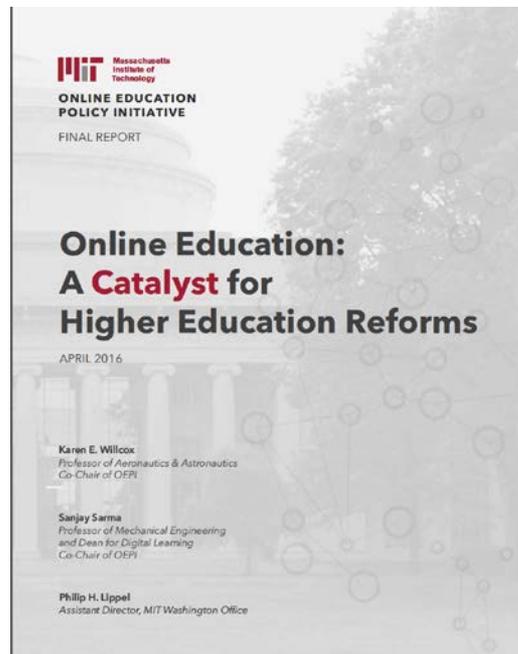


# Improving STEM Education through Data-intensive Research

Susan Rundell Singer  
Division Director  
Undergraduate Education  
National Science Foundation

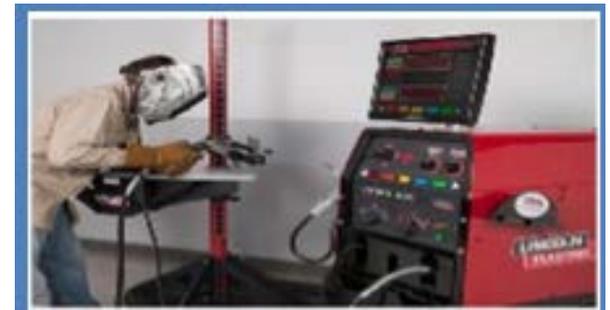


# Opportunities

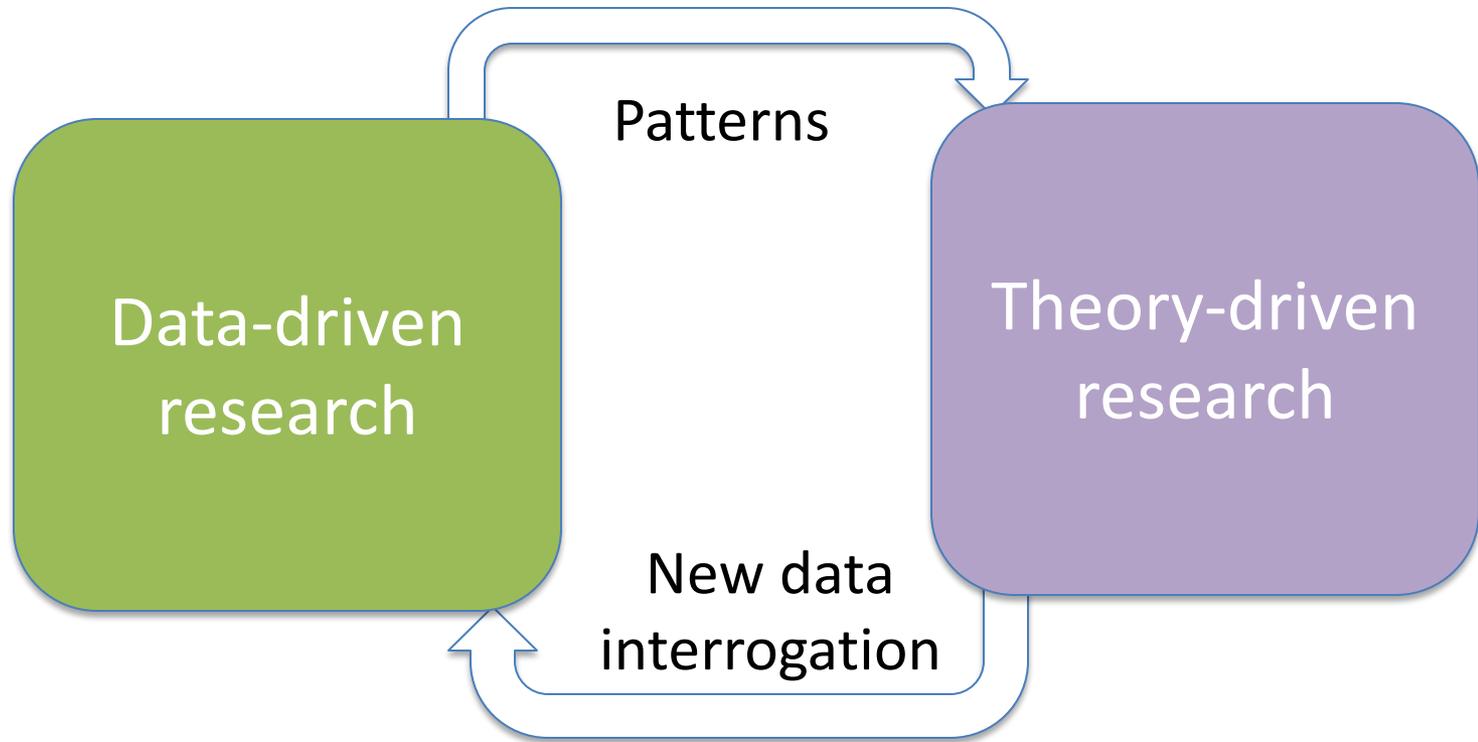
- Scaling effective, research-based practices into online environments
- Scale of online coupled with advancing educational research methodologies
  - Disaggregate data to learn what works best for whom
  - Feed evidence-based findings into all learning environments

# 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

