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# Management Science on the Credibility Bubble: Cardinal Sins and Various Misdemeanors

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*This research-based essay presents survey results—collected from faculty in 104 PhD-granting management departments of AACSB-accredited business schools in the United States—regarding 11 different types of questionable research conduct, including data fabrication, data falsification, plagiarism, inappropriately accepting or assigning authorship credit, and publishing the same data or results in two or more publications. Findings suggest that instances of research misconduct covering a broad array of behaviors are not unknown to survey respondents.*

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*“The more you torture your data, the more likely they are to confess, but confessions obtained under duress may not be admissible in the court of scientific opinion.”*  
—Steven M. Stigler, 1987: 148

Few events have attracted as much attention to the question of what constitutes “good science” as recent disclosures associated with the operation of the United Nation’s Intergovernmental Panel on Climate Change. In e-mail exchanges, leading climatologists revealed a blatant contempt for such basic cornerstones of scientific research as openness, falsifiability, replicability, and peer review. In our view, by raising disturbing questions about scientific standards, the real significance of what has become known derisively as “climategate”

goes beyond a disdain for science’s norms, to an undermining of the collective credibility of everyone in science. A Rasmussen Reports survey conducted shortly after the climategate revelations found that 59% of the public believe “it’s at least somewhat likely that some scientists have falsified research data to support their own theories and beliefs about global warming” (Americans Skeptical of Science Behind Global Warming, December 3, 2009). We fear that this all-too-visible (and admittedly politicized) trampling of the scientific ethos has done inestimable damage to the reputation of science generally, casting doubt in the realm of public opinion on the integrity of everyone in the scientific community and the principles they purport to uphold in their work.

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Recent editorial comments in the *Academy of Management Journal* (Kacmar, 2009) and *Academy of Management Review* (Schminke, 2009) suggest that research misconduct is also a mounting concern within our discipline. Among other issues, Kacmar reminded *AMJ* readers what is expected of them with regard to plagiarism, data reuse, and the reporting of results. Schminke discussed various ethical violations as reported by 16 former editors of top-tier management journals. These violations included instances of authors submitting manuscripts "conspicuously similar" to work that had already been published in other journals or submitting multiple manuscripts examining "virtually identical" models with overlapping variables. To date, however, data on the presence or absence of day-to-day research misconduct has been largely anecdotal. In an effort to discern the breadth and prevalence of such departures from what are generally considered the norms of science, we contacted every tenured and tenure-track faculty ( $N = 1,940$ ) listed on the websites of 104 PhD-granting management departments of AACSB International accredited business schools in the United States, as listed in Long, Bowers, Barnett, and White (1998), to elicit their experiences with 11 different types of questionable research conduct (Table 1). This sampling frame was selected because we expected that faculty associated with advanced graduate programs would be active researchers and, thus, most likely to be familiar with matters of scientific integrity.

Our findings provide insights into the relevance of the Research and Publication standards addressed in the Academy of Management Code of

Ethics (2005). Whereas it is possible more than one respondent may have reported on the same acts, we acknowledge that our results do not indicate the actual frequency of questionable research behavior. They do, however, suggest that instances of research misconduct covering a broad array of behaviors are not unknown to survey respondents.

## WHAT CONSTITUTES RESEARCH MISCONDUCT?

In that definitions of research misconduct are vague and, thus, may be classified in multiple ways (Sterba, 2006), we started with the three categories of research misconduct used by the National Academy of Science's Committee on Science, Engineering, and Public Policy (1992: 25) to describe "behaviors in the research environment that require attention." We chose to use these categories because they are intended to reflect the traditional norms of science in general and they incorporate a broad range of behaviors that actually arise in the research process. The categories also recognize that the range of research misconduct varies, and some transgressions are more pernicious than others. *Category I*, considered the gravest form of research misconduct, includes "fabrication, falsification, or plagiarism in proposing, performing, or reporting research results" (5). As outlined by the U. S. Department of Health and Human Services Office of Research Integrity (ORI, 2000; [http://www.ori.hhs.gov/policies/fed\\_research\\_misconduct.shtml](http://www.ori.hhs.gov/policies/fed_research_misconduct.shtml)) these three "cardinal sins" may be defined as follows:

- *Fabrication* is "making up data or results and recording and reporting them."

**TABLE 1**  
Percentage of Management Faculty Who Reported Knowledge of Faculty Engaging in the Listed Behavior Within the Previous Year

Behavior	All	Tenured	Nontenured
<i>Category I – Fabrication, Falsification, and Plagiarism</i>			
1. Withheld methodological details or results	79.2	79.7	78.4
2. Selected only those data that support a hypothesis and withheld the rest	77.6	77.9	77.1
3. Used another's ideas without permission or giving due credit	72.1	75.3	67.3
4. Dropped observations or data points from analyses based on a gut feeling that they were inaccurate	59.6	62.3	55.6
5. Withheld data that contradicted their previous research	49.5	50.6	47.7
6. Fabricated results	26.8	26.4	27.5
<i>Category II – Questionable Research Practices</i>			
7. Developed hypotheses after results were known	91.9	92.2	91.5
8. Published the same data or results in two or more publications	86.2	88.7	82.4
9. Developed "ins" with journal editors	83.3	82.3	85.0
10. Inappropriately accepted or assigned authorship credit	78.9	82.3	73.9
11. Circumvented aspects of human-subjects requirements	58.1	61.9	52.3

Note.  $n = 384$ . Significance of  $X^2$  tests of differences between tenured and nontenured faculty  $p > .05$  in all cases. Items 3, 4, 7, 9 adapted from Martinson, Anderson, & de Vries (2005). Used with permission.

- *Falsification* is "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."
- *Plagiarism* is "appropriation of another person's ideas, processes, results, or words without giving appropriate credit."

Category II violations include "questionable research practices," such as taking undeserved credit for intellectual contributions or discoveries; either accepting or awarding "honorary" or "gift" authorship of publications; using university equipment, funds, or facilities for private benefit; duplicate publication of data; piecemeal publishing (i.e., deliberately splitting research results into the "smallest publishable units" to increase the number of one's publications); and keeping sloppy or incomplete research records.

Category III, "other misconduct," includes acts that may occur in a research setting, but "are clearly not unique to the conduct of science . . . [and] are subject to generally applicable legal and social penalties" (National Academy of Sciences, 1992: 6). Examples are sexual harassment, unethical treatment of peers and subordinates, discrimination on the basis of personal characteristics, rape, and murder. As Category III violations are not directly related to research misconduct, involving unethical (if not illegal) behavior more generally defined, we did not focus on this category.

Office of Research (ORI) guidelines state that to be considered sanctionable offenses, actions must be "committed intentionally, or knowingly, or recklessly." Moreover, the guidelines advise that allegations must be "proven by a preponderance of evidence" and that "research misconduct does not include honest errors or differences of opinion" (National Science and Technology Council, 2005). The guidelines, thus, seem to exclude simple sloppiness, although we would wonder if such unwitting carelessness has done as much to damage science as highly publicized cases of egregious misconduct involving willful deception.

The Research and Publication standards addressed in the AOM Code of Ethics (<http://aomonline.org/aom.asp?id=268>) do not reference ORI policy on research misconduct. The conduct the Academy requires of its members, however, closely parallels ORI expectations. For instance, the Code provides the following guidelines pertaining to Category I research behavior:

AOM members do not fabricate data or falsify results in their publications or presentations. In presenting their work, AOM members re-

port their findings fully and do not omit data that are relevant within the context of the research question(s). They report results whether they support or contradict expected outcomes.

## OBTAINING THE DATA

The data we report were collected as part of a larger initiative concerned with academic life and publishing. A university institutional review board approved all our procedures, ensuring that the rights and welfare of survey respondents were safeguarded. Targeted faculty were sent individually addressed e-mail invitations requesting their participation in our survey initiative. The invitations stated our general purpose and affirmed that all responses would be completely anonymous and only aggregate data (not individual responses) would be reported. Each invitation contained a link to a survey that could be completed in a point-and-click manner. A follow-up reminder was sent 2 weeks after the initial e-mail. Research suggests that, relative to other forms of data collection, computerized self-administration may lessen social-desirability effects, especially when eliciting information on sensitive topics (Tourangeau & Yan, 2007).

Of the 1,940 surveys we e-mailed, 24 (1.2%) were undeliverable. We received 448 responses (23.4%). Ten surveys (2.2%) contained a significant number of unanswered items and, therefore, were excluded from our analysis, leaving 438 usable surveys. This response rate is generally consistent with the mean response rate of 34.6% ( $SD = 15.7\%$ ) found in a meta-analysis of Internet-based surveys (Cook, Heath, & Thompson, 2000). We analyzed our data using listwise deletion of missing values, in which cases with incomplete data were excluded. Pairwise deletion, in which only the pairs of variables for which one value is missing are removed, resulted in similar findings. The item statistics in Table 1 represent data collected on 384 respondents. Exactly 231 (60.1%) of the faculty who responded to our survey were tenured at their current universities.

Of the 11 survey items in Table 1, four were taken verbatim, with permission, from a recent study of questionable research behavior by U.S. scientists identified through the National Institute of Health Office of Extramural Research (Martinson, Anderson, & de Vries, 2005). The 11 items were selected to be representative of the two principal categories of research misconduct used by the National Academy of Sciences. In the current survey, we asked whether, within the previous academic year, re-

spondents had "observed or heard about" faculty engaging in the enumerated behaviors. Although different methods have been used to investigate research misconduct, following Greenberg and Goldberg (1994), among others, we used an indirect approach because meta-analysis has shown that self-report surveys using terms such as "fabricated results" yielded lower percentages of reported misconduct (Fanelli, 2009). Indirect questioning is thus preferred as a means of reducing social-desirability effects associated with the normative disinclination to personally acknowledge engaging in such conduct and tapping respondents' own beliefs and behaviors (Fisher, 1993). To capture unsuspected information, space was provided for open-ended comments. Evidence suggests that self-administered web surveys provide a better venue for gathering open-ended data than paper modes (Smyth, Dillman, Christian, & McBride, 2009). We acknowledge that our sampling approach and response rate may allow for possible nonresponse bias. Simply stated, someone who violates the Research and Publication standards embodied in the AOM Code of Ethics may be less likely to respond. It is equally true, however, that because such non-responses would be reflected in an underreporting of research misconduct, the results we report may be conservative.

Survey responses were coded "Yes" or "No" to indicate whether respondents had knowledge of faculty engaging in each of the behaviors listed in Table 1 within the previous year. Selected open-ended comments are quoted in the following section; however, because the survey was completed anonymously, these remarks are presented on a nonattributable basis. For purposes of discussion, the behaviors identified in Table 1 are grouped into the two principal categories of research misconduct used by the National Academy of Sciences. Although we did not necessarily anticipate subgroup differences, we were curious as to whether tenured and yet-to-be tenured faculty would have different thresholds for the perception of research impropriety. One might speculate that the latter group may have different perceptions about the appropriateness of different research behaviors given "publish-or-perish" pressures associated with earning tenure (de Rond & Miller, 2005). Thus, Table 1 reports the percentages of tenured and nontenured (tenure-track) respondents who replied in the affirmative to each item. Results of  $\chi^2$  tests of differences, however, confirmed that responses did not vary by tenure. As a further check on possible ascriptive differences, we also conducted  $\chi^2$  tests on responses by age and gender. Consistent with meta-analytic results indicating

that age and gender are inconsequential predictors of unethical behavior (Kish-Gephart, Harrison, & Treviño, 2010), none of the  $\chi^2$  tests were significant at the .05 level. To focus our results and for reasons of limited space, we do not investigate all other possible data cross-classifications, but rather concentrate our analysis on our sampling frame as a whole.

## OUR FINDINGS

Again, we caution that to the extent that more than one respondent may have reported on the same acts, our results do not document the actual frequency of questionable research behavior. They do suggest, however, that instances of research misconduct may be greater than many might believe. Moreover, given that we suspect individuals who have violated the Research and Publication standards embodied in the AOM Code of Ethics were less likely to have responded to our survey, the results we report may, in fact, be understated. The difficulty of discerning the actual level of research misconduct is further complicated by the fact that beyond being intentional or unintentional, improper conduct is most often covert (Sterba, 2006). Thus, in a majority of instances only those guilty would know if they had engaged in such behavior. No one person would be aware of all the incidents occurring around them. For this reason, the true extent of research misconduct (e.g., unmentioned data massaging or selectively reporting fit indices) associated with data analysis and reporting will likely never be known.

This said, our results suggest research misconduct that falls within the National Academy of Science's definition of Category I improprieties dealing with fabrication, falsification, and plagiarism is of concern. Close to 80% of survey respondents reported knowledge of faculty who either have "withheld methodological details or results" or "have selected only those data that support a hypothesis and withheld the rest" (i.e., "cooking" data). In this connection, one respondent wrote, "I don't know if I have seen outright fraud . . . , but I have seen a lot of reshaping work to meet reviewers' and editors' expectations and selectively reporting things that make [an] article more likely to be favorably received. I have even had some fights with co-authors over these sorts of things." A second respondent went so far as to declare, "I believe that people routinely lie about research." Over 70% reported being aware of colleagues who have engaged in plagiarism, or stated more formally, have "used another's ideas without permission or giving due credit." Stealing someone else's ideas has

long been thought to be one of the most common forms of ethical violation within the management discipline (Von Glinow & Novelli, 1982).

Equally disturbing, some 60% of respondents reported knowledge of faculty who have "dropped observations or data points from analyses based on a gut feeling that they were inaccurate," what many would consider an example of "data trimming." In arguing for a more restricted use of null hypothesis testing, Sterba (2006), building on Schmidt (1996), has commented on attempts to "clip and preen" a sample so as to move a *p* value from nonsignificance (nonpublishable) to significance (publishable). Such inappropriate statistical methods have the potential to not only contaminate our discipline's published record, but to slow progress and delay the rejection of unfounded beliefs.

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Half the respondents were aware of cases in which faculty had "withheld data that contradicted their previous research," in effect deliberately reporting tendentious results by only publishing "success stories." In such situations, the reported probability of statistical tests will have little relation to their actual probability levels, and parameter estimates may be quite different from those supposed (Selvin & Stuart, 1966). The practice of "cherry-picking" results, perhaps in response to the publication bias against nonsignificant findings, may not only explain the failure of subsequent researchers to replicate reported findings, but also corrupts a discipline's knowledge base, as only results with significant parameters are published. This has been labeled the "file drawer problem," in reference to the supposed cabinets full of unpublished studies that yielded nonsignificant results (Rosenthal, 1979). In instances where data-mining techniques are misused to uncover positive results and Type I error rates are not adjusted to reflect the exploratory nature of such methods, meta-analytic findings and other reviews of published results are necessarily suspect. This is not to deny that exploratory data mining may be beneficial in preparadigmatic or pretheoretic areas of intellectual interest. The atheoretic nature of such studies, however, should be clearly acknowl-

edged, and they should adhere to standards of rigor such that systematic relationships among variables can be cross-validated using an independent sample (Miller, 2007).

Of even greater harm, and perhaps most surprising, is that one out of four respondents (26.8%) reported knowledge of instances where faculty have fabricated results. Sounding a note of dismay, one respondent wrote, "Some successful researchers I know will simply fake data." Whatever the rationalization, making up data or results is one of the gravest violations of the ethos of science (cf. National Academy of Sciences, 1989: 14).

Our results suggest that Category II improprieties involving "questionable research practices" are, by and large, even more common than outright misconduct. The practice of "developing hypotheses after results are known" would seem to be widespread, being reported by over 90% of survey respondents. Kerr (1998; Garst, Kerr, Harris, & Shepard, 2002) has referred to this practice as HARKing (Hypothesizing After the Results are Known), wherein a post hoc speculation is inserted into a manuscript as if it were an a priori hypothesis. As Bedeian (2004: 207) has noted, when "hypotheses are data driven, they are inherently susceptible to capitalization on chance and are nothing more than a disguised form of data dredging." He has especially taken exception to a form of "ghostwriting," in which manuscript referees call for the recasting or dropping of hypotheses, especially those that yield null results. As with the practice of only reporting success stories, standard statistical procedures cannot be validly applied to study variables, as differences between variables will no longer be normally distributed (Selvin & Stuart, 1966). The degree to which HARKing is taken for granted is suggested by a respondent who described a graduate assistant being directed "to comb through correlation matrices and circle the significant ones" and to examine "all-possible interactions or moderators."

With respect to other Category II improprieties, 86.2% of respondents reported knowledge of faculty who have "published the same data or results in two or more publications." As stated in the *Publication Manual of the American Psychological Association* (2010: 13), "duplicate publication distorts the knowledge base by making it appear that there is more information available [to support a finding] than really exists. It also wastes scarce resources (journal pages and the time and efforts of editors and reviewers)." The Research and Publication standards contained in the AOM Code of Ethics ("Ethical Standards" Sec. 4.2.3.5) provide guidance regarding the dissemination of data that "overlap"

with previously published work. An almost equal percentage of respondents (83.3%) reported instances of colleagues developing what they perceived to be "ins" with journal editors. As a form of academic politics, such behavior violates a key institutional imperative that comprises the ethos of science. That is, advancement should be based on merit rather than particularistic criteria, such as professional connections (Merton, 1942/1973).

Authorship involves accepting credit and primary responsibility for a published work. Nearly eight of ten (78.9%) respondents reported knowledge of instances where faculty have "inappropriately accepted or assigned authorship credit." Such "gift" authorships not only dilute the credit due to "true" authors, but also improperly inflate the credentials and professional reputations of "honorary" authors. The Research and Publication standards in the AOM Code of Ethics speak directly to this issue in stating that authorship credits should be "based on the scientific or professional contributions of the individuals involved" and that AOM members take professional credit "only for work they have actually performed or to which they have contributed." That this is not always the case is indicated by a respondent who reported, "some of our colleagues are forming 'Article Publication Communes' to beat the system. One prominent management researcher had 11 refereed journal articles accepted for publication last year—with 45 co-authors (total count of co-authors including many repeats). This is the most extreme case I've seen so far, but others are doing the same thing on a lesser scale."

Finally, over half the respondents (58.1%) reported knowledge of colleagues who had "circumvented aspects of human-subjects requirements." Institutional review board policies may seem onerous, but are mandated for federally funded studies involving human participants. Again, the Research and Publication standards in the AOM Code of Ethics are explicit in stating that when AOM members conduct research they are expected to "obtain the informed consent" of those being studied.

## PREVENTION, DETECTION, AND DETERRENCE

At the most basic level, preventing research misconduct means identifying its sources. Whereas some may be tempted to dismiss instances of research misconduct as isolated cases of "inexplicable deviance" (Anderson, Louis, & Earle, 1994: 331), we suspect that although the source of such behavior may, in part, be related to personality characteristics such as Machiavellianism and having an external locus of control (Kish-Gephart et al., 2010),

it is also due to environmental pressures associated with unreasonable normative expectations (Mumford et al., 2007). As senior members of the management discipline, two authors of this paper have witnessed, over the last 15–20 years, the emergence of a research model that encourages continuous competition for publishable findings on fashionable topics with statistically significant results (cf. Kirby & Houle, 2004). Prodded by business school rankings (Adler & Harzing, 2009) and AACSB International (2009) scholarly productivity guidelines for establishing and maintaining a faculty member as "academically qualified," our discipline places enormous pressure on faculty to either do publishable work in a minimum of time or watch their teaching loads increase as their careers perish. Some senior faculty who wish to turn their attention to other forms of scholarship or to devote more effort to teaching may be unprepared to deal with this pressure.

The unreasonableness of our discipline's scholarly expectations is compounded by the unprecedented importance attached to publishing in "A-level" journals, with some colleges of business only considering articles published in a narrow set of journals (such as those included on the *Financial Times* list of top-40 journals in business and economics) as valid indicators of quality (Adler & Harzing, 2009). As expressed by one respondent to our survey, "I have only one very big frustration [with] the system, and that is the extreme, almost exclusive, emphasis on a small number of high prestige 'premier' journals, with the unchallengeable assumption that any paper published outside these venues is a second-rate paper (and any paper published in them is first-rate)." That some faculty may cut corners to satisfy these expectations and advance (or save) their careers should not be surprising (Kock, 1999). We further suspect that "publish-or-perish" pressures are partly behind both the increase in multi-authored publications (or as the respondent quoted above termed them, "Article Publication Communes") and reported cases of "loose authorships" (Geelhoed, Phillips, Fischer, Shpunin, & Gong, 2007).

We have our doubts that calls such as those recently voiced by Adler and Harzing (2009) in this journal will halt or even slow the chase for A-listed journal publications. Whereas the Academy, as our discipline's primary professional organization, clearly has a leading role to play in establishing standards for research conduct, and we laud the efforts of its Ethics Education Committee in raising awareness regarding proper research behavior, we feel that individual departments—the primary unit of the university and the local embodiment of

a discipline—have the major responsibility in this regard (Anderson et al., 1994). We (among others) have suggested that the pressure to publish no doubt tempts many to deviate from established scientific norms. As Gans (1989: 12) notes, far too many departments operate like “machine shops,” in which publications are treated like piecework. His observation that, “[a]lthough we are paid by the number of courses we teach, we are promoted by how much we publish, and only sometimes by the quality of our publications,” rings loud and true. In our opinion, a broader and more inclusive definition of scholarship would do much to discourage publication pressures that encourage research misconduct. Above all, a re-evaluation of our tenure and promotion systems, to reward faculty for doing a few pieces of high-quality research, rather than grinding out multiple publications and simply playing a numbers game, would seem in order (cf. Bedeian, 1989: 5; de Rond & Miller, 2005: 326–327). Paralleling our own suggestions, Oliver (2010: 31) argues that it is past time for a discussion of the goals and nature of scholarship in our discipline. In particular, she calls for defining management scholarship more broadly and making it more relevant to practice. She also advocates “a more realistic model of the modern management scholar” that questions how we make tenure and promotion decisions, the demands we place on young scholars to earn tenure, and the criteria on which such decisions are based.

Our finding that there were no differences across tenured and nontenured survey respondents with regard to the behaviors listed in Table 1 suggests that the problem of research misconduct seeds early and is deeply rooted. For this reason, we feel it is essential that efforts be made to shape the research values of those entering the management discipline. Socializing graduate students (again largely a departmental responsibility) to academic life is critical. Accurately conveying normative expectations in both coursework and in students’ day-to-day research activities is one aspect of proper professional socialization. Other facets include avoiding unrealistic performance standards, extreme publication pressure, unreasonable work demands, excessive peer competition, and ruthless careerism. Each of these facets has been associated with environments that are conducive to research misconduct (Mumford et al., 2007). In departments where these facets are an accepted aspect of academic life, access to training and mechanisms for appropriately coping with environmental pressures may be required. We firmly believe that formally and informally exposing those entering

our discipline to the highest norms of science will influence their future behavior as researchers. As in other settings, social context is no less important in understanding and influencing responsible research conduct. Indeed, based on a study of 2,000 doctoral candidates and 2,000 of their faculty, Swazey, Anderson, and Louis (1993: 551–552) concluded that “attention to the quality of a department’s climate and structure—which have many alterable dimensions—should be an important component of preventive or remedial strategies to deal with [research] misbehavior.” Directly stated, a department’s climate and structure play an important role in determining students’ professional values regarding responsible research conduct.

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On a more general level, all research institutions (including universities) that receive federal funds must adhere to government regulations pertaining to questionable research practices. In addition, federal law mandates that all research institutions establish an institutional review board (IRB) to exercise oversight in research involving human subjects. Prior to engaging in any research work, all graduate students should receive instruction in IRB policies and procedures. Although university regulations may vary, graduate students should also be required to complete the National Institute of Health’s on-line “Protecting Human Research Participants” course (<http://cme.cancer.gov/clinicaltrials/learning/humanparticipant-protections.asp>) before being allowed to submit an IRB application to conduct studies involving human subjects, as well as the Collaborative Institutional Training Initiative’s on-line “Responsible Conduct of Research” program (<https://www.citiprogram.org/>). Being sure that all entering graduate students are familiar with government regulations pertaining to responsible research practices and all receive the necessary certification to conduct human subjects research should be considered an important component in preventing research misbehavior.

Other components might include requiring graduate students to attend departmental proseminars and doctoral consortia (such as those sponsored by the AOM’s Ethics Education Committee and its var-

ious professional and regional divisions) dealing with the norms that comprise "good" science. Such attention will make it easier for graduate students to seek additional advice and guidance when faced with problematic "gray" areas. Ideally, the instruction received in these sessions (as well as in formal coursework) should be reinforced by daily interactions with a respected mentor. Clearly, as Weed notes (1998: 127), "such mentors must not only possess the requisite virtues but also habitually display them in their everyday scientific practice." No one should be surprised, for instance, when students who have been exposed to faculty who determine what the "acceptable" results of a study will be prior to data analysis do the same in their own research endeavors (Mumford et al., 2009). The use of research to "prove" rather than test hypotheses hampers our discipline's intellectual development by corrupting its published record with spurious findings (Bedeian, 1989). Moreover, asking research questions with the answers predetermined leaves little room for wrong guesses, false leads, fortuitous errors, and plain serendipity that are often the basis for new knowledge and understanding (Daft, 1983). Inasmuch as increasing opportunities for effective mentoring and, by consequence, eliminating mentors who set bad examples, are relatively straightforward alternatives, alone, they are no guarantee that research misconduct will be eliminated.

We would further suggest that journal editors and reviewers have a role to play in detecting and deterring research misconduct. Identifying and dealing with allegations of misconduct can be challenging and raise legal concerns (Resnik, Pedada, & Brunson, 2009). For this reason, all journals should have specific (written) policies for addressing such charges. The Committee on Publication Ethics (2008) and the Council of Science Editors (2009) have published guidelines for responding to suspected research misconduct, including duplicate publication, gift authorships, plagiarism, fabricated data, and undisclosed conflicts of interest.

Guidelines aside, we see no easy or foolproof way to detect research misconduct. By its nature, the academic enterprise depends on trust. Editors and reviewers depend on authors to have collected and properly analyzed the data they report. They rarely request primary data or repeat data analyses. What the chair of the AOM Ethics Education Committee, Marshall Schminke (2009), tags "Accounts From the Front Lines" suggests that research misconduct within the management discipline is discovered largely by chance. Editors and reviewers may be suspicious of data that fall into place too cleanly or correlations between vari-

ables that are outside the bounds of the measurement reliabilities reported for their underlying scores, but they seldom request access to raw data. As we have suggested, however, cases of outright fraud or data fabrication often involve covert actions that are only known to their perpetrators and, consequently, may never be discovered.

To detect and deter such research misconduct, editors could ask that documentation for figures (e.g., interaction plots) be routinely submitted, so reviewers can establish that the figures are accurate representations of the underlying data (Fox, 1994: 305). To address HARKing, editors might adopt a recommendation advanced by Bentler (2007). Noting that researchers may find it necessary to modify a hypothesized structural model to achieve acceptable fit with observed data, he has questioned whether such post hoc modifications, which are susceptible to chance variations in sampling, are always acknowledged when reporting results. In response, he has suggested that in submitting a manuscript for publication, authors be required to include a separate statement verifying that all reported model parameters were based on a priori hypotheses and, if not, any modifications that were made post hoc be clearly described. This information would then be provided to the reviewers commissioned to read the manuscript. A broader proposal involves what is known as a "data audit" (Fox, 1994). Using this methodology, editors randomly select manuscripts submitted for review and request that their authors supply the raw data on which the manuscripts are based. This would encourage the adequate documentation and proper archiving of collected data, as well as deter the misrepresentation of results. Some researchers may object to the intrusiveness of such random audits, but the possibility of being "audited" would serve to ensure the integrity of published results. Of course, editors and reviewers who must read hundreds of manuscripts a year may also find this suggestion less than attractive.

Management faculty must recognize that they, too, have a professional obligation when encountering possible research misconduct. We realize that moving from suspicion to actually reporting such instances is not without risk. Reluctance in this regard may stem from the belief that the research in question does not actually matter, being of little use to practicing managers (Oliver, 2010). It may also be associated with a desire to avoid conflict with the accused and, even, potential damage to one's own career. All too often, it seems that accusers have had their own integrity cast in doubt by skeptical colleagues and have been subject to reprisals. As the National Academy of Sciences



Committee on the Conduct of Science (1989: 19) cautions, "Accusing another scientist of wrongdoing is a very serious charge that can be costly, emotionally traumatizing, and professionally damaging even if no transgression occurred. A person making such a charge should therefore be extremely careful that the claim is justified." The Committee offers advice in this regard. Before accusing someone of research misconduct, individuals should examine their own motives and the accuracy of a charge. Confidentially discussing one's suspicions with a trusted colleague can be helpful in such situations. Before taking any formal steps, the person prompting the suspicion should be contacted privately and provided an opportunity to respond. This may lead to a satisfactory resolution without further recourse (National Academy of Sciences, 1989: 19). With respect to our own data, such actions may explain the seeming widespread awareness of research misconduct relative to the actual number of reported cases.

### CAVEATS AND LIMITATIONS

Before closing, we offer caveats and suggest areas for future research. First, some might ask whether, in an effort to protect our discipline's reputation, respondents may have minimized their knowledge of research misconduct. Others might wonder, however, whether those respondents who closely identify with professional ethics may have been motivated to find unethical behavior "under every rock," thereby reinforcing their involvement in ethics issues (R. T. Mowday, personal communication, September 28, 2009). These possibilities raise two additional points. The first of these points relates to individual differences in what respondents consider research misconduct. Within our own discipline, the acceptability of certain behaviors (e.g., publishing multiple studies from one dataset) has changed with time and as the state of knowledge has increased. Future studies of the gray area separating what researchers judge to be questionable and unquestionable behavior would be informative (Fanelli, 2009). A second point relates to whether our respondents may have been more zealous in judging their colleagues than themselves. The so-called *Muhammad Ali effect*, in part, suggests that individuals see themselves as more moral than their colleagues (Allison, Messick, & Goethals, 1989; Van Lange & Sedikides, 1998). Thus, a tendency for our respondents to perceive themselves as more honest than their peers may have shaded our results.

As a further area of future research, we would note that there is an apparent assumption the

AOM Code of Ethics reflects a universal set of academic values that hold across cultures. Given differences in education and training, it would be interesting to know if our findings extrapolate to Academy members in other countries. Behaviors considered inappropriate in the U.S. may be acceptable in other cultures and vice versa (Davis, 2003). If this were shown to be the case, it would be important to consider such differences in making transnational judgments about research misconduct. Future studies may thus wish to extend the present research to include other national contexts possessing alternative normative structures.

### Coda

Irrespective of cultural differences, we strongly believe that maintaining scientific integrity is essential for securing public (and, particularly, practitioner) confidence in our capacity as a discipline to recommend efficient and effective solutions to unresolved social and workplace challenges. Recent events associated with climategate raise disturbing questions about scientific standards in the mind of the general public. In an era of increased reliance on evidence-based science, should published results be accepted at face value? Have data been suppressed and replaced with manufactured numbers? Are the conclusions offered by investigators valid rather than based on preconceived outcomes? Can we be certain that the authors of research studies, especially those facing the imperative to publish, are objective and free of conflicts?

Whereas most professions are subject to government regulations, certifications, and even audits, we in academia are largely exempt from such constraints (Biagioli, 2002). Heretofore the scientific community has been generally portrayed as a well-behaved and disciplined entity that ensures the public of good science. The lay public now has reason to question that presumption. As one commentator has observed, "Science is on the credibility bubble. If it pops, centuries of what we understand to be the role of science goes with it" (Henninger, 2009). Given the high stakes, we cannot be complacent in assuring the responsible conduct of our research within the management discipline. Addressing research misconduct is crucial to maintaining public confidence and guarding the autonomy and authority we enjoy as academics. If our discipline truly aspires to "matter more" and influence practitioners and public-policy makers to use our research, its scientific claims must be beyond reproach. Such claims, however, will only be accepted as authoritative if we are truthful

about our data, open about our methods, and honest about our motives. At the same time, if we are to trust one another, such transparency is also essential for the effective functioning of our common academic enterprise. In this sense, we each have an obligation, distributively and collectively, to uphold the values that define good science.

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