DEVELOPING DATA LITERACIES FOR GRADUATE STUDENTS IN THE SOCIAL SCIENCES

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What knowledge and skills with data will graduate students need to be successful?

What role could librarians play in teaching these skills?

http://datainfolit.org
## 12 Competencies

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ASSUMPTIONS

- Information Literacy can serve a foundation for Data Information Literacy
- Graduate students would be a logical starting point and a receptive audience
- The 12 DIL Competencies will be a useful foundation, but should not be prescriptive
- Alignment with disciplinary cultures and local practices will be the keys to our success
PROJECT PHASES

1. Literature Review
2. Interviews
3. Develop DIL Model
4. Implement Programs
5. Develop Educational Programs
INTERVIEW FINDINGS - STEM

- lack of formal training in data management
- lack of formal policies in the lab
- self-directed learning through trial and error
- focus on data mechanics over concepts

INTERVIEW FINDINGS - STEM

Faculty and Student Rankings of Importance

- Data Processing and Analysis
- Discovery and Acquisition
- Data Preservation
- Data Management and Organization
- Data Conversion and Interoperability
- Databases and Data Formats
- Data Visualization and Representation
- Data Quality and Documentation
- Metadata and Data Description
- Ethics and Attribution
- Data Curation and Re-use

Average Ranking of Faculty (n=8) vs. Average Ranking of Students (n=17)
Original DIL Questions

- What knowledge and skills with data will graduate students need to be successful?
- What role could librarians play in teaching these skills?

Plus…

- How are perceptions and practices in the social sciences different from STEM?
- What is unique about social sciences?
DIL-SS PRELIMINARY RESEARCH

10 INTERVIEWS @ PURDUE & MICHIGAN STATE UNIVERSITY

6 Faculty
- 2 Political Science (Purdue)
- 1 Sociology (MSU)
- 1 Social Work (MSU)
- 2 Human Development & Family Studies (MSU)

3 Grad Students + 1 Post-Doc
- 3 Sociology (MSU)
  - 1 History (Post-Doc)
  - 1 Community Sustainability
  - 1 Visual Sociology
- 1 Human Development & Family Studies (MSU)
SS & STEM COMPARISONS

SS Faculty and STEM Faculty Rankings of Importance

Data Processing and Analysis
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Cultures of Practice

SS Importance Faculty Average (n=6)  STEM Importance Faculty Average (n=8)
DIL-SS VS. DIL-STEM

Key Differences
- Working environments
  - No labs
- Multidisciplinary practices
- Quantitative vs. Qualitative
- Human Subjects

Commonalities
- Lack of formal training in data management
- Lack of formal policies/practices
- Self-directed learning through trial and error
(MOST) RESEARCH IS INDIVIDUAL

“...we use so many different methodologies to do work our practices really vary greatly. ...This notion of labs and research groups isn’t traditional to [us in HDFS]...So I sort of purposefully don’t call the students that I work with, or the group that I work with, a lab because I don’t really understand the concept. I do work in a research group but we do multiple things and not every student is doing the same thing or working toward one project.”

[HDFS Faculty #3]
Is familiar with the basic data processing and analysis tools and techniques of the discipline or research area.

“The one wrinkle in the question is this ‘of the discipline.’ I think you’ve talked with enough of us to know that there is no discipline. Some of us have ethnographic data; we are doing very contextual analyses, qualitative approaches. We haven’t use a number in years. And there are other people who are working with various kinds of census data…”

[Sociology Faculty #2]
"…the thing about qualitative research that I think you might not see as standard practice of it is because it’s supposed to be specific to the research. So, when I think about qualitative research, standard kind of goes opposite of what qualitative research is about. It’s about really getting in, you know, really allowing your experiences…to shape how your view the research…that is very individual. So that’s why I just think that there isn’t like a set way. It’s left opened like that probably on purpose.”

[HDFS Student #1]
Faculty and Student Rankings of Importance

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Importance Faculty Average (n=6)  Importance Student Average (n=4)
RESPECT FOR RESEARCH SUBJECTS

“But there’s another culture from the research point of view…it has to do with all of those sensitivities toward community…You don’t just go into the communities and take your data and go….there’s some responsibility that you have toward that community and that may be…in the form of service.”

[HDFS Faculty #3]

“The bottom line the owner of the oral history is the interviewee. … It’s their voice, it’s not my voice.”

[Sociology Student #2]
“Organizing your data is huge to make sense of it. … I have a system, but I don’t think it’s the best system. … [A training] would have been helpful because that’s one of the things that I really kind of struggled with when I first started was I don’t know how to organize all of this and I never got a clear answer. So, yes, that would have been very helpful.”

[HDFS Student #1]
“[Preservation] is not something we’re paying much attention to at all … We’re constantly chasing the next project so this feels to me like work that has to happen that’s kind of I don’t have time, energy or money for… I just don’t know that realistically it’s something I could do.”

[Social Work Faculty #1]
WHO’S JOB IS IT TO CREATE RE-USABLE DATA?

PRESTIGE, FUNDING, CULTURE

“[data description and metadata are] relevant to certain students who we know will go heavily into research and not as relevant to those folks that won’t. … most of our students go to teaching colleges.”

[Social Work Faculty #1]

“We are very much a third tier department … we don’t think about it. We don’t see our studies as having, as needing that kind of management.”

[Sociology Faculty #2]
Gaps between Importance and Current Student Proficiency - Faculty

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Importance of Competency for Students - Faculty (n=6)
Student Mastery of Competency - Faculty (n=6)
QUESTIONS?

DATA INFORMATION LITERACY – SOCIAL SCIENCES

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Data Information Literacy Project
http://datainfolit.org/