The Data Dividend for Network enabled Open Education

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Big Data for Ed - Synthesis

- Systems/platforms, associated with scaffolding - PAR, STARFISH, Signals, Maroist Open Analytics, D@L.. --Interoperability and Standardization; Privacy; MOOC affordances

- Student Centered Data

- Assessments/Evidence: continual; relevant; invisible? (Val – FSU)

- New Data Opportunities and Unique Needs of Education (Ken, George, Perue Bhaskar…)

- Strategies and mechanism at different levels: micro (mezo) and macro (national

- and global indicators) – (Edith Gummer)

- Making learning visible to the learner

- Job and Learning Outcomes

FOCUS: New Things in New Ways
Network Enabled Open Education
Changing the Ecology and Economics of Education

- Experience
- Learning Opportunities
- Community
- Data
- Content
CLIx Phase 1 - Scope

- In 2015-2017: 3 States, 1,000 schools, 150,000 students, 2,700 teachers
- Mathematics, English, Science & Values
- Ecosystem of Partners, including State Governments, led by MIT and TISS

3 States
Chhattisgarh, Mizoram & Rajasthan

CLIx Learning Experiences
1,000 Schools & 150,000 Students

Professional Development
2,700 Teachers

CLIx Modules & Courses in Mathematics (3), English (4) & Science (9)
Design Considerations

- **Scale**
  - Vector (Size + Diverse audiences; sources; technology)
  - Input
    - Requires Architectural consideration in Design
  - Assets Vs. Learnings/Models

- **Open**
  - Abundance
  - Generative:4Rs; Spawn Application and Innovation
    - Incldg New kinds of assessments; New Questions
  - New Structural Arrangements
    - Institute – Individual – Community
Current Pain Points/Opportunity Areas
- Samples

- Distributed, Embedded Assessment
  - Repositories and Recommenders

- Competency and Skill based Learning

- Strategic Scaffolding
Assessment Banks and Recommenders

- **Scaling Problem**: Managing, sharing or supporting re-use of assessment items; Effectively mapping them to learning objectives

- **Digital Learning Assessment Bank**
  - A global federation of assessment tools for online assessments
  - A secure and interoperable Federated Assessment Service to create and update assessment offerings and perform assessment authorizing, reporting, learning objectives mapping and analytics

- **Recommenders**
  - Identification and selection of assessments from the digital learning assessment bank for use by course authors.
  - **Big Data capability** can allow us to study the effectiveness of assessments drawn from these assessments banks for different learning outcomes in different
Competency and Skill based Learning

Problem: Mapping between educational courses/programs and job skills.

- Modeling educational goals related to course and programs

Learning objective cataloging systems (services to manage and map data on educational goals)
  - Interoperability

Semantic analysis.

- Starting with knowledge models, developed by domain experts, auto-generate learning outcomes from available data
Strategic Scaffolding

- Create automatic support and scaffolding strategies for a wide variety of “Network learners”
- Help understand conditions under which successful learning occurs for diverse learners/contexts
  - interaction among students, pedagogy, curricular material, support networks (Community)
  - Help seeking behavior (Community)
  - Dynamic/Increasingly Complex
Enablers

- Lower Threshold for providing and using data
  - Build in/Instrument Infrastructure and Process
  - Tools and capabilities to Find, Get, Use
    - Interoperability
    - Making Tacit Knowledge visible and useful to others

- The commons must serve both as a repository and a seedbed. Create the conditions in which ever better ideas and models can come forward.