2019

Exploring Data Management: Identifying Signposts for Graduate Student Researchers

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Recommended Citation
Pasek, Judith E. and Mayer, Jennifer, "Exploring Data Management: Identifying Signposts for Graduate Student Researchers" (2019). University Libraries Faculty Publications. 90.
https://digscholarship.unco.edu/libfacpub/90

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Exploring Data Management: Identifying Signposts for Graduate Student Researchers

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OBJECTIVES

Identify knowledge gaps and instructional needs of graduate students (explorers) and disciplinary faculty in research data management concepts.

Explore new pathways for research data management education.
TWO NEIGHBORING UNIVERSITIES

Medium-Sized Public Research Universities

R3, Doctoral Comprehensive

Education, applied health sciences, core of natural & life sciences

R2, Doctoral STEM Dominant

Agricultural sciences, engineering, natural & life sciences, applied health sciences, psychology

8,851 UG
3,103 G

9,290 UG
2,543 G
OUR RESEARCH QUESTIONS

- How do graduate students and faculty rate the importance of research data management (RDM)?
- How do graduate students and faculty rate RDM knowledge and skills of graduate students?
- How do graduate students learn RDM concepts and practices?
- Do self-reported assessments by graduate students regarding RDM education differ from faculty perceptions of their graduate students?
- Are there differences in RDM education needs between the two institutions studied?
BRIEF OVERVIEW OF OUR STUDY

Methods

- Surveys designed for graduate student and faculty populations, deployed at both universities.
- Quantitative analysis
- Qualitative analysis

<table>
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<tr>
<th>Respondents</th>
<th>UNC</th>
<th>UW</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Graduate students</td>
<td>63</td>
<td>68</td>
<td>131</td>
</tr>
<tr>
<td>Faculty</td>
<td>39</td>
<td>40</td>
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</table>
DATA COMPETENCIES

- Ethics & attribution
- Planning & organization
- Discovery & acquisition
- Cultures of practice
- Database & data formats
- Metadata & data description
- Quality assurance
- Conversion & interoperability
- Processing & analysis
- Visualization
- Curation & reuse
- Preservation
RESULTS: RDM KNOWLEDGE & SKILLS

Data Curation and Re-use
Metadata and Data Description
Data Conversion and Interoperability
Data Preservation
Data Processing and Analysis
Databases and Data Formats
Data Planning and Organization
Discovery and Acquisition of Data
Quality Assurance
Data Visualization
Cultures of Practice
Ethics and Attribution
RESULTS: TRAINING INTERESTS

- Licensing research data
- Finding suitable repository & submitting data
- Complying with data sharing policies
- Citing data sets & re-use metrics
- Writing a data management plan
- Data backup & storage
- Finding data sets to reuse
- Preserving & archiving data
- Publishing a data set
- Documenting research data for sharing
- Data organization & best practices

By Graduate Students for Themselves
By Faculty for Their Graduate Students
RESULTS: CHALLENGES IN RDM

- Data Processing and Analysis
- Data Preservation
- Quality Assurance
- Data Curation and Re-use
- Metadata and Data Description
- Cultures of Practice
- Ethics and Attribution
- Data Visualization
- Databases and Data Formats
- Data Conversion and Interoperability
- Discovery and Acquisition of Data

By Faculty

By Graduate Students
How Students Learn RDM

Where graduate students say they learn:

- Self-instruction: Often (10%), Sometimes (10%), Never (40%), No Response (40%)
- Faculty/advisor: Often (20%), Sometimes (40%), Never (10%), No Response (30%)
- Peers/fellow students: Often (0%), Sometimes (10%), Never (20%), No Response (70%)
- Research office: Often (20%), Sometimes (50%), Never (10%), No Response (20%)
- Libraries: Often (0%), Sometimes (0%), Never (0%), No Response (100%)
- Information technology: Often (0%), Sometimes (10%), Never (30%), No Response (60%)
- Somewhere else: Often (0%), Sometimes (10%), Never (30%), No Response (60%)

Where faculty say their graduate students learn:

- Faculty/advisor: Often (30%), Sometimes (50%), Never (10%), No Response (10%)
- Peers/fellow students: Often (20%), Sometimes (30%), Never (30%), No Response (20%)
- Self-instruction: Often (20%), Sometimes (30%), Never (30%), No Response (20%)
- Courses: Often (20%), Sometimes (30%), Never (30%), No Response (20%)
- Libraries: Often (20%), Sometimes (30%), Never (30%), No Response (20%)
- Information technology: Often (20%), Sometimes (30%), Never (30%), No Response (20%)
- Research office: Often (20%), Sometimes (30%), Never (30%), No Response (20%)
- Somewhere else: Often (20%), Sometimes (30%), Never (30%), No Response (20%)
NOTABLE IMPLICATIONS

- Knowledge levels
- Training interests
- Teaching approaches
DISCUSSION

What are your ideas for teaching approaches for research data management?

➢ Formats
➢ Content
➢ Collaboration
➢ Limitations
OUR RECOMMENDATIONS

- Librarian support and areas of focus
  - Data sharing concepts; complementary to expertise of disciplinary faculty
  - Emphasize data planning, organization, metadata, curation, and preservation
MORE RECOMMENDATIONS

- Collaborate with faculty on data sharing instruction
  - Tutorials with exercises as point of need learning
  - Develop a peer to peer model for graduate student RDM instruction
  - Topical workshops
QUESTIONS?

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