



Predatory Online Technical Journals: A Question of Ethics

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Introduction

In 2009, Cornell University doctoral student Philip Davis embarked upon a bold venture: after receiving numerous hectoring emails from Bentham Science requesting articles for publication, he and fellow adventurer Kent Anderson, an executive at *The New England Journal of Medicine*, used the SCIgen paper generator, developed by MIT students “to maximize amusement” by randomly generating nonsensical computer science papers,¹ to create a scholarly looking but preposterous manuscript and submitted the result to Bentham’s *The Open Information Science Journal*. Using pseudonyms, the authors cited their affiliation as the Center for Research in Applied Phrenology; the acronym CRAP, a dead giveaway, was apparently overlooked by the manuscript editor. To their delight, a few weeks later they received a notice of acceptance, based on a rigorous peer review process, and a bill for \$800, with directions to send payment to a post office box in the United Arab Emirates.²

The incident created a whirlwind of commentary in the blogosphere and is but one of several recent, deliberate hoaxes aimed at online journals, particularly open access (also dubbed “predatory”) journals. But it also raises important questions in regards to the integrity of published research in STEM-related fields and the ethics of editors and publishers who resort to lying to collect substantial publication fees.

This paper examines the issue of online open access technical journals, using an ethics prism. Specifically, the paper discusses the general situation; how to recognize bogus journals; selected high profile experiments; false material and the impact of disseminating false information; and major ethical concepts related to this issue. Readers will learn how to recognize and avoid bogus journals. New engineering educators who are in the process of building their promotion and tenure portfolios, graduate students conducting thesis or dissertation research, and seasoned educators who use Internet information in their classrooms—all are potential cannon fodder for the predatory machine and should benefit from this information.

The General Situation

From one perspective, online open access technical journals can be viewed as contemporary incarnations of the vanity press made possible by the Internet, enabling aspiring writers to bypass traditional publication checks, such as editorial and peer reviews; authors also bear the brunt of publication costs. Historically, vanity presses have deep roots, dating back at least two centuries.³ While during the nineteenth century the term “commission publishers” had not the negative connotations it currently has, and popular authors such as Twain, Thoreau, Kipling, and Poe made use of vanity services,⁴ during the early twentieth century it developed the reputation for publishing inferior books, those rejected by traditional publishing venues. In 1941, however, all that changed with the famous trial of Carlo Flumiani⁵ (Sullivan), an Italian immigrant-turned-publisher who ran a vanity publishing scam and ultimately gleaned roughly half a million dollars from authors desperate to see their works in print. For his efforts, the “heartless” Flumiani was

convicted of fraud in a federal court, serving an 18-month jail sentence, paying a hefty fine,⁶ and leaving a legacy that seriously sullied the public perception of vanity presses.

In the mid-1990s, the emergence of the World Wide Web, with a usable GUI that allowed for sophisticated graphics, gradually began changing the landscape of publishing, giving rise to what Jeffrey Beall, a University of Colorado at Denver librarian, has dubbed “predatory” open access online journals. Beall defines certain publishers as predatory “because their mission is not to promote, preserve, and make available scholarship; instead, their mission is to exploit the author-pays, Open-Access model for their own profit.”⁷ Since 2008, Beall has conducted extensive research on these types of journals, spurred by an influx of emails similar to what prankster Philip Davis experienced; in 2010, he published his first list of “potential, possible, and probable” predatory journals and periodically updates it on his blog, *Scholarly Open Access*. In a recent interview with *Nature* magazine, he noted, “2012 was the year of the predatory publisher; that was when they really exploded.”⁸ Beall’s list currently includes more than 300 publishers solely online journals in STEM-related fields.

Unlike traditional legitimate publications, whose revenues derive from subscriptions, income for predatory journals comes from high fees paid by authors, a new twist on the old vanity press. Beall regularly hears from authors who are dazed by abnormally high publication fees (one reported a bill for \$2,700), which fuels his zeal.⁸ Although admittedly controversial, Beall’s judgments are based on sound, transparent criteria that are readily available on his blog.⁹

It is important to note that not all online open access journals are of the predatory variety. The Copenhagen-based Directory of Open Access Journals maintains a list of some 10,000 legitimate journals, fully peer-reviewed for quality control, licensed by Creative Commons, and searchable by database.¹⁰ In addition, the Open Access Scholarly Publishers Association has developed a mission statement that details best practices for open access publications; its website also includes an ethics code.¹¹

Recognition

Predatory journals run the gamut of slick to shoddy. What they all share, however, is publication that comes at a hefty cost to authors.

Email Solicitations

Initial contact with potential authors usually consists of an email such as that displayed in Figure 1. Rarely are these emails tailored to the recipient’s field of expertise; they are merely shotgun efforts to garner manuscripts.

We are very pleased to invite you to submit manuscripts of your original paper, for possible publication in our international journals on Engineering (covering all fields), Agriculture & Biotechnology, Computer Science & IT, Electric & Electronics, Finance and Management, Environmental & Earth Science, Science & Technology, Mathematics, Social Science as per of your area of interest and research. Our all journals are peer-reviewed periodical dedicated to the proliferation and dissemination of scholarly research results.

Figure 1. Typical email solicitation from a predatory journal¹²

These communiques typically contain English usage errors, as in the last sentence above; Rob Brooks, who teaches at the University of New South Wales, has characterized these emails as “the scholarly equivalent of a Nigerian email scam.”¹³ Most promise a “rigorous” peer review process. But the turnaround time is such that even cursory peer review is not possible; Research India Publication, the organization responsible for the email above, notes that “acceptance of paper will send within seven days from date of submission of paper” and that “author will receive print journal copy WITHIN 15 days after payment of publication charges and submission of copyright form.”¹² This is an abrupt departure from the scholarly review process: most traditional journals have a turnaround time measured in months, to account for peer review, and some highly prestigious journals may have a publication backlog that is years long.¹⁴

Other bogus journals simply seek to reprint published items, as in Figure 2, from SEI Publications, and still others mine conference proceedings for potential manuscripts.

We’re honored to contact you. We searched a good paper of yours:

Published at: IEEE Technology and Society Magazine

Title: Ethics, gaming, and industrial training

Engineering Management Reviews (EMR) is an internationally refereed journal dedicated to publishing the latest advancements in engineering management research. The goal of this journal is to record the latest findings and promote further research in these areas. Scholars from all relevant academic fields are invited to submit high-quality manuscripts that describe the latest, state-of-the-art research results or innovations.

Figure 2. Email seeking to republish a paper¹⁵

Although the email claims “Your latest unpublished papers are warmly welcome,” it is unabashedly soliciting a paper that has already been published—one, incidentally, that is entirely unrelated to the topic of the journal.

While such an approach may provide easy access to quality manuscripts that have already undergone peer review, authors, editors, and publishers who engage in this activity may be guilty of copyright infringement, since the original publication typically holds the copyright; these

actions also violate provisions of ethics codes, such as the Code of Conduct for Journal Publishers, which notes that publishers are obligated to “protect intellectual property and copyright” and “maintain the integrity of the academic record,”¹⁶ or the International Ethical Principles for Scholarly Publication of the International Association of Scientific, Technical & Medical Publishers, which state that “in general, an author should not submit for consideration in another journal a previously published paper.”¹⁷

Website Issues

Another obvious indicator of a predatory journal is website quality. Figure 3, from Atlantis Press, contains a rather significant typographical error that any competent copy editor should have corrected.

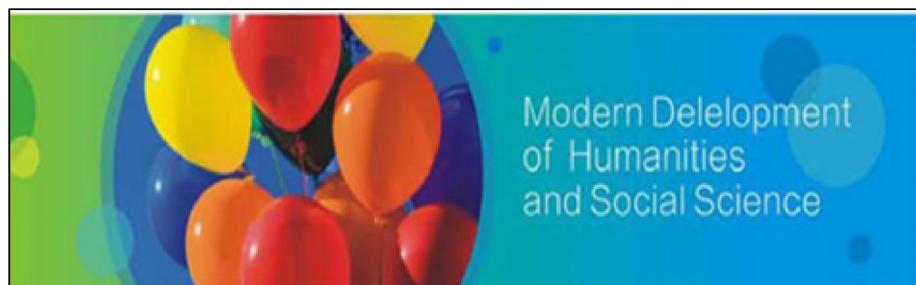


Figure 3. Poor website advertisement for a publisher-based conference¹⁸

Grammatical errors may also be found in the titles of certain journals, such as 66 of the 72 journals published by Advance [sic] Research Publications that all begin with the phrase “*Journal of Advance Research in. . .*”¹⁹ In addition, predatory journal sites tend to be “poorly maintained,” with dead links, and may include purloined images reproduced without permission.⁹

Explanatory sections on journal websites may exhibit language that reflects poorly on editorial standards. *International Journal of Latest Research in Engineering and Computing*, for example, identifies itself as “the official Journal of ***Ancient*** [emphasis mine] Scientific Research Publication” and then lists such contemporary fields as electronics and computing.²⁰ The *Canadian Chemical Transactions* offers “English editing” services for its authors; as the site explains, “If reviewers recommend ***for*** extensive English editing for a manuscript [***missing punctuation***] then authors should ***take*** the English editing service. We charge \$8-10 ***dollor*** a page (one page =300 words excluding ***titile***, author’s name and affiliations, and references) depends on editing requirements.”²¹ However, considering the errors in the explanation (in bold italics above), one wonders how helpful this rather expensive service is.

The *International Journal on Recent and Innovation Trends in Computing and Communication* offers Author Guidelines [sic] that include these two criteria: “Submitted papers ***MUST*** be written in English, not exceeding 10 double-column pages IJRITCC format,” immediately followed by “An addition of 5 pages is allowed,”²² an apparent contradiction.



Figure 4. Uninspired website logos^{23, 24, 25, 22, 26, 27}

Some sites have a decidedly amateurish look, with simplistic logos, such as the ones shown in Figure 4. It is improbable that any of these is the product of a graphic designer; in fact, after checking about 25 of these types of journals, I discovered that pictures of the world seem to be the most popular image, especially for journals whose titles begin with the words “international,” “universal,” or “world.”

Peer Review Policies

While many predatory journals claim to have a “thorough” or “rigorous” peer review policy, they may rely on authors to choose reviewers and conduct the reviews as shown in Figure 5, the review policy for the *Journal of Environmental Hydrology*. Legitimate journals have an established process for blind peer reviews, and reviewers are selected by the editorial staff, not the authors, to help ensure unbiased reviews. Asking authors to choose reviewers is a blatant conflict of interest and a violation of mutually agreed-upon standards for scholarly publication.

Papers We Like To Get

JEH will accept all papers that have been prepared in a professional manner. In particular, we encourage papers from developing countries and countries whose native language is not English. The editors at JEH will provide assistance to hydrologists who submit papers that need improvements in English and formatting. Note that JEH editors DO NOT review papers for scientific or technical content. Content review is the responsibility of the reviewers selected by the paper authors.

Figure 5. JEH review policy²⁴

Sometimes, review policies are difficult, if not impossible, to access. On the *Journal of Computing* website, for example, clicking on the “review” hyperlink takes the user to an ad for

Tresammé shampoo, illustrated in Figure 6. Although the page includes two links to the journal’s review policy, neither is functional and both inexplicably promote this brand of shampoo.

Other sites indicate that papers are reviewed but include no link to a process. The *Research Inventy* [sic] site, for example, indicates a 5-7 working day timeline for reviews,²⁹ but a thorough investigation of this site reveals no extant policy. Randomly checking STEM-related journals on Beall’s 2012 list suggests that this is common practice. Still other “review processes” seem to rely solely on the use of plagiarism detection software, “treat[ing] peer review as just a matter of automatized software.”³⁰ A true peer review, of course, involves much more than simply looking at original phrasing.

Less Obvious Indicators

Digging a little deeper, commentators have noted other, less apparent indicators of predatory publications, including fabricated impact factors, high acceptance rates, and high, possibly hidden, publication charges.³¹ Beall notes some 50 factors indicative of a bogus publication, divided into the categories of editors, integrity, and publishers, which include such items as fictitious editorial boards consisting of academicians listed without their permission or even after declining an invitation;³² very broad journal titles, such as *Journal of Education*, or combining typically distinct areas in a title, as in *International Journal of Business, Humanities and Technology*; and flagrant deception about a whole host of items, including ISSN/DOI numbers, indexing outlets, nonexistent peer review processes, and plagiarized policies copied from legitimate publications.⁹

High Profile Experiments

Hoaxes testing the scholarly publishing community date to the early days of the Web. In 1996, Alan Sokal, a physicist at New York University, published his article, “Transgressing the Boundaries—Toward a Transformative Hermeneutics of Quantum Gravity,” in *Social Text*, a journal focusing on cultural studies.³³ It was written in a slightly pompous academic style and larded with footnotes, arguing for a concept that the author felt certain academicians in the discipline—professors as well as students—would recognize as an absurdity, that “the traditional concept of gravity was just a capitalist fiction that would be made irrelevant by the socialist/feminist/relativist theory of ‘quantum gravity.’”³⁴

Shortly after the article appeared, Sokal published an explanation of his hoax in another journal, *Lingua Franca*, revealing that his article was “liberally salted with nonsense” in an effort to address what he perceived as “a decline of standards of rigor in the academic community.”³³ His revelation unleashed a whirlwind of controversy: the editors of *Social Text*, a small journal with a subscription base in the hundreds that appealed to a leftist-leaning community, felt betrayed and used and vocally expressed their feelings. Other commentators chimed in; Paul Boghossian, for



Figure 6. Ad supplants review link²⁸

example, writing in the *Times Literary Supplement*, noted, “the conclusion is inescapable that the editors of *Social Text* didn’t know what many of the sentences in Sokal’s essay actually meant; and that they just didn’t care.”³⁵ What Sokal had hoped to accomplish by publishing a spoof article actually occurred after his revelation.

More recently, Harvard-based John Bohannon, who holds a Ph.D. in molecular biology from Oxford University and is a contributor to *Science*, has taken on the science establishment as represented by online open access journals. Posing as, among other pseudonyms, fictional biologist Ocorrafoo Cobange, affiliated with the also-fictional Wasse Institute of Medicine in Asmara, a real city in Eritrea, Bohannon submitted essentially the same paper to more than 300 journals.³⁶

Bohannon’s paper posited the probability of a cure for cancer via a particular form of lichen, which could be easily synthesized into a drug immediately available to patients. In his different versions of the paper, he randomly changed the type of cancer, lichen, and drug, plucking them “out of a hat.”³⁷ But the data are consistent in the different versions, as are the descriptions of some obviously flawed experiments. “The goal,” Bohannon stated in the resultant *Science* article, “was to create a credible but mundane scientific paper, one with such grave errors that a competent peer reviewer should easily identify it as flawed and unpublishable.” After a major sifting through potential publications, he settled on 304 journals, 167 from DOAJ, 121 from Beall, and 16 that were cross-listed.³⁶

The results? Of the original 304 papers, 167 were accepted, 98 were rejected, and the remainder were either still “under review” or had been sent to “derelict” websites. The number of acceptances astonished the author: “I was expecting 10 to 15 percent, or worst case, a quarter accepted. . . . Peer review is in a worse state than anyone guessed.”³⁸ Even more disconcerting is the fact that fully 60% of the acceptances “occurred with no sign of peer review.”³⁶

Dear Alimo Atoa,

We fully respect your choice and withdraw your artilce.

If you are ready to publish your paper,please let me know and i will be at your service at any time.

Sincerely yours, Grace Groovy

Figure 7. The final email

As a postscript, after Bohannon had published his article detailing the experiment, he received the email shown in Figure 7. It was, he wryly suggests, “a surreal love letter from one fictional character to another.”³⁶

Hoaxes are not limited to the United States; in August 2013, a trio of Serbian pranksters, Dragan

Djuric, Boris Delibasic, and Stevica Radisic, submitted a totally bogus paper that appeared in the Romanian journal *Metalurgia International*. Titled “Evaluation of Transformative Hermeneutic Heuristics for Processing of Random Data,” the paper includes so many absurd aspects that it is obvious that the journal simply published it without review and, perhaps, without even reading it. The authors cite for authoritative support the Disney character Goofy’s publication in *Mikijev Zabavnik*, a children’s comic book;³⁹ rock star Michael Jackson and porno star Ron Jeremy; “the noted Kazakh polymath B. Sagdiyev,” more familiar to moviegoers as Borat; and a number of deceased luminaries, including German thinker Max Weber, Swiss scientist Jacob Bernoulli, and French mathematician Pierre-Simon LaPlace. The “new studies” conducted in 2012 and 2013 by the latter two figure prominently in the piece.⁴⁰

The genesis of the prank was a concern with a strict research and publication requirement imposed for promotion; Serbian educators have generally responded with an outflow of questionable research published in dubious journals. Djuric and Delibasic, information technology professors at the University of Belgrade, chose this route to express their displeasure with the state of “quasi-scientific” research published in journals that will apparently accept anything.³⁹

The hoaxes recounted above are a mere sampling of many that have occurred since the emergence of online open access journals. All serve to illustrate the major issues that Beall and others have been grappling with in regards to predatory journals: a deficiency of quality control, seriously flawed or non-existent peer review processes, outrageous publication fees, and an overall lack of attention to content. As academicians, we should be gravely concerned with the ramifications of disseminating patently false or fabricated information that undercuts legitimate research and the journals that maintain high publishing standards.

Impact

While the concept of open access, that is, free information for all regardless of economic stature, is surely a positive one that helps to equalize the significant economic disparity between first- and third-world information consumers, the current situation with predatory journals is simply unacceptable.

Damage to Reputations

The possibility of publishing in open access journals that promise almost instant turnaround from submission to print is certainly seductive for junior faculty on the road to tenure and promotion. Those new to academia, in particular, may think that receiving an email asking them to contribute a paper to a prestigious-sounding journal, such as the *International Journal of* [pick a field], is flattering, a small ego boost in what can be a fiercely competitive academic environment. Nowick’s 2008 study of the authors of 600 articles in open access journals shows a slight tendency for pre-tenure, assistant and associate professors to publish online, rather than in print journals; she attributes this to the speed of publication.⁴¹ It is important to note, however, that this study occurred prior to the explosion of predatory journals. A more current study might reveal a significant increase in that tendency, mirroring the increased number of journals.

Even seasoned professionals can be misled, especially by “copycat” associations. Earlier this year, *The New York Times* reported that scientists were recruited to present at a conference called Entomology-2013, which they assumed was the “prestigious, academically sanctioned”⁴² Entomology 2013. The hyphenated version was a “pay to present” conference, similar to the predatory journal model. And in my own research for this paper, I emailed a colleague, an environmental engineer, asking whether “environmental hydrology” was a legitimate field; he responded that it was and that there was even a journal—the *Journal of Environmental Hydrology*—but added that all hydrology is, to an extent, environmental.⁴³

The situation is apparently more intense in developing nations. Roberto Padua, affiliated with the Commission on Higher Education in The Phillippines, writes with dismay about the situation in his country: “Dishonest researchers playing with the system are earning tenure and promotion at the expense of the honest ones,” by publishing subpar research in predatory journals.⁴⁴ And in India, “hundreds of thousands of scientists” are publishing in questionable journals in order to achieve tenure status.⁴⁵

In reality, these publications warrant a line or two in a faculty member’s resume. However, knowingly listing dubious papers published in spurious publications as a way to pad a resume is certainly unethical, and, should anyone check the quality of the publication, could damage authors’ reputations, if not their university positions.

Faculty are also spam-solicited as editorial board members, often for journals outside their areas of expertise. While some may agree without really researching the journal, others decline—and find their names listed anyway. In a 2010 *Chronicle of Higher Education* forum, one faculty member wrote about his invitation to join a journal published by the OMICS group, “I was asked by this company to serve as an editorial board member. I declined, as my research area expertise has shifted dramatically from the subject matter of the journal. This group then took my name and affiliation, and then listed me as a member of their board without my permission!”³² Others may find their names simply added to an editorial board, unaware of the action until alerted by colleagues.⁴⁶

Damage to Research in General

In addition to raising real concerns about faculty members’ expertise, articles in predatory journals may inflict real damage on an unknowing public. Richard Poynder has published a series of interviews with editors and publishers of predatory journals, interlaced with his own perceptions, and notes a potential health problem: “Since many of them are publishing medical research that might be used in patient treatment decisions,” he explains, “there is a serious public health issue.”³²

Public opinion on various topics may also be affected by sham journal publications and can further undercut a flagging confidence in scientific research, typified by the current skepticism regarding global warming. For example, Otis Williams’ paper, entitled “Stonehenge,” appeared in *The Journal of Earth Science and Climatic Change*, a publication of the OMICS Group. Published within a week of submission, the paper posits that Stonehenge is linked to a

mysterious infection, emanating from Europe, that is the cause of global warming, which is the planet's way of dealing with the infection.³² While Williams' viewpoint is certainly original, one might rightly question why it was published in a journal that purports to conduct peer review, or, more realistically, why it was published at all! The writer, a retired Detroit public transit worker, has no academic credentials and claims to be "self-taught in biology, planetary science, earth science, quantum mechanics and the Holy Bible."³² Anyone searching for Stonehenge on the Internet could access this paper and may even find the information provocative.

Given the very short timeline between receipt of the paper and publication, no peer review could have possibly occurred, and the editor who accepted it is in clear violation of the Council of Science Editors' standards and ethics for publishing in scientific journals: "Editors of scientific journals have responsibilities toward the authors who provide the content of the journals, the peer reviewers who comment on the suitability of manuscripts for publication, the journals readers and the scientific community, the owners/publishers of the journals, and the public as a whole."⁴⁷

A further problem is posed by journals that republish materials that have already appeared in other venues. In 2010, two new journals published by Scientific Research Publishing, *Journal of Modern Physics* and *Psychology*, simply reprinted articles for their inaugural issues, including one that had received a prestigious award.⁴⁸ Duplicate publication can make the literature associated with a particular field seem more abundant than it actually is and may affect funding for projects, especially from external sources.

Ethical Concepts

At heart, the issues involving predatory journals are a matter of ethics. Several areas that comprise ethical breaches by predatory journals include trust, deception, and negligence.

Trust

"Academic publishing depends, to a great extent, on trust," state the writers of Blackwell Publishing's "best practices" policies. "Editors trust peer reviewers to provide fair assessments, authors trust editors to select appropriate peer reviewers, and readers put their trust in the peer-review process."⁴⁹ Trust allows readers to accept the information as credible, as it has been through a number of editorial checks. While some errors do creep in and some legitimate publishers may unwittingly fall prey to unscrupulous practices, as in the Elsevier scandal that involved its Australian office printing six corporate-sponsored publications that looked like journals,⁵⁰ readers and researchers alike must have confidence that scholarly publications are printing real, empirically verifiable research.

By publishing materials that have not been peer reviewed and that may contain unreliable—or even fabricated—information, predatory journals are violating the concept of trust and, as Beall notes, "creating new burdens for those engaged in the evaluation of scholarly activities."⁵⁰ Those of us who publish in scholarly journals depend on the work of our predecessors and peers; we assume that those works are accurate and reliable. With the new landscape of publishing, however, simple trust is no longer possible: we must now double-check all Internet information

to ensure that it is real.

Deception

We have already mentioned some of the more obvious deceptive practices of predatory journals, such as claiming non-existent peer review and hiding substantial publication fees. Beall and others note a number of less apparent deceptive practices.⁵⁰

- *Indexing services:* Some journals claim that their publications are listed in indices that are not actually indexing services, such as Google/Google Scholar, which are Web search engines; UlrichsWeb, which is a list of serial publications; and Index Copernicus, which is simply a database.⁵⁰ For a journal to be listed in a real indexing service, it must meet strict evaluation criteria.
- *Association:* Some journal titles attempt to gain recognition by association; for example, Beall cites the “American Journal of . . .” that is actually headquartered in Pakistan. By including “American” in the title, the publisher hopes “that some of the legitimacy of more respected journals will rub off on it.” Other predatory journals duplicate the names of legitimate journals, as in the *Journal of Parasitology*.⁵¹
- *Impact factor:* A journal’s impact factor depends on the number of times its articles are cited in other publications. While some predatory journals simply fabricate impressive impact factors or engage in excessive self-citing, others report the “view” factor, which is merely a page view. Looking at an article is very different than citing it in another scholarly publication.⁵⁰

Negligence

Negligence refers a departure from established publishing standards.⁵¹ Lax or non-existent peer review, serious editing errors, and publishing plagiarized or previously published material—all transgress professional standards for publication that are universally available to researchers: for undergraduates, university libraries have developed “helpful hints” for writing research papers and include some basic ethical principles; for master’s or doctoral students, graduate schools typically have a thesis or dissertation handbook; and for university professors, professional organizations and journals detail standards on their websites.

But such is not the case with predatory publishers. They have “cut corners and insidiously claimed to adhere to these professional standards when in fact they have not,”⁵⁰ including peer review, the composition of editorial boards, and obscure author charges.

It would be incorrect, however, simply to blame predatory publications for the current situation. The bottom line is that scholars and researchers need to temper their eagerness for quick publication and, as Poyder states, be “more discerning— more discerning about how and where they publish, more discerning about which publishers they associate themselves with, and more discerning about the quality of the review process used by the journals on whose boards they

sit.”³² While editors may hurry the process along, it is the authors who make the conscious decision to submit their work to questionable journals; it is the authors, as well, who are responsible for investigating what type of journal they are submitting to, and who may benefit from a review of their professional codes and ethical principles.

Conclusions

Provision 36 in the Declaration of Helsinki states, “Researchers, authors, sponsors, editors and publishers all have ethical obligations with regard to the publication and dissemination of the results of research.”⁵³ Although this very detailed document was originally developed for medical researchers, much of it pertains to STEM areas as well. Adherence to ethical principles helps to ensure that scholarly publications are transparent, thorough, and equitable; that submissions receive appropriate attention from reviewers and editors alike; and that readers can trust the information presented.

Predatory open access journals, however, do not follow that paradigm, using scholarship for financial gain and, in doing so, showing a disdain for authors and readers. Ultimately, it is the latter who suffer from a diet of misinformation, unreliable information, or patently false information.

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