Responding to research misconduct: A primer for LIS professionals

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Abstract

Falsification, fabrication, plagiarism, and other forms of misconduct undermine the foundation of science – trust in the integrity of researchers and their reported results. As research team members, therefore, library and information science (LIS) professionals share responsibility for addressing research misconduct. Intended as a primer, this article defines misconduct, discusses it causes, and notes its consequences. The article then empowers LIS professionals with a set of strategies, escalating from gathering information, to engaging in conversation, to submitting formal allegations, to respond effectively when they suspect or detect misconduct.

Introduction

Moving beyond traditional reference and curatorial roles, library and information science (LIS) professionals aspire to serve as research partners. To a growing extent, they are publishing in non-LIS journals and earning recognition as co-authors in their patrons' domains (Borrego, Ardanuy, and Urbano 2018). Not only do they prepare systematic literature reviews (Foutch 2016), they also assist with grant support, research metrics, and a variety of other aspects of research (Visintini et al. 2018). Significantly, LIS professionals provide research data management (RDM) services (Fearon et al. 2013; Tenopir et al. 2014). In this article, I focus on RDM because it is most closely related to the federal definition of misconduct and because the National Academies of Sciences, Engineering, and Medicine acknowledges the importance of data management, declaring it "fundamental to research integrity" (Committee on Responsible Science 2017, 168). Data librarian Heather Coates asserts, LIS professionals can "improve the data management practices of researchers and take a more active role in preventing misconduct throughout the research process" (2014, 600).
In this article, I do not propose that LIS professionals appoint themselves research police. Rather, I urge them to acknowledge the opportunity and responsibility to act as agents of integrity. All members of a research team, regardless of their respective roles, share alike this opportunity and responsibility. By offering an introductory overview, I seek to empower LIS professionals so they may respond effectively when they suspect, detect, or face pressure to commit research misconduct. First, I present the National Science Foundation’s (NSF) definition of research misconduct, discuss its incidence and causes, and describe means of detection. Next, incorporating recommendations from both the business community and the research community, I provide strategies for addressing misconduct, escalating from gathering information, to engaging in conversation, to submitting formal allegations. In the conclusion, I suggest ways in which individuals can prepare to promote research integrity.

Literature Review

Hands-on RDM services require a high level of technical skill. Cox et al. consider "the concept of librarians participating in research project teams… a feature of a mature research data management landscape" (2017, 2195). Likewise, the Online Computer Library Center (OCLC) guide for building RDM services places technical services at the most advanced levels of program development (Erway et al. 2016, 13-20). Not surprisingly, a survey of working data librarians, published in 2018, reveals a desire for practical – not merely theoretical – coursework in research methods, statistical analysis, and other data-related skills (Thomas and Urban 2018). A few schools are introducing an "immersive laboratory-based educational experience" to the MLIS curricula with the aim of producing graduates "fully integrated as members of the research team, located in the laboratory or clinical setting, … and supplying data creation and data science expertise as part of the day-to-day workflow" (Lyon 2016, 403). Meanwhile, the University of
California, Berkeley, Libraries are developing a suite of domain-specific RDM training programs that simulate "real-world experience" for librarians and staff (Wittenberg, Sackmann, and Jaffe 2018, 324).

Despite the profession's impetus to define competencies for RDM (occasionally treated as a subcategory of Scholarly Communications) and provide much-needed training, there is surprisingly little mention of research misconduct. For example, in 2016, an international joint task force sponsored by the Association of Research Libraries (ARL) and three other associations released two competencies profiles: "Research Data Management" (Schmidt and Shearer 2016) and "Scholarly Communication and Open Access" (Calarco et al. 2016). Neither lists an awareness of research misconduct definitions or policies. The North American Serials Interest Group (NASIG) includes data management and knowledge about copyright in "Core Competencies for Scholarly Communication Librarians" but doesn't mention misconduct (NASIG 2017). The Association of College and Research Libraries (ACRL) Scholarly Communication Toolkit (https://acrl.libguides.com/scholcomm/toolkit) features copyright and sections on RDM, yet the term misconduct appears only in a checklist for evaluating a journal's quality. If further evidence is needed, none of the contributors address misconduct in the two-volume Curating Research Data, published by the ACRL (Johnston 2017a, 2017b). Nor do the authors of Building Blocks: Laying the Foundation for a Research Data Management Program, published by the OCLC (Erway et al. 2016). Finally, an understanding of misconduct does not appear among the requirements and qualifications which Chen and Zhang identified in job descriptions for data management professionals (Chen and Zhang 2017).

Despite this apparent silence in the literature, when they participate in RDM,
LIS professionals may find themselves "trapped in an untenable position between wanting to be user-friendly and service oriented and getting the job done right" (Schaller-Demers 2015, 68). When she wrote these words, Debra S. Schaller-Demers, Director of Research Outreach and Compliance at the Memorial Sloan Kettering Cancer Center, was addressing research administrators, yet LIS professionals may face similar tensions. Consequently, they will likewise benefit from her advice to recognize the potential for unethical conduct, familiarize themselves with relevant policies and regulations, and prepare strategies for taking action.

**Definitions of Research Misconduct**

In the United States, federal law defines research misconduct for funding agencies. For the National Science Foundation (NSF), Title 45 of the Code of Federal Regulations, Part 689 recognizes three categories of misconduct (direct quotation, 45 CRF 689.1):

1) *Fabrication* means making up data or results and recording or reporting them.

2) *Falsification* means manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

3) *Plagiarism* means the appropriation of another person's ideas, processes, results or words without giving appropriate credit.

After clarifying that "honest error" and "differences of opinion" do not constitute misconduct, the law lays out the procedures for handling allegations and enumerates the criteria for determining if misconduct has occurred, the penalties which may be imposed, and the respective rights and responsibilities of the NSF, the awardee institution, the informant, and the subject of the allegations (45 CFR 689.1-689.10). The U.S. Department of Health and Human Services (HHS)
employs an identical definition of misconduct and follows similar procedures for handling misconduct allegations (42 CFR 93.25-93.523).

Whereas government funding agencies provide oversight, they delegate primary responsibility for preventing, detecting, and responding to research misconduct according to federal guidelines to "awardee institutions" (i.e., the institutions which receive funding or which host funding recipients). At a minimum, institutions must apply the tri-part definition of misconduct – fabrication, falsification, plagiarism – although they may extend it to encompass other forms of deviance. In a survey of a sample of U.S. universities, David B. Resnik and his collaborators found that 59% had implemented more expansive misconduct policies covering such transgressions as theft, regulatory violations, and deceptive manipulation of data (2015). Consequently, LIS professionals should familiarize themselves with their institution's policy, which is typically traceable from the Office of Research's website, e.g., Harvard University (https://vpr.harvard.edu/pages/research-integrity); University of Michigan (https://research.umich.edu/research-u-m/office-research).

Along with institutional policies, LIS professionals will want to familiarize themselves with the ethics and best practices of the disciplines which they serve. An association usually posts its code of conduct on its website, e.g. American Chemical Society (https://www.acs.org/content/acs/en/careers/career-services/ethics.html). The Center for the Study of Ethics and the Professions at the Illinois Institute of Technology hosts The Ethics Codes Collection (http://ethicscodescollection.org/), where a search by discipline or keyword yields links to multiple national and international organizations.

Incidence, Causes, and Detection
As with other kinds of deviance, it's impossible to determine precisely the incidence of research misconduct. Evidence from documented cases, self-reporting surveys, and article retractions suggest that "while research misconduct is unusual, it is not rare" and there are indications that misconduct is on the rise (Committee on Responsible Science 2017, 77). Based on the data gathered by Retraction Watch, however, Jeffrey Brainard argues that the increasing number of retractions reflects not a higher incidence of misconduct but rather journals' greater willingness to withdraw articles. Furthermore, he points out that fabrication, falsification, or plagiarism is the stated reason for the retraction of around 50% of the papers. Other types of dishonesty or unethical conduct account for about 10%. For the remaining 40%, the retraction acknowledges an error, difficulty with reproducibility, or another issue (Brainard 2018). In their study of 748 documented cases, from 1880 through 2010, Nachman Ben-Yehuda and Amalya Oliver-Lumerman identified data-related misdemeanors as the most common type of misconduct: data falsification (57.5% of the cases), data fabrication (32.9%), and data misrepresentation (14.8%). Plagiarism (22.8%) takes a distant second place (Ben-Yehuda and Oliver-Lumerman 2017, 60). Whatever the actual incidence of misconduct, because of the astronomical costs of research, even a few cases may waste millions of dollars (Committee on Science, Engineering, and Public Policy 2009, ix). In 2017, the National Academies calculated that "a total of several hundred million dollars a year would be a reasonable, conservative estimate of the direct financial costs of research misconduct" (Committee on Responsible Science 2017, 88).

Cheating takes place in business, finance, education, and sports. These diverse contexts have common traits, and social scientists agree that situational variables – not character flaws – affect the probability that an individual will cheat. These variables include the perceived fairness
of the system, the degree of competitive pressure, the potential rewards of cheating, and the likelihood of success through legitimate means (Rhode 2018, 41-50). These variables, in their most deleterious form, prevail in today's hypercompetitive research environment where rivalry for prestigious jobs and grants combines with expectations for rapid results and myriad publications. Indeed, the National Academies acknowledges that this environment contributes to research misconduct (Committee on Responsible Science 2017, 18-22, 98-103). In addition, Marc A. Edwards and Siddhartha Roy warn that quantitative performance metrics (e.g., publications, patents, research dollars, doctoral graduates) give researchers "perverse incentives" to compromise integrity (2017).

Here it is important to note that a researcher may commit misconduct unintentionally. James M. DuBois and his colleagues designed the remedial Professionalism and Integrity in Research Program (PI Program) at Washington University School of Medicine, St. Louis, to retrain individuals charged with misconduct or violations of regulations or ethical standards (DuBois et al. 2018). DuBois's team discovered that such violations frequently result from a lack of attention to detail, uncertainty about rules and regulations, and failure to prioritize compliance. Understaffing, inadequately trained or supervised staff, and a general lack of resources as well as the principal investigator's own lack of communication, decision-making, and management skills – and particularly the attempt to manage too many projects at once – work against research integrity. After three years of operating the PI Program, the team concluded: "Our experience with the course has made us more compassionate to the participants and more cautious about our own behaviours [sic]. The message that we want to send is this: unless you are careful, it [i.e., misconduct or regulatory violations] could happen to you" (DuBois et al. 2016, 175).
The means of detecting fabrication, falsification, and plagiarism run from sophisticated algorithms to peer scrutiny. Technical methods currently under development or in regular use include plagiarism detection software (iThenticate n.d.), image manipulation detection strategies (Butler 2018; Gibney 2017; Koppers, Wormer, and Ickstadt 2017), and statistical analysis of research data (Stokstad 2018). Peer reviewers evaluate manuscripts before publication (Wendelbo 2017); self-appointed watchdogs examine published research (Marcus and Oransky 2018). However, collaborators and colleagues are often the ones who bring misconduct to light (Ben-Yehuda and Oliver-Lumerman 2017, 40; Committee on Responsible Science 2017, 108).

Responding to Misconduct

Just as the failure to report a crime may endanger the public, the failure to confront research misconduct may imperil the welfare of individuals and society (Steneck 2007, 25). Even when danger does not appear imminent or obvious, misconduct threatens the very foundation of science: trust (Committee on Science, Engineering, and Public Policy 2009, ix). As Schaller-Demers observes, "Every constituent within the research community and the community beyond that it serves – scientists, staffers, administrators, lawmakers, the media, the public-at-large (potential research subjects) must be able to trust the integrity of the data." Public trust, once damaged, does not recover easily (Schaller-Demers 2015, 67). Edwards and Roy go even further, warning that the corruption of research and the resulting disintegration of public trust endangers humanity (2017). For this reason, the National Academies demands "vigilance, professionalism, and collegiality" in the pursuit of research integrity. Not only must researchers embrace integrity in their own work, they must promote it among their colleagues and take appropriate action when it seems in jeopardy (Committee on Responsible Science 2017, 167-8). Whereas I do not propose that LIS professionals appoint themselves police research, I want to
emphasize that, along with all members of a research team, they share the responsibility to be aware of the potential for misconduct and to respond appropriately when they detect or suspect it.

Absolutely, taking such action requires what Rushworth Kidder, founder of the Institute for Global Ethics, calls "moral courage" (Kidder 2005, 72); and several researchers have discussed the difficulty of deciding to confront misconduct (Malek 2010; McIntosh et al. 2017; Satalkar and Shaw 2018). Reporting directly to authorities may be necessary if the misconduct poses an immediate threat to research subjects, the environment, or human welfare. Likewise, formal allegations may be the only effective measure if suspected persons prove recalcitrant. Yet, in many cases, one can successfully address misconduct behind the scenes.

In the following pages, I present a set of strategies drawing from a program for the promotion of ethical behavior in business and incorporating recommendations from the research community. Giving Voice to Values (GVV) is the program developed by Mary C. Gentile with the support of the Aspen Institute and the Yale School of Management (Gentile 2010). Although initially designed for the business community, GVV has spread to medicine, law, and other fields (Bedzow 2019; Gentile 2017; Plump 2018). Because of space limitations, I discuss only the parts of GVV most salient for addressing research misconduct. However, I encourage all LIS professionals to read Gentile's Giving Voice to Values: How to Speak Your Mind When You Know What's Right (2010). Rooted in the premise that individuals want to act on their values, this guide prepares them to respond to values conflicts with integrity.

The strategies presented below escalate through three phases: 1) gathering facts and asking questions; 2) engaging in conversation; 3) presenting allegations to the institution's administration. If additional information successfully alleviates concerns about misconduct,
further steps become unnecessary. Likewise, an effective conversation may preclude the need for allegations.

**Phase One: Gathering Information**

In the face of a values conflict, Gentile advises collecting all the facts – not only facts supporting a personal stance – because careful, open-minded exploration may show that one was mistaken (2010, 62-4). Before moving to confront misconduct, one should first ask if the research community considers the suspected behavior a serious breach of integrity. Although the NSF definition of misconduct delineates fabrication, falsification, and plagiarism, an institution may expand this definition to include other forms of malfeasance. At the same time, each discipline has its own standards and practices: behavior that looks suspicious may in fact be acceptable. And even when a behavior unquestionably violates ethical codes, it may be thought trivial. For example, Mark Fox and Jeffrey Beall note that journal editors may disregard plagiarism in the methods section but investigate word-for-word copying of another author's work in other sections of a research article (2014). With an understanding of institutional and disciplinary norms, one can determine if a behavior represents misconduct and if administrators and fellow researchers will believe its significance requires investigation.

If the behavior meets these two criteria, the next step is assembling evidence. In the event that formal allegations becomes necessary, one must ensure that the evidence is sound and defensible. Fox and Beall also recommend documenting every step and every conversation leading up to the allegation and throughout the process in case the suspected person starts a lawsuit (2014). The imperative to provide evidence may so prove daunting that it prevents any
further action. In a recent survey, researchers in Switzerland cited this difficulty as a deterrent to raising concerns about misconduct (Satalkar and Shaw 2018, 326-7).

**Phase Two: Engaging in Conversation**

With reasonable grounds for suspecting misconduct, the time has come to speak with the persons involved. In their study of data librarians, Camille Thomas and Richard Urban found that the ability to communicate with a researcher is a highly-desired skill (2018, 417). Whereas they note that it would improve the marketing of data expertise across campus, I propose that this skill would empower LIS professionals to address research misconduct. Here, I offer a few techniques for conducting such an uncomfortable conversation.

In the best-selling book *Difficult Conversations: How to Discuss What Matters Most*, Douglas Stone, Bruce Patton, and Sheila Heen urge readers to initiate a "learning conversation" by listening, posing open-ended questions, seeking concrete information, asking for clarification, avoiding accusations, and refraining from interrogation (2010, 163-84). Notably, in the Swiss survey mentioned above, respondents who enumerated reasons for not making formal allegations suggested "a friendly conversation and a polite query" as a better way of dealing with misconduct (Satalkar and Shaw 2018, 327).

The GVV program offers more specifics on conducting a conversation, beginning with choosing the participants, forum, timing, and message. An understanding of the individual's or the group's needs, fears, and motivations as well as the work environment generates empathy and builds rapport. A series of planned conversations may prove more effective than a hasty, full-force charge. Framing makes a difference: posing questions and allowing other views of the situation do not alienate in the way that launching accusations does (Gentile 2010, 60-70). During the conversation, one should expect to hear rationalizations. Gentile helpfully lists the
most common justifications for unethical behavior (e.g., other people do it, it doesn't hurt anybody) and proposes counterarguments. She also recommends enlarging the perspective from the short-term to the long-term, from the immediate goal to the broader purpose, from the obsession with winning to a focus on integrity (Gentile 2010, 170-210). These counter-arguments and alternative perspectives draw upon core values shared by cultures around the world, such as honesty, respect, responsibility, fairness, and compassion. Appealing to deep values and aspirations transcending material gain is more effective than pronouncing judgment (Gentile 2010, 24-46, 86-107).

Gentile's recommendations for handling values conflicts in general apply to the specific case of research misconduct. Her counterarguments and perspective-enlarging frames match scenarios in today's hyper-competitive environment. Furthermore, just as human societies embrace a set of universal values, researchers in all disciplines are socialized in the "Core Values of Research" – honesty, fairness, openness, accountability, objectivity, and stewardship (Committee on Responsible Science 2017, 29-37). The bioethicist Resnik and his colleagues recite these same values when they exhort researchers to "maintain a firm commitment to epistemological and ethical values, such as honesty, openness, transparency, and objectivity" in the processing, analysis, and interpretation of data (2017, 346).

In a recent study, Coosje Veldkamp and her collaborators found that researchers embrace the self-image of an "objective, rational, open-minded, honest, intelligent, and cooperative" person (2017, 134). Whereas Veldkamp et al. expressed concern that this self-portrait blinds researchers to their own fallibility, I suggest that it may serve as a deterrent to misconduct or a resource for confronting it. Data fabrication, data falsification, and plagiarism do not harmonize with a self-image grounded in integrity.
In a conversation about suspected misconduct, besides appealing to the research community's values and self-image, one can also point to the greater purpose of the research enterprise. The pursuit of immediate goals – grants, publications, high status positions – may divert attention from more significant ones. Science, as the National Academies asserts, aspires to produce "benefits to society in the form of better health, enhanced understanding of the natural world, and new technologies that boost economic growth and improve life in myriad ways" (Committee on Responsible Science 2017, 1). Misconduct stands at odds with this aspiration.

**Phase Three: Submitting Formal Allegations**

If an amiable conversation fails to resolve concerns about misconduct, a formal allegation may be the only recourse. It enables the administration to handle the situation appropriately, enhances the accountability of both researchers and the institution, and may deter future misconduct (Mecca et al. 2014, 160). Despite the connotations of the popular term "whistleblowing," reporting research misconduct doesn't necessarily result in public shaming or media spectacles. It certainly does not mean rushing into the chancellor's office. Institutions receiving federal funding have policies specifying to whom one should report misconduct and how the administration will handle allegations. Typically, an institution posts such policies on the research office's website, e.g., Harvard University (https://vpr.harvard.edu/pages/research-integrity).

Following the proper procedures demonstrates that the one submitting the report acts in good faith, protects the individual suspected of misconduct from premature judgment, and obligates the administration to acknowledge the allegations (Fox and Beall 2014; Gunsalus 1998). C.K. Gunsalus, who is a licensed attorney and university professor as well as Director of the National Center for Professional and Research Ethics, offered persons intending to submit
allegations the following advice in an article published in 1998, but it remains relevant today (1998, 61-3).

- Identify the individuals or organizations responsible for oversight of the researcher(s) suspected of misconduct.

- Become familiar with the procedure for submitting allegations and the process for reviewing those allegations.

- Present the allegations as factual statements and provide documentation; avoid vindictive language and speculations about motives. (Fox and Beall also underscore the importance of phrasing allegations judiciously (2014, 346)).

- Be prepared to testify before a committee.

As a final point, Gunsalus counsels patience because the "process always takes longer than will feel reasonable" and warns against "making assumptions about what is happening or what it might mean" (1998, 63). Nonetheless, she also recommends asking the individual who received the allegations for periodic updates.

Federal agencies expect research institutions to take responsibility for investigating misconduct allegations, but several factors affect an institution's ability to fulfill this role, including its misconduct policy, the qualifications of responsible personnel, and the internal politics of a particular case. Because an institution's reputation and grant funding depend upon its integrity, administrators face a conflict of interest when confronted with misconduct allegations. Examining the record for biomedical research, Lisa Loikith and Robert Bauchwitz find that of the 3561 allegations reported to the ORI between 1994 and 2011, nearly 90% were dismissed at the institutional level without a faculty inquiry or a further report to the ORI. In order to avoid such a conflict of interest, these authors recommend creating an independent audit
system, such as those used by other federal agencies, to investigate the ways in which research institutions handle misconduct allegations (Loikith & Bauchwitz 2016). In addition, the National Academies recommends that institutions "[p]erform regular inventories of institutional policies, procedures, and capabilities for investigating and addressing research misconduct and address weaknesses that are identified" (Committee on Responsible Science 2017, 117-122; quotation, 178). Better training for research integrity officers is crucial (Bonito, Titus, and Wright 2012). Institutions must establish protocols for reporting misconduct and responding to allegations (Kretser et al. 2019, 338).

At the same time, institutions must safeguard the interests of all parties. Guidance and support for persons submitting allegations, who may risk job loss, denial of promotion, or other forms of retaliation, are essential (Mecca et al. 2014, 161). Federal laws protecting whistleblowers who alert authorities to corporate fraud could serve as a model for academia, where individuals who call attention to research misconduct receive little protection (Redman 2017). Researchers against whom allegations are made also merit protection; they should be presumed innocent until wrongdoing is confirmed (Lubalin and Matheson 1999).

Penalties for researchers using NSF funds, enumerated in the same federal law which defines research misconduct, range from a written reprimand, to suspension or termination of an award, to criminal prosecution (45 CFR 689.3). For each allegation investigated, the NSF's Office of the Inspector General (OIG) posts a closeout memorandum summarizing the incident, the verdict, and the penalties (if any) imposed on the delinquent researcher (https://www.nsf.gov/oig/case-closeout.jsp). Collectively, these memoranda offer a view of common forms of misconduct and their consequences. It is noteworthy that the OIG withholds names in closeout memoranda. In contrast, the Office of Research Integrity (ORI) of the U.S.
Department of Health and Human Services, which handles allegations involving U.S. Public Health Service funding, posts the researcher's name upfront, in the case summary's title (https://ori.hhs.gov/content/case_summary).

The National Academies highlights this inconsistency because public disclosure of misconduct "represents a significant consequence – perhaps the most significant consequence – this difference in policy implementation between NSF-OIG and ORI in fact constitutes a clear disparity in the severity of corrective actions (Committee on Responsible Science 2017, 123). It is important to note that the OIG issues a closeout memorandum for each allegation investigated, regardless of the verdict, while the ORI releases a case summary only when misconduct is found and administrative penalties are imposed, and it keeps the summary on its website only until those penalties expire. Disclosure penalizes researchers by exposing them to informal sanctions levied by the research community, such as a decline in reputation and in citations to their publications (Zhe Jin and Feng Lu 2018).

Conclusion

When LIS professionals participate in research, they share the responsibility to promote integrity. Fulfilling this responsibility requires preparation. As a first step, they need to understand the standard definition of research misconduct, its incidence, its common causes, and the means of detecting it. Rather than transform LIS professionals into research police, an awareness of misconduct can make them simultaneously more attentive in the course of their work and more sympathetic toward researchers inhabiting a hypercompetitive, resource-scarce environment.

But LIS professionals also need to know how to respond when they suspect, detect, or face pressure to commit misconduct. In this article, I've drawn on advice for promoting ethical
behavior in business and recommendations from the research community to construct a three-phase strategy: 1) gathering information, 2) engaging in conversation, 3) submitting formal allegations.

In closing, I want to return to the Giving Voice to Values program. While acknowledging that promoting integrity requires moral courage, GVV asserts that anyone can develop moral competence. Rather than stand by waiting for the moment to flame forth as a hero, one can prepare in advance by articulating one's personal values and life purpose, by analyzing the environment to identify potential value conflicts, and by rehearsing scenarios in which one gives voice to values. In addition to readying oneself, one should build a support network of colleagues and mentors (Gentile 2010).

Fortunately, LIS professionals have access to such colleagues and mentors within their own community. In his iconic Our Enduring Values Revisited, Michael Gorman enumerates the profession's values – including service, rationalism, stewardship, intellectual freedom, and democracy – and transcendent purpose, which he succinctly names "The Greater Good" (2015, 35-7). Furthermore, history shows that LIS professionals have repeatedly translated, extended, and redefined their core values to adapt to new situations (Koehler 2015). The time has come for this community to prepare for the responsibility of promoting research integrity.

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