

Research Misconduct

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What's research misconduct?

- Research misconduct is the leading cause of retracted publications (Campos-Varela, & Ruano-Raviña, 2019).
- Other research found that research misconduct is being significantly underreported, but unlike the broader distrust issues of science, research misconduct is addressed within the research enterprise (Wright et al., 2008).
- A myriad of Federal Research Misconduct Policies exist to ensure mechanisms are created for investigations of most federally funded research (<https://ori.hhs.gov/federal-policies>).
- These current policies derive from 1989 regulations that every research institution receiving U.S. Public Health Service funding must assure to ORI that their institution has policies and procedures to investigate allegations of Misconduct in Research and this has expanded as a requirement for funding from many federal agencies (PHS: 42 CFR 50, 1989; HHS: 42 CFR 50 & 93, 2005).

Misconduct defined

- In 2000, the U.S. Office of Science and Technology Policy adopted a definition of research misconduct to include these three behaviours:
 1. Fabrication of results or data;
 2. Falsification of data through changing or omitting data or results such that the research is not accurately represented in the research record; or
 3. Plagiarism (FFP), (Mayer & Steneck, 2011).
- These behaviours clearly diverge from any concept of research integrity, but norms for responsible conduct vary from field to field and defining good citizenship for even these seemingly clear areas of research misconduct can be difficult (Steneck, 2007).
- To find some commonality across domains, cultures, and countries at the Second World Conference on Research Integrity, the Singapore Statement was created to provide ethical guidance which research organizations, governments, and scientists can use to develop policies, regulations, and codes of conduct to scope research integrity and could be summed up in one word—honesty.

Research Integrity Officer

- Research Integrity Officers (RIOs) handle research misconduct allegations and promote ethical practices at research institutions (i.e., RCR).
- This role evolved as a result of the federal requirements to provide a system to investigate misconduct allegations (Wright & Schneider, 2010).
- A RIO typically responds and performs an assessment on research misconduct that is classified as plagiarism, fabrication, and falsification.
- Data are central to at least two of the possible misconduct behaviours (i.e., data fabrication and data falsification).
- In addition, with more publishers requiring data deposit with manuscripts, even plagiarism may involve some exploration of data.
- Retraction Watch (2019) reported that 32.5% of the 1,082 retracted publications in one year were the result of data problems (<https://retractionwatch.com/>).

Research Integrity Officer

- As a Deputy Research Integrity Officer (Oct 2017—Apr 2018)
 - Completed 6 intake reports responding to research misconduct allegations (i.e., running those investigations).
 - Used ReferenceUSA to find missing persons
- Worked with Joe Stainback on Authorship in Scholarly Documents policy.
- Chaired an Inquiry Committee.
 - There's a librarian on every committee.

RIO roles and RDM perspectives

- A purposive sample of Research Integrity Officers (RIOs) were recruited by contacting the RIOs from the top ten National Universities (all private schools) and the top ten Public Schools as listed in the 2020 U.S. News and World Report Rankings (<https://www.usnews.com/best-colleges/rankings/national-universities>).
- Of the total 20 RIOs contacted, only three RIOs from top universities (private) and nine RIOs from top ten public schools were interviewed via Zoom and in person (February through March 2020).
- The National Universities Rankings include those institutions that emphasize faculty research and since they have larger research expenditures, they are more likely to also have more researchers with the required DMPs and RIOs.
- In fact, ten of the twelve institutions had greater than 640 million total R&D expenditures in the most recent data aggregated (National Center for Science and Engineering Statistics, 2017).

Interview questions

Overview

1. Which of the following list relate to your responsibilities?
 - Authorship, Publication, and Inventorship
 - Integrity and Information
 - Conflicts of Interest
 - Regulatory Basics for Human and Animal Subjects
 - Human Subjects Research and Data
 - Use of Human Biological Materials
 - Societal Responsibility
 - Other:
2. Have you ever used a data management plan in your research misconduct assessment, inquiry, and/or investigative processes?
3. How many people work in your research integrity office?
4. What is your scope of coverage (i.e., certain parts of the university)?

Data Management Plans

5. Do you have any oversight of data management plans?
6. Who is responsible for data management plan compliance?
7. How are data management plans evaluated for compliance?
8. If you were creating an office of integrity, what would be the ideal oversight structure and process for data management plans?

Storage

9. Does your institution have any ownership or disposition of data policies?
10. Does your institution support any institutional repositories for data?
11. Who is primarily responsible for the long-term management of the data for sponsored projects?

Interview questions

Costs

12. How are data management efforts for sponsored projects at your institution funded?
13. What budget allocated exists for long-term data management beyond the life of projects and grants?
14. What budget allocated exists for long-term data management of the data from assessments, inquiries, and/or investigative processes?

Training

15. Does your office provide RCR training?
16. Does your office provide data management training?
17. Have you received any Research Data Management training?
 - If yes, what types of data research management training did you receive?

Background

18. What is your current job title?
19. How many years in total have you been working in your current job?
20. How many years in total have you been working with research data (including relevant higher education)?
21. Please indicate your credentials and degrees.
22. Please provide any other educational or training you have received that is applicable to performing your job.
23. Do you have any other feedback about this project?

RIO Responsibilities and Institutional Overview

Responsibilities	Yes	No
Authorship, Publication, and Inventorship	8	4
Integrity and Information	12	0
Conflicts of Interest	5	7
Regulatory Basics for Human and Animal Subjects	8	4
Human Subject Research and Data	8	4
Use of Human Biological Materials	4	8
Societal Responsibility	6	6

Data Management Plans

- When asked if they had ever used a DMP in any research misconduct assessment, inquiry, and/or investigative processes, ten RIOs said no. In practice, none used a DMP with one saying they reviewed data and another saying that they would if necessary.
- Three RIOs responded to this question concerning their own digital curation practices.
- For example, organization is key to ensuring clean processes and “assuring chain of custody, version control, review status, metadata, flagging of individual documents” (P7) is an expectation for this work.

Responsible for DMP compliance	#
Principle Investigator	8
Chief Compliance Officer	1
IRB	1
Sponsored Programs	1
Nobody	1

DMP evaluation

- Eight RIOs did not know how DMPs were evaluated. One responded, “we are counting on the PI to certify them” (P5), but one each of the remaining participants ascribed this duty to the compliance officer, funder, or the library.
- Many of the ideal structures for DMP oversight responses presented by RIOs showed a balance of working with faculty time constraints and the fiscal realities of each institution.
- Seven participants suggested additional DMP support including best practices, workshops, and tools, just as NSF suggests and scientific organizations and academic libraries have been offering for years.
- Conversely, two participants thought each department should handle DMP compliance because of disciplinary differences that align with current decentralized oversight structure for all research.
- Finally, one RIO suggested the academic library because they already serve a liaison-type role across units.

Costs

- Although two participants said they did not know, ten RIOs assumed that sponsored projects or some other university-level entity supported data management for projects and grants.
- Seven RIOs did not know who funded long-term RDM efforts.
- Two stated that no one funds that, but one participant thought individual PIs would cover those costs and another presumed each department could finance data curation efforts.

Training

RCR Training	#
RIO-driven	3
Research Office-driven, but not RIO	3
Campus-wide RCR group	3
RCR course for all graduate students	1
General online RCR modules only	1
All RCR education done at department level	1

Discussion

- It would be ridiculous to have .5 FTE to manage and respond to allegations of other types of misconduct that occur on campuses, and with such large research expenditures these institutions should invest in the prevention and oversight necessary to protect the integrity of these substantial investments.
- In an era of big data, and nearly a decade since DMPs were required by NSF, the absence of DMPs in any research misconduct assessment, inquiry, and/or investigative processes is telling. This is likely due to researchers not updating DMPs once funded.
- RIOs should know to ask for DMPs as they could be used as a roadmap for the data generated and indicate points of contact and steps in processes where misconduct or falsification could occur.
- A DMP describes the roles and activities for managing data during and after research that would help any inquiry or investigation
- With additional study of data curation behaviours across disciplines, RIOs could know what information organization practices to expect in different fields and when to spot risky data curation approaches.

Discussion (continued)

- With the majority indicating the Principle Investigator (PI) would be responsible with presumed university support. One participant summed up the need to dodge this potential area of non-compliance and misconduct succinctly: “you know what it is, it’s an unfunded mandate, and nobody has time” (P5).
- This forthright statement should resonate with anyone that has had to write or implement a DMP, but ignoring the data piece of the research lifecycle prevents reuse and reduces reproducibility.
- For now, DMP compliance and evaluation is up to PIs without any oversight from the funding agencies or locally at institutions.
- Academic libraries are poised to assist, with many hiring multiple data librarians since DMP requirements became many funders’ expectations.

Discussion (continued)

- Participant 8 said “there are policies and procedures related to which data go where and get backed up in, in those repositories” and these types of responses might indicate more training is needed of the data lifecycle of present data-intensive sciences on basic data curation terminology.
- One RIO suggested that funders provide a repository finder as many data repositories already exist by discipline and the American Geophysical Union’s (AGU) Repository Finder has a searchable database of 222 repositories (<https://repositoryfinder.datacite.org/>).
- Academic libraries and the data librarians that work in them are positioned to take on these roles but might not be connected to the research enterprise.
- One way to address any unfunded mandate is to have centralized bodies, like academic libraries and IT offices, within a university absorb the new costs.
- Academic data librarians may serve as a resource to help all the “faculty out there who really could use some help setting up data management plans for their research” (P6) as well as the RIOs who may need to speak with them.

One thought for all liaisons

- Although many students think that an understanding of the RCR applies *primarily to behavioral and biomedical sciences*, the course had elements across all disciplines of research and creativity (Science, Technology, Engineering, Mathematics, Arts, Humanities, Social Sciences and Behavioral Sciences).
<https://gradschool.fsu.edu/academics-research/research-and-scholarly-integrity/fsus-rcr-course>
- Librarians are responsible as educators to best prepare our graduates for success and increase RCR education across campus in addition to policies and documentation.

Agents of Integrity

- Quantitative performance metrics (e.g., publications, patents, research dollars, doc students) give researcher “perverse incentives” to compromise integrity.
- Plagiarism detection software (iThenticate) and image manipulation detection exists.
- What can librarians do?



Image by Tumisu from Pixabay

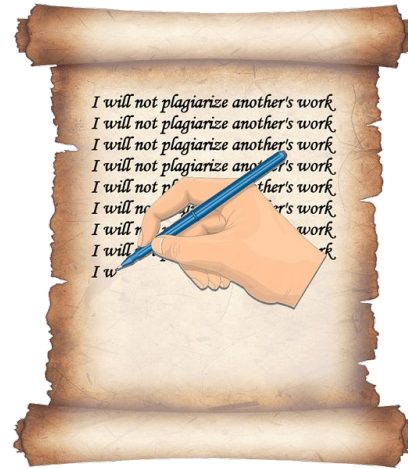


Image by Evangelos Evangelou from Pixabay

Resources

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