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EXECUTIVE SUMMARY

Introduction
Stories of research misconduct in every discipline are posted almost daily on websites such as RetractionWatch, casting a pall over the academic community. Journal publishers are not only redacting papers for reasons of fraud and misconduct, but some are tracking updates as misbehaviors are uncovered. To help reduce these incidents, federal granting agencies are requiring academic institutions to develop some type of formal training to promote ethical and responsible conduct of research (RCR). As universities attempt to identify the training needed to fulfill such requirements, librarians have an opportunity to enhance their roles and maintain their relevance to the university by developing innovative instructional design techniques to enhance both the education and training aspects of RCR issues in the gap areas uncovered at each institution.

The purpose of this survey was to assess research libraries’ participation in institutional efforts to train faculty, staff, students, and other researchers in the principles of responsible conduct of research and ethical research practices. It includes questions on the institution’s training activities, on training roles currently undertaken by librarians, and on librarians’ willingness to expand instruction into the arena of responsible conduct of research. The survey was distributed to the 125 ARL member libraries in May 2013. These results are based on data submitted by 48 university libraries at 47 of the 125 ARL member libraries (38%) by the deadline of June 9, 2013.

Granting Agency Impact
Federal granting agencies in the United States, such as the National Science Foundation (NSF), are required to implement the Federal Research Misconduct Policy, which mandates that all participants receive appropriate training as defined by the institution. In Canada, the Tri-Council framework comprising the three primary granting agencies, Social Sciences and Humanities Research Council (SSHRC), Canadian Institutes of Health Research (CIHR), and the Natural Sciences and Engineering Research Council (NSERC), goes a step further and includes fiscal responsibilities as part of the RCR components. To meet these requirements, many universities are developing programs, tutorials, and guides to inform and ensure that their faculty, staff, and students are complying with granting agencies’ requirements for responsible conduct of research. The Collaborative Institutional Training Initiative (CITI) Program is becoming a de facto standard for institutional training; in many cases used primarily for the biomedical (treatment of human subjects) component, but also an option for other disciplines. The US Office of Research Integrity maintains links to resources developed by the Office and by universities for RCR training. Complementary to ethics training is the use of case studies in applied ethics education, such as those available from EthicsCore, Online Ethics Center, and the National Post-Doc Association. These policies and resources help define the minimum training requirements, but faculty and students may request additional clarification or assistance from their information professionals on campus.

Institution-Level Activities
All of the survey respondents report that there are institution-wide initiatives to address academic honesty or RCR. Activities range from online tutorials to for-credit, face-to-face courses. Most of the institutions
(41, or 85%) offer workshops that cover a wide range of RCR topics. These typically are open to all interested attendees, though most university-level activities are aimed at graduate students and post-docs, or anyone participating on a grant-funded project, categories that overlap highly. These workshops tend to be coordinated by campus departments such as the office of research or the graduate school. The respondents identified units with names that include buzzwords such as academic honesty, research integrity, research assurance, research ethics, and compliance. Two-thirds of the responding institutions offer RCR certification.

Medical sciences have a greater emphasis on RCR training, since they are driven by Institutional Review Board (IRB) regulations for research on human subjects and the Institutional Animal Care and Use Committee (IACUC) for treatment of animal subjects. Researchers in these disciplines have had to develop and enforce training for these programs long before the recent requirements mandated by other granting agencies. A search of institutional websites indicates that twenty-nine of the US (74%) and two of the Canadian responding institutions (25%) use components of the CITI Program, many aimed primarily at those participating in human subject research. Not surprisingly, librarians who are hunting for discipline-specific case studies have noted that bioethics is one of the better-developed discipline specialties within research ethics.

Respondents were not asked about the availability, range, or type of college- or department-specific activities. The survey authors assumed those activities are too numerous and too localized to be counted successfully. Many respondents offered comments similar to, “Individual programs vary by school and department,” illustrating a library awareness of such activities and their diversity.

**Library-Level Activities**

Librarians are finding a niche in promoting the responsible conduct of research through a variety of supplemental guides and training, such as offering traditional face-to-face workshops for students, partnering with faculty to design plagiarism-proof assignments, developing seminars and symposia, and creating online guides.

Twenty-five respondents (53%) include information about RCR on the library website. Their comments imply that much of this information is limited to the traditional areas of library involvement: plagiarism, citation, and bibliography management software. Most respondents (36, or 77%) offer training sessions on some aspect of RCR. Course-based instruction sessions and face-to-face workshops are the most common training method (89% and 83% respectively), followed by online guides (78%). Half of the libraries offer online tutorials. The majority of respondents have been providing this training for more than three years.

As with website information, the most frequently covered topics in library sessions include citing and citation management software, and avoiding plagiarism. Ethics, data management, and responsible authorship comprise the second tier of topics covered. Other topics mentioned include intellectual property, specifically patents and copyright. Data management sessions are being held at some libraries, and are expected to increase as grant agency requirements are codified. These sessions will be opportunities to include the “why” and “responsible” aspects as well as “how to” manage and share data.

Most sessions are initiated by course instructors, or are general sessions devised by librarians. Librarians are collaborating most frequently with specific departments or colleges, the graduate school, undergraduate centers, and centers for research. The largest group of initiators of these sessions is instructors requesting course-specific training, followed by librarians, labs, and administration. Comments reveal that many sessions are requested during orientations, and one library reports that, “We are frequently contacted by graduate students because they are not receiving sufficient support ... on how to teach academic integrity, detect cheating and plagiarism, and document such breaches...” Two-thirds of the respondents prefer to tailor RCR training sessions to audience or discipline type; one-third find general-audience sessions adequate.

Comments in response to several questions include “it depends” and demonstrate flexibility through a typical assortment of offerings, such as orientation for one group, seminars for another, course-based
for some, and open sessions. The randomness is best expressed in the comment, “Given that RCR incorporates many areas, there isn’t really any single or simple answer for who it initiates sessions, what the topics are, or when they happen.”

The most frequent activities among libraries currently offering some level of RCR training include: incorporating plagiarism prevention in citation management workshops; developing guides; and pointing to university-level requirements, activities, and sources. No unusual marketing and publicity techniques were uncovered, but collaborative publicity, such as blasts from both the library and from the graduate school, seems to boost attendance.

**Evaluation Results**

Few libraries are conducting pre- or post-tests with RCR activities, though quizzing or pre/post tests are perceived as valuable aids to priming attendees to the learning objectives. Assessment exercises are more likely to be conducted when attendees receive certification or other formal credit.

Those who use quizzes have learned that attendees appear to be less knowledgeable than expected in the areas of when and how to cite resources, how to paraphrase properly, plagiarism, data management and data sharing, ethics of authorship, copyright and fair use, and how to search effectively & efficiently.

Further workshops/topics most frequently requested by attendees are avoiding plagiarism, data management/sharing/ownership, and responsible authorship and publication practices. Graduate students who serve as teaching assistants are requesting support in teaching academic integrity.

About one third of the respondents are planning to add workshops, either on subtopics such as data management, or tailored to specific audience groups such as international students.

**Models**

Successful models include a multi-faceted approach, in which RCR elements are offered as distinct activities, incorporated in small bits into established instruction sessions, included in or linked from guides, offered through individual appointments, and delivered through online tutorials. Subject guides can include links to relevant university policies and websites. Libraries may provide individual consultations to faculty and students as well as general workshops. Some libraries have succeeded in obtaining time during orientations and seminars, which can be altered to discipline-specific examples and which may be marketed by the academic departments as required activities for graduate students.

**Why Libraries Are Not Conducting RCR Training**

The responding libraries that are not conducting RCR training gave a number of reasons why not. Some do not consider RCR a library responsibility since training is handled at the university level. Others are not yet experiencing a demand for training, have insufficient staffing or expertise, or acknowledged that they are conducting plagiarism/citation training but hadn’t considered these topics as part of RCR. One hadn’t considered RCR as a route for librarians before receiving the survey.

**Conclusion: How Can Libraries Help**

“We see our role as filling in any gaps in the institutional RCR training, which primarily occur in the area of plagiarism and proper citations/citation management systems.”

The goal of this project was twofold: to assess and communicate the depth and variety of RCR sessions provided by ARL libraries; and to enable librarians who perceive gaps in university-based training to successfully initiate RCR training sessions or to incorporate RCR aspects into existing events.

The survey responses demonstrate that librarians have been involved in plagiarism awareness education for years, providing standalone training via workshops or tutorials and incorporating segments into course-based instruction. But librarians may not perceive plagiarism awareness as a component of the larger topic of Responsible Conduct of Research, which is largely relevant to researchers and the graduate student level or higher. Typically, librarians’ services have focused on the how-to or instructional aspects of academic and research integrity, rather than the conceptual and educational aspects. As such, librarians may not have been asked to play a larger role in the past. But the need to meet funding agency
requirements, lack of self-expertise identified by faculty, and a growing realization of the gaps in both the practical and conceptual aspects of RCR have opened the door for librarians to expand their service offerings from plagiarism awareness and citation management to also include ethics case study selection, data management and sharing, and responsible authorship practices.

As libraries strive to remain relevant to the university, the area of RCR offers opportunities to support the research community in helping meet the expectations of training that are now required by granting agencies. Although CITI and IRB/IACUC online training sessions are becoming the de facto requirement for ethics training, gaps remain in the thoroughness of training provided. Research indicates that conversations need to be held more than once, e.g., at the discipline/department/lab levels. Faculty are unequipped or don’t have time for engaging discussions with their post-docs and graduate students.

Tips for librarians to help fill in gaps in RCR training include:

- Continue training in librarians’ traditional strengths in the how-tos and practical aspects, such as citing and citation management.
- Include high concepts and critical thinking skills within training workshops.
- Coordinate training in plagiarism awareness with course instructors, writing centers, graduate schools.
- Link citing/plagiarism training activities to university-level RCR training advertisements and events.
- Provide or raise RCR awareness at undergraduate and early graduate levels in ethics education, including identification of relevant case studies for courses or departments; include both academic integrity and research integrity.
- Embed RCR aspects within course-integrated instruction.
- Offer RCR awareness geared toward international students, whose cultural differences in topics such as plagiarism imply a deeper level of training is needed.

- Brace for increased training in the data management component, because librarians have the skill sets for the tasks, the need will increase, and librarians are likely to be asked for assistance.

Librarians may be surprised to learn that many aspects of RCR training fall within their comfort level, and the Selected Documents section illustrates several guides that are being used successfully by other librarians. One strategy is to market the traditional workshops of plagiarism and citing under the broader banner of RCR and thus to open the door to expanding into other RCR facets as appropriate. Another strategy is to expand our activities from the task-oriented content of avoiding plagiarism and how to cite to the educational scope of establishing the context and importance of why we cite and its value in academic integrity and research integrity, as has been proposed elsewhere.

Training in RCR can be incorporated into several levels of campus activities. From identifying case studies to leading discussions to conducting workshops that create awareness, librarians can increase their comfort levels as they progress through activities in applied ethics education and demonstrate a relevant role within the research university.

Endnotes
1 Retraction Watch http://www.retractionwatch.com
4 CITI: Collaborative Institutional Training Initiative http://www.citiprogram.org
5 ORI: the Office of Research Integrity http://ori.dhhs.gov/
6 Ethics CORE (Collaborative Online Resource Environment) http://nationalethicscenter.org/

7 OEC: Online Ethics Center for Engineering and Research http://www.onlineethics.org/

