iSchools Transform: Data Driven Trailblazers

6th National Data Service Workshop

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Outline

1. Ask a few questions
2. Tell you about me (briefly)
3. Research
   • iSchools’ data related curriculum
4. Conclusion: Why I’m excited about NDS?
5. Open discussion
Questions

• Librarians, archivists/curators?
• Computer/information scientists?
• Disciplinary scientist - e.g., biologist, geologist?
• Data scientists?

Concerned with data infrastructure design, functionality, and sustainability
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• Founded in 2005
• International consortium of Schools - advancing the information field
  • Information science - unifying discipline
    • Library and archival science, informatics, human and social computing, business intelligence, and computational and data driven activities.
  • Share a fundamental interest in the relationships among information, people and technology
  • Data competent workforce needs
Research goals

How are iSchools responding - need for a data competent workforce?

• What is the extent of data related iSchool curricula activities?
• What data driven emphases and foci are found in iSchools?

Approach

• Cross-institutional survey of iSchools, including a cluster analysis of courses offerings
• 65 iSchools (Jan. 2016)
  – Classified degree programs by country, type of degree, discipline, and concentration
  – Normalization
  – Rubric of data science, big data analytics, and digital curation

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Most relevant disciplines involved in iSchools' degree programs

- LIS & Informatics: 138
- LIS: 115
- Informatics/Computer: 95
- Informatics: 75
- Communication: 43
- LIS, Informatics & Arts: 22
- LIS & Communication: 20
- Informatics & Business: 18
- Information Science & Arts: 7
- Informatics & Communication: 6
- Informatics & Health: 6
- Bioinformatics: 5
- Engineering: 4
- Geographics: 4
- Informatics & Engineering: 4
- Mathematics & Statistics: 4
- Statistics: 4
- Digital marketing: 3

n=597
iSchools degree programs and data education

- Not data related, 416, 70%
- Not enough information; 94; 16%
- Data; 87; 14.5%
- Data Science/Big data Analytics; 66; 11%

n=597
87 degrees

- BS/Undergraduate: 2
- Graduate Certificate: 1
- Master: 17
- MS Certificate: 2
- PostMaster: 2
- PHD: 2

1 to 3 courses/PH: 3
1 to 3 courses/BC: 6
1 to 3 courses/MS: 52
Digital curation

Data Science

Big data analytics

Germany

UK

USA

Australia

Sweden

Finland
What is being taught?

**Diagram:**

- Data Mining
- Probability and Statistics
- Databases
- Information Visualization
- Data Analytics
- Machine Learning
- Computing
- Information Retrieval
- Statistics
- Data Analysis
- Data Analytics (Social Networks)
- Statistical Programming
- Algorithms
- Security
- Big Data
- Library and Information Science
- Management Systems
- Boolean Algebra
- Digital Libraries
- Library and Information Science
- Security Technologies
- Big Data
- Information Retrieval
- Statistical Programming
- Algorithms
- Machine Learning
- Computing
- Databases
- Information Visualization
- Data Analytics
- Probability and Statistics
- Data Mining

**Axes:**

- % in BDA
- % in DS
Digital Curation, found in 21 degree programs, of the 87 that have data-related curricula.
A few more results

• Data-driven education in iSchools can be classified data science (DS), big data analytics (BDA), and digital curation.

• Most data science and big data analytics degrees are in US iSchools.

• Digital curation fairly equal in Europe + U.S.

• Data degrees fairly recent, starting 2013-2016.

• Lack of clear distinction between DS and BDA, but DS has larger spectrum of diversity.
A few more results

- Digital curation degrees smaller percentage of iSchools compared to DS and DA.

- New job titles - “data research scientists”, “data services librarian”, and “research data and digital curation officer”, suggests iSchools give more attention digital curation.

- Limited interdisciplinary evidence;

- Limitations: web, inconsistent info., 77 iSchools, etc., but...
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2. Tell you about me (*briefly*)
3. Research
   - iSchools’ data related curricula

4. Conclusion: Why I’m excited about NDS?
   - Hard problems, continuum of expertise
   - Library science part of the larger information and data ecosystem
     - Cross fertilization (curation, DS, etc.)
     - 2013+ trailblazers
     - Stone age – to Bronze age
“Never, ever, think outside the box.”
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Optional slide...