Building Library Capabilities for Research Data Management Services

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NTU Library
Office of Information, Knowledge & Library Services

In collaboration with:

COAR
Confederation of Open Access Repositories

COAR-Asia OA

18 Dec 2020
AGENDA

• What is research data management (RDM)?
• Motivations for academic libraries moving into RDM services
• Roles of academic libraries in RDM
• Competencies for librarians moving into RDM
• Q&A
• First steps (breakout room discussions)
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  • First steps (*breakout room discussions*)
WHAT IS RESEARCH DATA?
Research Data

• Can exist in any **FORMAT** in which it is created
  ➢ Examples: text, numeric, audio-visual, models, computer code, discipline-specific, instrument-specific.

• Includes:
  ➢ **PRIMARY** data (data that are collected for the specific research problem, using procedures that fit the research problem best.
  ➢ **SECONDARY** data (data that has been collected by others, for another purpose, but has some relevance to your research needs)
WHAT IS RESEARCH DATA MANAGEMENT?
Research Data Management

• Focuses on what is needed for validation and re-use

Who do you think would be interested to validate or re-use research data and why would they be?
Are Cry Studies Replicable? An Analysis of Participants, Procedures, and Methods Adopted and Reported in Studies of Infant Cries

by Giulio Gabrieli 1, Giulia Scapin 2, and Michael H. Bornstein 3

1 Psychology Program, Nanyang Technological University, Singapore
2 Department of Psychology and Cognitive Science, University of Bologna, Italy
3 National Institute of Child Health and Human Development, Bethesda, MD

AUTHOR TO WHOM CORRESPONDENCE SHOULD BE ADDRESSED.


5. Conclusions

This study investigates how cry research is conducted. Recent developments in the field highlight the need to consider acoustic effects when assessing the sound of infant cries. A key non-linear handset response of the microphone was identified. Researchers should account for this non-linear handset response when analyzing infant cries. Past studies have not always considered this microphone characteristic, which may explain why some studies have not been replicable.

In this review, 180 research articles were reviewed to better understand the methods adopted and the limitations of current practice. Several research groups have contributed to the field of infant cries. However, the use of different methods to identify crying signals makes it challenging to compare and make assumptions about replicability.

Supplementary Material

Externally hosted supplementary file 1
Doi: 10.21979/N9/UDQBEK
Description: Supplementary files are available at https://researchdata.ntu.edu.sg/dataset.xhtml?persistentId=doi:10.21979/N9/UDQBEK

Why is responsible research data management important?

Unmute and share your thoughts on this question.

Alternatively, type your answer in the Chat.
Why is responsible research data management important?

REDUCES RISKS OF:
1. Data loss
2. Data leak
3. Copyright infringement
4. Breach of contract

IMPROVES:
1. Validation
2. Reuse
3. Visibility
4. Collaboration
5. Research integrity
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Why are academic libraries moving into RDM services?

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What strengths of academic libraries would be useful for RDM services?

1. Information organisation: Metadata, discovery & access
2. Repository management
3. Preservation
4. Engagement and user education
5. Scholarly communication
Why are University Libraries Providing RDM Services?

- Libraries & universities are long-lived institutions that do not traditionally rely on short term funding cycles, unlike many disciplinary repositories. Many may not have a suitable discipline repository to share their data.

- Libraries have demonstrated a sustainable model for collection of, preservation of, and access to information.

- Libraries are filled with people who are trained in and participate in already developed and well-characterized practices and principles of information management, from description to organization to access to rights management, and on, and on.

- Libraries are often already established partners in research, having provided guidance & resources at other stages of the research lifecycle.

- Libraries provide instruction in and distribute information about other areas of information management. By adding data to this instructional portfolio, libraries can train the next generation of researchers in data standards & standard practices.

University Libraries Providing RDM Services

- **Nanyang Technological University**
  RDM Services in Library: [https://libguides.ntu.edu.sg/rdm](https://libguides.ntu.edu.sg/rdm)

- **Stanford University**
  Data Management Services in Library: [https://library.stanford.edu/research/data-management-services/contact-us](https://library.stanford.edu/research/data-management-services/contact-us)

- **Harvard University**
  RDM Services in Library: [https://hlrdm.library.harvard.edu/about](https://hlrdm.library.harvard.edu/about)

- **MIT**
  RDM Team in Library: [https://libraries.mit.edu/data-management/about-us/](https://libraries.mit.edu/data-management/about-us/)

- **Purdue University**
  RDM & Curation Services in Library: [https://www.library.purdue.edu/researchdata](https://www.library.purdue.edu/researchdata)

- **University of Oxford**
  RDM Team in Library: [https://www.bodleian.ox.ac.uk/data/support-and-training/research-data-management](https://www.bodleian.ox.ac.uk/data/support-and-training/research-data-management)

- **University of Cambridge**
  RDM Team overseen by Library and Research Office: [https://www.data.cam.ac.uk/research-data-management-team](https://www.data.cam.ac.uk/research-data-management-team)

- **TU Delft**

- **University of Queensland**

Library Roles in RDM:
[https://acrl.libguides.com/scholcomm/toolkit/datamanagement](https://acrl.libguides.com/scholcomm/toolkit/datamanagement)

[https://nnlm.gov/data/library-roles](https://nnlm.gov/data/library-roles)
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What roles can academic libraries play in RDM?

DATA MANAGEMENT PLANNING*

- Template design
- User education
  - user guides
  - workshops
  - consultation

*A Data Management Plan (DMP) is a formal document that the Principal Investigator develops at the start of the research project which describes the kind of data that will be collected or used, how it will be managed in terms of storage, organisation, access, back-up, security and preservation during and after the project.

NTU Research Data Policy: Library’s role

5.2.4 LIBRARY

5.2.4.1 Provide training and advice on research data management including metadata description, DMP preparation, copyright and licenses.

5.2.4.2 Develop, revise and maintain the NTU DMP template.

5.2.4.3 Develop and manage the NTU Data Repository for submission of final research data.

NTU DMP Template & User Guide

1. Types and Size of Data
2. Collection Methods and Organization of Data
3. File Formats & Software/Tools
4. Management of Proprietary Secondary Data
5. Management of Sensitive Data
6. Access & Usage Restrictions
7. Data Documentation and Metadata
8. Data Storage During Project
9. Data Storage After Project

NTU DMP template: [https://libguides.ntu.edu.sg/rdm/dmptemplate](https://libguides.ntu.edu.sg/rdm/dmptemplate)
What roles can academic libraries play in RDM?

Data Repository
- Set up repository
- Work with data depositors to co-curate research data
- User education
  - user guides
  - workshops
  - consultation

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What competencies are needed for librarians moving into RDM?


Unmute and share your thoughts on this question.

Alternatively, type your answers in the Chat.
What competencies are needed for librarians moving into RDM?

• Knowledge of the 3 lifecycles:
  – Research
  – Publication
  – Research data
Survey on Skills for Data Librarians

DATA MANAGEMENT SKILLS:
1. Development of data services (81%)
2. Support for general data management (78%)
3. Data management planning (72%)
4. Data preservation, curation, or stewardship (64%)
5. Support for institutional repository (58%)

TEACHING SKILLS:
1. One-to-one consultation or instruction (87%)
2. Development of online tutorials, course materials, or instructional guides (67%)
3. Staff/librarian training (67%)
4. Development of course content or curricula (64%)
5. Course-integrated instruction (62%)

LIBRARY SKILLS:
1. Scholarly communication support (copyright, support for scholarly publishing) (57%)

NETWORKING & OUTREACH SKILLS:
1. Developing relationships with researchers, faculty, etc. (94%)
2. Data-specific liaison services (70%)

PERSONAL ATTRIBUTES:
1. Oral communication and presentation skills (91%)
2. Teamwork & interpersonal skills (89%)
3. Written communication skills (89%)
4. Innovation & creativity (85%)
5. Customer service skills (85%)
6. Teaching skills (80%)
7. Management & leadership skills (71%)

Core Competencies

Librarians will require some level of subject knowledge to support RDM, including at least a basic understanding of the disciplinary landscape, norms, and standards.

Other core competencies (summary):

<table>
<thead>
<tr>
<th>Providing access to data</th>
<th>Advocacy and support for managing data</th>
<th>Managing data collection</th>
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<tbody>
<tr>
<td>Knowledge of:</td>
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<td>Knowledge of:</td>
</tr>
<tr>
<td>• Existing data centres,</td>
<td>• Funders’ policies and requirements</td>
<td>• Metadata standards and</td>
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<tr>
<td>repositories and</td>
<td>• Best practices for data structures,</td>
<td>schemas, data formats,</td>
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<tr>
<td>collections and data</td>
<td>types, formats, vocabularies,</td>
<td>domain ontologies,</td>
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<tr>
<td>discovery mechanisms</td>
<td>metadata</td>
<td>identifiers, data</td>
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<tr>
<td>• Data manipulation and</td>
<td>• Data management plans and DMP tools</td>
<td>citation and licensing.</td>
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<tr>
<td>analysis techniques and</td>
<td>• Data publication requirements of</td>
<td>• Discovery tools</td>
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<tr>
<td>tools</td>
<td>journals</td>
<td>• Database design types</td>
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<td></td>
<td>• Data sharing options, open access,</td>
<td>and structures</td>
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<td></td>
<td>IPR, licenses</td>
<td>• Data linking and data</td>
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<td></td>
<td>• Data citation and referencing</td>
<td>integration techniques</td>
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<td>practices</td>
<td>• Data repository and</td>
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<td>storage platforms</td>
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What three things have you learned about RDM that was absolutely mandatory?

- Data/file documentation: 26.93%
- Metadata: 20.63%
- DMPs: 20.63%
- Networking/collaboration with other partners: 15.87%
- Funder requirement and regulations: 15.87%

What further RDM training was needed?

- Advanced DM Skills: 22.73%
- DM tools & infrastructure: 21.21%
- Hands-on Work: 12.12%
- Policy/agreement: 10.61%
- RD best practice: 9.09%

<table>
<thead>
<tr>
<th>Courses &amp; Learning Resources</th>
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<tbody>
<tr>
<td>Delivering research data management services</td>
</tr>
<tr>
<td>Free (without certification)</td>
</tr>
<tr>
<td>USD 69 (with certification)</td>
</tr>
<tr>
<td><a href="https://www.futurelearn.com/courses/delivering-research-data-management-services">https://www.futurelearn.com/courses/delivering-research-data-management-services</a></td>
</tr>
<tr>
<td>MANTRA research data management training</td>
</tr>
<tr>
<td>Free</td>
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<tr>
<td><a href="https://mantra.edina.ac.uk/">https://mantra.edina.ac.uk/</a></td>
</tr>
<tr>
<td>Research data management librarian academy</td>
</tr>
<tr>
<td>Free</td>
</tr>
<tr>
<td><a href="https://www.canvas.net/browse/simmonsu/courses/research-data-management">https://www.canvas.net/browse/simmonsu/courses/research-data-management</a></td>
</tr>
<tr>
<td>Research data management and sharing</td>
</tr>
<tr>
<td>Free (without certification)</td>
</tr>
<tr>
<td>USD 49 (with certification)</td>
</tr>
<tr>
<td><a href="https://www.coursera.org/learn/data-management">https://www.coursera.org/learn/data-management</a></td>
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<tr>
<td>RDM ROSE learning materials</td>
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<tr>
<td>Free</td>
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<td><a href="http://rdmrose.group.shef.ac.uk/">http://rdmrose.group.shef.ac.uk/</a></td>
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1. Discuss in breakout rooms:
Have you started with RDM service in your institution?
If yes, which areas have you started with?
If no, which area do you think is the most important to start with?

2. Return to main group and share.

- Policy development
- RDM implementation roadmap
- Staff investment
- Technology investment
- User education & services
- Data management planning support
- Repository support

Feedback

We’d love to hear your feedback
Upcoming

Services and Challenges in Managing the Institutional Research Data Repository

Date:
22 June 2021 (Tuesday)
11:00am – 12:30pm Singapore Time

Register:
Email: library@ntu.edu.sg
RDM Libguide: https://libguides.ntu.edu.sg/rdm

THANK YOU