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Connecting the dots

Strengthening Research Integrity: Roles And Responsibilities Of Various Stakeholders

WHITEPAPER

Introduction

Integrity in scholarly publishing has never been more critical or more challenging. In a world of citation and data manipulation, conflicts of interest, plagiarism, retractions and corrections, questionable authorship, fraudulent peer review, papermills, and more, this issue has never been more pervasive. The publishing landscape is complex and multi-faceted, and all of its stakeholders, including researchers, publishers, institutions, funders, academics, societies, and service providers, have a part to play in achieving this goal. Recent years have seen extensive work put into raising awareness of research integrity and developing improvements in this area in order to facilitate the worldwide dissemination of reliable and ethical information.

Scholars today are under increasing pressure to publish and be widely cited in order to advance their careers and attract grant funding. Concurrently, it appears that various types of questionable practices, misconduct, and even fraud are on the rise. While the financial or reputational gain may be at the root of unethical behavior, the fact that there has been little formal training in research and publication ethics is also a contributing factor.

Importance Of Research Integrity

It is the publisher's responsibility to oversee the review of submitted manuscripts and select those that are deemed publishable, making them an essential player in upholding the integrity of the publication record. As more and more researchers see opportunities to manipulate the system to their benefit, this practice on the part of publishers has become a new ethical battleground in recent years. Therefore, publishers, their editorial staff, and peer reviewers are increasingly under the microscope to ensure high standards are being upheld.

Whether acting as authors or peer reviewers, researchers are prone to making errors, which is why the system of correction and retraction plays such an important role in ensuring the caliber of published works.

The COVID-19 patient health data retraction scandal, which received widespread media attention, exemplifies the importance of scholarly integrity and the perils of misleading research. In several cases, retractions were issued after data inconsistencies were discovered and requests to audit and verify the raw data were denied. The retraction of studies, such as the one published in The New England Journal of Medicine in 2020, led to a general lack of trust in COVID-19-related research and even temporarily halted clinical trials for the drug hydroxychloroquine. Despite the fact that the papers had been retracted, a large number of studies continued to cite them.

Types Of Behavior That Undermine Research Integrity

It is significant to remember that misconduct is not dichotomous. A continuum of actions could be deemed unethical, from relatively minor ones to far more serious ones like acquiring authorship and altering experimental data. When the stakes are low, individuals may not realize their actions are highly questionable, either because of a lack of information or because they are accepted as the norm in the local community. The line becomes more distinct and the authority to identify and penalize offenders is more easily exercised when the scale of misconduct increases.

It is essential to take into account the bigger picture, regardless of whether one is acting out of personal or communal motivation. The pressure to perform is a major influencing factor in the research system, making assessment a crucial part of the machinery that affects people's behavior. Several metrics are used to inform decision-makers, including grants obtained, articles published, and citations received. A student's choice of school often depends on the institution’s position in a certain rating. Employers, funders, and government agencies all evaluate potential researchers to see whether or not they have the skills and experience necessary to do their jobs effectively. Similarly, researchers consider the financial stability of journals when choosing a publication venue. Everyone is evaluating their success based on how they compare to their peers and devising a plan to succeed. Several initiatives have been launched to find common ground and enhance the assessment of research in light of the many issues that have been raised about the evaluation system as a whole.

Stakeholders Responsible For Upholding Research Integrity

Various players in the scientific community have prioritized research integrity as a means to strengthen the reliability and validity of findings, promote ethical research cultures, and preserve the public's faith in the scientific method. Establishing a mutually beneficial connection between authors and peer reviewers, editorial assistants, editors, research funders, publishers, and institutions is essential to maintaining research integrity. Maintaining integrity in research calls on everyone involved to learn as much as they can on how to identify and tackle instances of misconduct.

Researchers/Authors and Reviewers:

The authors of the reported research are the first line of defense in ensuring the integrity of the peer review process. Authors have a responsibility to conduct and present the research in an ethical manner. In their writing and research, authors should never commit acts of misconduct such as fabrication, falsification, or plagiarism.

Further, authors should disclose any financial interests they have in the research or any funding sources that supported the work at the time of submission. It is common for authors to recommend potential reviewers for their submissions, especially when the research topic is new, complex, or highly specialized. Additionally, nebulous players who pose as providing publishing support and guaranteeing outcomes may also get in touch with authors under the guise of offering support. They need to exercise extreme caution with organizations of this kind since they can take over the whole publication process from the author. Authors should therefore contact the editor of the journal for advice in such situations.

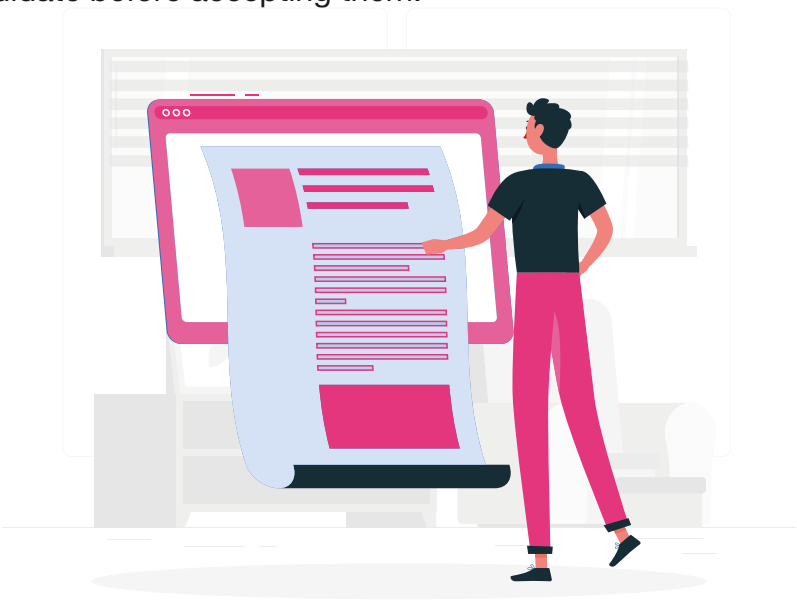
Similarly, reviewers have a number of responsibilities, all of which contribute significantly to maintaining the reliability of research. Reviewers are required to complete their evaluations within the timespan specified by editors. They need to be aware of both their capabilities and their limitations. Reviewers are required to inform the editor and step away from the review if they become aware that they lack the knowledge or time necessary to carry out the review in a professional manner. The reviewer's comments and conclusions should be grounded in evidence, with no room for any personal or professional bias. Further, it is crucial that all financial as well as non-financial interests be disclosed. A reviewer's financial ties to the subject matter under consideration may not always be a deal breaker. Reviewers who have a conflict of interest (CoI) should discuss this with their editor before submitting their reviews. Similarly, one of the defining characteristics of the peer review process is its emphasis on maintaining confidentiality. Reviewers are strictly forbidden from disclosing any information they learn about a manuscript they are evaluating to anyone outside of the review process.

Finally, authors and reviewers should take advantage of ongoing training opportunities (face-to-face training and e-learning programs) to ensure they are up-to-date on the most recent norms and expectations for doing ethical research in their respective fields.

Publishers:

Publishers have a responsibility to verify the validity of the research they publish and to present a thorough, accurate, and open account of the research outcome whenever possible.

The primary responsibility for ensuring the integrity of the published literature rests with publishers and journal editors. However, as more and more papers are submitted to journals, editors feel increased pressure to speed up the review process. They are frequently torn between reducing submission-to-decision times, identifying manuscripts suitable for publication, maximizing the journal's impact factor, and increasing revenue. Such situations may lead editors to make poor peer reviewer selections or fail to authenticate selected reviewers, leaving the journal susceptible to peer review manipulation. A great way to ensure that reviews are completed on time and to a high standard is to establish a pool of qualified peer reviewers who are either known to the editors or are well-respected in the scientific community. Editors should be involved in selecting and appointing peer reviewers, even if they occasionally need to approach authors for reviewer recommendations. As an example, some publications do not entertain recommendations for reviewers with non-institutional e-mail accounts. While it may be argued that absence of an institutional address does not automatically disqualify a potential reviewer, it is neverthelessprudent to perform a complete vetting on any candidate before accepting them.



Journals should take further measures beyond simple vigilance to prevent submissions from authors using false identities from appearing in their systems. As a safeguard against fraudulent authors who create false identities and masquerade as reviewers, editors may stipulate that prospective reviewers must have either an ORCID record or a ResearcherID for them to be considered for the role. Furthermore, publishers should prioritize password management in order to safeguard their online submission systems. Multi-factor authentication (MFA) or two-factor authentication (2FA) is currently the most effective line of defence against password-based attacks. The underlying idea is that the user must input something they know (the password) and use something they have, for example, a smartphone. While some implementations of MFA are very effective, not every MFA method is risk free. The Information Security Officer of publishers would be able to evaluate the system risks and provide necessary mitigation measures

Funders and Research Institutions:

Research organizations and funders each play unique but complementary roles in the larger effort to promote integrity in scientific findings. Both research organizations and funders are encouraged to create a Research Integrity Promotion Plan (RIPP) by the Standard Operating Procedures for Research Integrity (SOPs4RI) consortium. A RIPP for a research organization, for instance, should promote and encourage things like a positive research culture, adequate mentoring and supervision, research ethics structures, research integrity training, reliable data management, productive collaboration, and open and transparent responses to research integrity violations. Funders play a distinct role. They can encourage, protect, and mandate ethical research practices from academic institutions and researchers. Equally essential, funders should ensure that their own internal processes adhere to the strictest norms for reliable scientific study.

By mandating that the institutions and individuals they support make an explicit commitment to research integrity, research funders are uniquely positioned to promote research integrity. For instance, the European Commission (EC) requires research organizations receiving funding from the 95 billion Horizon Europe program to have policies and procedures for research integrity in place at the institutional level. The EC expects grantees to adhere to the European Code of Conduct for Research Integrity's (ECoC) principles of research integrity and recommends that research institutions create and implement a RIPP to fulfill these requirements.

The White House Office of Science and Technology Policy (OSTP) issued a memorandum to all federal departments and agencies in August 2022, instructing them to amend their public access policy as soon as possible to ensure that all research papers and data resulting from US government supported research were made freely available to the public upon publication. Updated policies, including the removal of the voluntary 12-month embargo, must be completely implemented across all agencies by December 31, 2025. This new guidance applies to research articles, any supporting data, including metadata about researchers and funding.

China announced a new STM policy in 2020 that could help to reduce both ‘pressure to publish’ and scientific misconduct. In light of the new regulations, academic institutions in China are no longer allowed to offer publication incentives. Another important aspect of the new policy is that institutions must not recruit or promote researchers merely based on their publication history. The new policy has been met with mixed reactions from the academic community, with some researchers applauding it and others taking a more cautious approach.

Promoting Best Practices for Research Integrity

Implementing research integrity standards may not be simple, risk-free, or successful all the time, despite the efforts and responsibilities of the stakeholders outlined above. This becomes obvious as cases of research misconduct and harmful research practices persist, leading to more severe outcomes like slowed scientific progress, wasted resources, decreased credibility of scientific work, and lowered public trust in scientific findings.

All stakeholders must collaborate to achieve lasting beneficial changes while adhering to clearly defined responsibilities. Researchers should adhere to the policies and guidelines provided by research organizations. Research organizations should establish research integrity bodies for investigating and sanctioning breaches of research integrity, modify evaluation criteria, and provide researchers with clear policies and courses tailored to their needs. Researchers and research organizations, along with funders and publishers, should take steps to improve the scientific system by, for example, implementing measures that lessen the burdens of competition and stress and instead foster an atmosphere that values transparency, openness, trust, and fairness.

In an effort to protect the integrity of science, STM Solutions, the operational arm of STM, has developed STM Integrity Hub, a collaborative space where publishers can collaborate to address issues pertaining to research integrity. The architecture of the collaborative platform ensures that publishers retain complete control over the content, thereby protecting privacy and confidentiality. Most importantly, the system's ability to work with content from a variety of publishers allows it to identify problems that extend beyond individual submissions, journals, or publishers.

In this age of digital transformation, collaboration between people and technology is as crucial as collaboration between people. Technology can lead us to reconsider existing workflows. With software like iThenticate, editors can either automatically generate similarity reports through their peer review software or do one-off similarity tests for incoming submissions. AI may also be used to automate and scale up tasks like finding expert reviewers or detecting image manipulation. Other technology solutions include checking to see if a manuscript has been submitted to another journal at the same time, analyzing key signals that may suggest that a manuscript has been manufactured by a paper mill, and screening references for quality in order to identify self-citations, citations to retracted works, and inaccurate citations.

Artificially intelligent chatbot ChatGPT has garnered a lot of attention since its release in November 2022. By identifying word patterns and speculating on what to write next in response to a textual prompt or set of instructions, the model may generate text that resembles human writing. Earlier this year, officials chairing the International Conference on Machine Learning banned authors from submitting papers that included text generated by large language models and tools like ChatGPT.

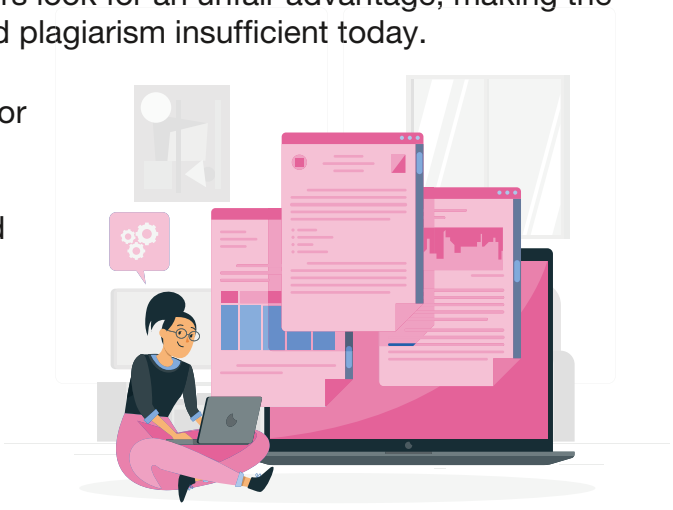
On this front, the race is on to create tools that can differentiate between AI-generated and human-generated text. While there is no fool proof method for identifying AI-written content, these new tools can help reduce the likelihood of erroneous accusations that bots composed otherwise human-sounding content.

Conclusion

For many years now, scholarly publishing has played an essential part in disseminating the results of academic research, serving as a platform upon which new ideas can be discussed, critiqued, and ultimately refined.

There is a widely held belief that the quality of research is enhanced by researchers' adherence to a code of ethics and the use of rigorous peer review processes. New forms of manipulation are emerging as some stakeholders look for an unfair advantage, making the traditional focus on fabrication, falsification, and plagiarism insufficient today.

A scholarly publication is the standard vehicle for disseminating research results and creating a permanent archive of expert understanding, regardless of whether the study was conducted in a laboratory, on the field, or intellectually. As a result, a publication exhibits the degree of integrity that was upheld throughout the entire creation process, including the drafting of the manuscript, the peer-review procedure, and editorial input.



Following publication, research is evaluated using a variety of assessment methods implemented by a wide range of stakeholders to determine its quality. Since no single entity can be held accountable for policing and enforcing research integrity, it is essential to work together to establish new standards for what constitutes unethical behavior and determine what steps should be taken when these standards are violated. Inappropriate implementation, however, can make it an incentive for the perversion of research integrity, motivating some actors to look for loopholes to gain an unfair advantage. And, to remain competitive in the face of these players, the industry must create a strong, agile process supported by SMEs and technology.

About Straive (formerly SPi Global)

Straive is a market leading content technology enterprise that provides data services, subject matter expertise (SME) and technology solutions to multiple domains such as research content, e-Learning / EdTech and data/information providers. With a client-base scoping 30 countries worldwide, Straive's multi-geographical resource pool is strategically located in eight countries - Philippines, India, USA, China, Nicaragua, Vietnam, United Kingdom and the company headquarters in Singapore.

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References:

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Factors influencing the promotion and implementation of research integrity…