Data curators: A glimpse at their roles at the academic libraries in the United States

At the IFLA Satellite Conference, University of Warsaw Library

Warsaw, Poland
16-17 August 2017

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Presentation outlines -

- U.S. research universities, libraries, and their strategic plans
- Situation audited on data curation positions
- Trends on library positions at research universities
- Q & A
Total U.S. institutions of higher learning: 7,236

- Public institutions: 1,980
- Private nonprofit: 1,834
- Private for-profit: 3,422

Level of institutions

- 4-year institutions: 3,050
- 2-year institutions: 2,209
- Less than 2-year: 1,977
Carnegie Classification of Institutions of Higher Education

Doctoral universities: R1, R2, R3

- Science and engineering S&E R&D expenditures
- Non-S&E R&D expenditures
- S&E research staff: postdoctoral appointees and non-faculty research staff with doctorates
- Doctoral conferrals by broad disciplinary area: humanities, social sciences, STEM fields, and other fields
<table>
<thead>
<tr>
<th>Category</th>
<th>R1 institution</th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctoral Universities - highest research activity (R1)</td>
<td></td>
<td>S&amp;E R&amp;D Expenditures (1000s)</td>
<td>Non-S&amp;E R&amp;D Expenditures (1000s)</td>
<td>S&amp;E Research Staff*</td>
<td>Doctorates: Humanities</td>
<td>Doctorates: Social Sciences</td>
<td>Doctorates: STEM</td>
<td>Doctorates: Other Fields</td>
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<tr>
<td>(Standardized Distance&gt;=0.28)</td>
<td></td>
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<td>Doctoral Universities - higher research activity (R2)</td>
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<td>6</td>
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<td>Doctoral Universities - moderate research activity (R3)</td>
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<td>2.1</td>
<td>1.7</td>
<td>7.0</td>
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Top American Research Universities

Measurements -
- Total research exp.
- Federal research exp.
- Endowment assets
- Annual giving
- National Academy membership
- Faculty awards
- Doctorates awards
- Postdocs appointees
- SAT scores
- National Merit Scholars and achievement scholars
Measuring research universities -

The Top American Research Universities

Top 200 Institutions–Federal Research Expenditures
Showing Impact of Combined University Campus with Related Medical Center

<table>
<thead>
<tr>
<th>Control</th>
<th>Original Institutions and Combined Institutions Highlighted</th>
<th>2013 MUP Original Order Federal Research Expenditures x $1,000</th>
<th>2013 Ctrl Rank</th>
<th>2013 Natl Rank</th>
<th>Reordered with Combined Institutions Federal Research Expenditures x $1,000</th>
<th>2013 Ctrl Rank</th>
<th>2013 Natl Rank</th>
<th>Change in Rank of 'Main' Campus with Combined Data</th>
<th>Change in Rank of 'Medical' Campus with Combined Data</th>
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<td>Private</td>
<td>Johns Hopkins University</td>
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<tr>
<td>Public</td>
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<tr>
<td>Private</td>
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<td>3</td>
<td>623,939</td>
<td>6</td>
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<tr>
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<tr>
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<tr>
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<td>566,117</td>
<td>12</td>
<td>6</td>
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</table>
ARL Strategic Thinking & Design 2013–2015

The October 2012 ARL Fall Forum opened with a rousing ovation for this talk by John Seely Brown: “Changing How We Think about and Lead Change” (PDF). What did he say that provoked the leaders of the research library community who filled the ballroom at the Mayflower Hotel to react so enthusiastically?

John Seely Brown warned us about the competency trap—because we are experts in what we know, when we confront problems, we do more of what we know how to do, rather than look to the larger context for completely new solutions. This is well illustrated by the history of clipper ships in the 1880s—clipper ships were threatened by steamships so clipper ship builders kept adding more sails and lengthening the keel to make the ships faster. They continued to be attacked by steamships. Finally the largest sailing vessel ever built, the seven-masted Thomas W. Lawson, reached the pinnacle of this trend of building bigger and bigger clipper ships, only to crash in a storm in 1907. The moral of this story: “incremental change lands you on the rocks.”

John challenged us to design creative experiences beyond the cognitive.
In 2033, the research library will have shifted from its role as a knowledge service provider within the university to become a collaborative partner within a rich and diverse learning and research ecosystem.
Data mining – commonality in strategic focus

(a.) University Strategic Plans

Key words of STPs at 92 research universities

(b.) Library Strategic Plans

Key words of STPs from 95 research university libraries
Mission
The Mansfield Library, the premier research library in Montana, facilitates the intellectual and creative pursuits of all members of the University of Montana community and supports their information, education and cultural development as global citizens.

Vision
As the heart of the university’s intellectual pursuits, the library will be a leader in services, instruction, collections and programming; a place where lives are enriched and transformed; and a catalyst for the creation of knowledge.

Values
The Mansfield Library embraces UM 2020 values -- Leadership, Engagement, Diversity, and Sustainability. In addition to the university values, Mansfield Library also values:

Innovation - We will provide continuous improvement by committing to learning, experimentation and change, by encouraging risk-taking and creativity, and by providing the resources to be innovative.

Service - We will provide high quality service to students, faculty, staff, and the community by being responsive to their needs and by building our ability and assets to meet them.

Stewardship - We will preserve knowledge and protect the unique and rare cultural heritage contained in our collections by ensuring long-term access to them, and we will manage our resources responsibly.
University of Montana Library Strategic Plan -

- **Vision** – A catalyst for the creation of knowledge

- **Goal** - Enable knowledge creation

- **Implementation** –
  - Showcase faculty and student research publications via ScholarWorks
  - Publish campus journals and monographs
  - Provide data management services
  - Support the campus research conferences
  - Digitize primary research collections
Situation audited -

- In order to have a better understanding on the job duties and responsibilities of the data curation positions in the U.S. academic and research libraries, the author reviewed 28 positions advertised through Association of Research Libraries in U.S. from July 1, 2016 to June 30, 2017.
• Business and Data Analytics Librarian
• Data Analyst
• Data Curation Librarian
• Data Librarian (two positions)
• Data Management & Research Librarian
• Data Management & Research Support Librarian
• Data Research Impact Librarian
• Data Research Services and Biomedical Librarian
• Data Services Librarian (seven positions)
• Data Visualization Designer and Consultant
• Data Workflows Specialist
• GIS and Geospatial Data Coordinator (two positions)
• Library data Analyst
• Research Data & Collections Librarian
• Research Data Management Librarian (three positions)
• Research Data Support Specialist
• Spatial and Numeric Data Librarian
• Social Sciences Data Librarian
Major job duties and responsibilities -

- **Leadership:** Leads and supports a range of services related to accessing, using, analyzing, and managing quantitative data.

- **Partnership:** Partners with users and producers of quantitative data and helps to identify, develop, implement, and assess services to meet the data needs of the campus community.

- **Outreach:** Provides outreach, research consultation, and instruction/training programs on the topics related to finding and accessing particular types of data, using statistical software and tools, and preparing data for analysis.

- **Collaboration:** Fosters relationships with academic units to maximize support across campus.
Major job duties and responsibilities -

- **Policy development**: Contributes to the development of policies, procedures, and best practices for data acquisition, access, management, and curation.

- **Coordination**: Coordinates full life-cycle support of research data curation for researchers across all disciplines on campus.

- **Tool management**: Is able to identify appropriate software, storage device, and computation tools for research activities, and deliver data acquisition, processing, analysis, visualization, documentation, sharing, and preservation support services.

- **Advocacy**: advocates and implements new services and emerging practices in use of research data.
The required academic credentials -

- The professional positions at U.S. research libraries require a master degree from library and information science (MLIS) programs accredited by the American Library Association (ALA). For the positions listed in this paper, the majority of them require the ALA accredited master degree in library and information sciences, especially for the positions that include a word “librarian” on the position title.
The required academic credentials -

- Bachelor degrees (undergraduate degrees).
- Bachelor's degree in GIS, computer science, geography, geology, social sciences or related field; or an equivalent combination of education and relevant experience.
- Graduate degree in GIS, computer science, geography, geology, social sciences or related field.
- Master’s or other advanced degree in a computing field or field related to Art and Design.
- Bachelor's degree or Master’s degree in information science, computer science, information technology, information systems or related field.
The Requirements of knowledge and skills

- **Knowledge**: In-depth understanding of scholarly communications, publishing, information industry, intellectual property issues, and emerging trends and practices with linked data and semantic web applications.
- **Communication**: Excellent interpersonal, presentation, analytical, and communication skills.
- **Values**: Commitment to the value of open and sustainable access to research and scholarship.
- **Work styles**: Demonstrated initiative, flexibility, and creativity to carry out project-based work, both independently and collaboratively.
- **Technical skills**: Strong quantitative, analytical, and critical thinking/problem-solving skills, familiarity with current metadata standards and formats for describing research data, using specific statistical software.
### ARL New Hires for Selected Traditional and Non-Traditional Job

<table>
<thead>
<tr>
<th>positions</th>
<th>1986</th>
<th>2015</th>
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<tbody>
<tr>
<td>Reference</td>
<td>25%</td>
<td>13%</td>
</tr>
<tr>
<td>Cataloging</td>
<td>18%</td>
<td>6%</td>
</tr>
<tr>
<td>Functional Specialists</td>
<td>9%</td>
<td>0%</td>
</tr>
<tr>
<td>Administration</td>
<td>3%</td>
<td>18%</td>
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<tr>
<td>Computing</td>
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<td>8%</td>
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<tr>
<td>Total Non-traditional positions</td>
<td>12%</td>
<td>26%</td>
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Recruitments for data curation position -

- Experienced librarians with repurposes
- New graduates with MLS degree
- Contractual professionals
- Re-purpose the existing positions
- Ph.D. from various disciplines
- Joint appointments with academic units
The future of MLIS degree?

1986 –
7 % of the new hires without MLIS degree

2015 -
24 percent of the new hires without MLIS degree

Next step -

- Follow-up with the individuals who hold the positions on their experiences.
- Follow-up with HR staff at these research libraries on recruitments of these positions.
- Review course offerings related to data curation from MLIS program
Question & Answer
References

- The data are from internet.

- Slide 26, a photo by Lawrence Dodge in Montana.