Data"

- More than size and scale
- Complex, unstructured data
- Challenges in terms of standards
- Privacy issues
- Requires multi-disciplinary collaborative research teams

Needed: Data-intensive Research Infrastructure

- Interoperable data (standards)
- Community workspace
- Shared tools
- Fixed and flexible workflows
- Growing the next generation researchers





Data-Intensive Research in Education Current Work and Next Steps

REPORT ON TWO NATIONAL SCIENCE FOUNDATION-SPONSORE COMPUTING RESEARCH EDUCATION WORKSHOPS

