

## Analysis of Research Integrity Issues in Academic Papers and Exploration of Solution Paths (Post-print)

**Authors:** Li Pei, Zhang Ziwei, Xiaofeng Chen, Liu Qi

**Date:** 2023-10-08T00:00:00+00:00

### Abstract

Faced with the endless scandals of research integrity in the current academic domain, and to explore effective pathways for preventing academic misconduct, this study first briefly summarizes the main types of academic misconduct in the current research field by integrating previous research and typical cases. On this basis, it analyzes the causes of research integrity issues in academic papers, and finally elaborates on the solution pathways provided by the open science initiative based on Open Science Identity (OSID). The OSID platform creates an online interactive academic communication platform through features such as voice introduction, online Q&A, academic circles, and open content and data. This platform helps establish a more fair and reasonable academic evaluation mechanism based on individual papers and vigorously promotes the popularization of the open science movement. In the face of the severe environment of academic misconduct, journal publishers should play the role of “gatekeepers” for research integrity, actively promote digital transformation, actively embrace the open science movement, and gradually develop journal brand effects.

### Full Text

#### Abstract

In response to the endless scandals concerning research integrity in academia, this paper explores effective pathways to prevent academic misconduct. By integrating previous research with typical cases, we first briefly categorize the main types of academic misconduct currently prevalent in the research field. Building upon this foundation, we analyze the underlying causes of research integrity issues in academic papers. Finally, we elaborate on the solution pathway offered by the Open Science Initiative based on the Open Science Identity

(OSID) code. The OSID platform creates an online interactive academic platform through features such as voice introductions, online Q&A, academic circles, and open content and data. This platform helps establish a more fair and reasonable single-paper-based academic evaluation mechanism and vigorously promotes the popularization of the open science movement. Faced with the severe environment of academic misconduct, journal publishers should fulfill their role as “gatekeepers” of research integrity, actively promote digital transformation, embrace the open science movement, and gradually develop journal brand effects.

**Keywords:** academic papers; research integrity; OSID; open science; peer review; academic misconduct

**CLC Number:** G311

**Document Code:** A

**Open Science (Resource Service) Identity (OSID):**

**Authors:** LI Pei<sup>1</sup>, ZHANG Ziwei<sup>2</sup>, CHEN Xiaofeng<sup>1,3</sup>, LIU Qi<sup>1</sup>

Research integrity is the cornerstone of scientific and technological innovation. It requires researchers to seek truth from facts, refrain from deception and fraud, and uphold scientific value criteria, scientific spirit, and behavioral norms in scientific activities [1]. In recent years, China has achieved remarkable progress in research integrity construction across various dimensions. However, academic misconduct scandals continue to emerge, severely damaging public trust in academia and hindering the healthy development of the academic field.

## 1. Rampant Academic Misconduct

Academic misconduct refers to violations of recognized academic standards and breaches of research integrity by university faculty, researchers, administrators, and students in scientific research and related activities [2]. Scholars have categorized academic misconduct from different perspectives. Chen Qiaoling identified six aspects including research outcomes, experimental data, and authorship [3], while Wu Shouqian divided the research process into four stages, noting that integrity issues may arise at each stage [4]. At the national level, relevant authorities have issued multiple documents, yet unified standards remain lacking. The Ministry of Education’s “Notice on Seriously Dealing with Academic Misconduct in Higher Education Institutions” (Jiao She Ke [2009] No. 3) classified academic misconduct in universities into seven categories. The “Five Prohibitions for Publishing Academic Papers” jointly issued by the China Association for Science and Technology and six other departments (Ke Xie Fa Zu Zi [2015] No. 98) specifically called for resolute resistance against “third-party” academic misconduct. In May 2018, the General Office of the CPC Central Committee and the General Office of the State Council issued “Several Opinions on Further Strengthening Research Integrity Construction,” explicitly requiring researchers to abide by five “must-nots.”

Based on previous research and relevant reports, this paper identifies the follow-

ing main types of academic misconduct through typical cases:

- (1) **Plagiarism and altering others' achievements.** This represents one of the most prominent forms of academic misconduct. In October 2018, *The Beijing Youth Daily* published an article titled “Young Yangtze River Scholar and Her ‘404’ Papers,” exposing how Professor Liang Ying of Nanjing University made over 120 Chinese publications disappear. Upon investigation, at least 15 of her papers were found to contain plagiarism [5].
- (2) **Irreproducible research results.** In August 2018, Hebei University of Science and Technology released “Han Chunyu’s Statement on the Investigation Results of the Retracted Paper,” stating that after repeated verification experiments, the retracted paper had experimental design flaws and an unrigorous research process, though no subjective fabrication was found in his team [6].
- (3) **Deliberate fabrication of experimental data, images, and processes.** In April 2017, Tsinghua University determined that 16 papers published by doctoral student Ye Xiaoxin during his studies contained self-plagiarism, image reuse, and fabricated experimental results [7]. In October 2018, Harvard Medical School Professor Piero Anversa had 31 papers retracted for data fabrication, directly causing the field of myocardial regeneration research to collapse [8]. Similarly, Haruko Obokata of Japan’s RIKEN institute was forced to resign in 2014 for fabricating and altering experimental images and data.
- (4) **Fake peer review.** In April 2017, Springer Nature announced the retraction of 107 medical papers from China published in *Tumor Biology*, involving 77 institutions and 524 doctors and medical students. Springer stated: “We confirmed that the peer review process for these papers was manipulated. The peer reviewers’ names were real, but the email addresses were fraudulent [9].” This mass retraction severely damaged the international reputation of Chinese researchers.

## 2. Analysis of Causes Behind Research Integrity Issues in Academic Papers

Numerous studies have examined the causes of academic misconduct. Zhou Heng pointed to life pressures, research systems, and evaluation mechanisms as contributing factors [10]. Yuan Junpeng et al. summarized six aspects including research capacity, competitive pressure, and research interests [11]. Feng Wenyu attributed the problem primarily to four areas: research management, academic evaluation, academic ethics, and supervision [12]. Kong Yan et al. focused on analyzing three main responsible parties: universities, journals, and the law [13], while Fang Yudong et al. emphasized internal and external factors [14]. Based on the above typical case analyses, this paper identifies four root causes of academic misconduct:

## 2.1 Lack of Effective Academic Misconduct Review and Punishment Mechanisms

In November 2018, multiple departments jointly issued the “Memorandum of Cooperation on Implementing Joint Punishment for Dishonest Entities in the Research Field” (Fa Gai Cai Jin [2018] No. 1600), listing 43 joint punishment measures. However, it did not clearly specify how to identify academic misconduct, and ensuring effective enforcement remains critical. Currently, most universities and research institutions adopt ex post facto accountability for academic misconduct, typically resorting to retraction, dismissal, and funding revocation when problems arise. Establishing stricter and more effective review and punishment mechanisms to detect academic misconduct before publication and strengthening punitive measures to increase the cost of violating research integrity would significantly improve China’s research integrity standards. Domestic scholar Hu Zhibin has suggested adding an academic fraud crime to the Criminal Law [15], an approach worth learning from South Korea, where Seoul National University Professor Hwang Woo-suk was eventually sentenced in 2005 for deliberately fabricating paper data.

## 2.2 Insufficient Interaction Among Readers, Reviewers, and Authors

Feedback from readers and exchanges between reviewers and authors can expose research integrity issues such as plagiarism, data fabrication, and irreproducible results, creating both pre-publication and post-publication supervision mechanisms that improve paper quality and transparency. In the case of Harvard Medical School Professor Piero Anversa, if readers could directly discuss and question his papers, the journal editors would have been alerted promptly, enabling timely retraction and preventing more severe consequences.

## 2.3 Inherent Defects in Traditional Peer Review

Peer review employs a method where authors recommend or editors invite several scholars in the same field to evaluate papers—a content-based qualitative evaluation method universally adopted in international academia, primarily aimed at helping academic journals determine whether a paper merits publication. Traditional peer review typically adopts either “single-blind” (author identity revealed to reviewers) or “double-blind” (mutual anonymity) models, inevitably leading to insufficient transparency, trust deficits, and low review efficiency. In the 2017 *Tumor Biology* mass retraction incident, the imperfect peer review system required authors to recommend reviewers when submitting manuscripts, increasing the risk of fake peer review.

## 2.4 Deficiencies in Author Personal Integrity and Editor Professional Ethics

While acknowledging defects in current research management and evaluation systems, some individuals still exploit loopholes, reflecting low moral character

and weak integrity awareness among certain authors. Additionally, editors' lack of professional ethics enables interest-driven paper publication, while their negligent review processes create opportunities for misconduct. In Liang Ying' s "404 papers" incident, such blatant plagiarism and arrogant statements seemed inconceivable but were essentially the dual result of inadequate personal self-discipline and insufficient editorial responsibility.

### 3. Exploring the Path of the Open Science Initiative

The Open Science Initiative, from an open science perspective, utilizes the Open Science Identity (OSID) platform to assign a unique QR code to each paper, giving it a distinct identity to enable online interactive communication and precise knowledge services [16]. Through functions such as voice introductions, online Q&A, academic circles, and open content and data, the initiative establishes an author integrity commitment system, optimizes peer review processes, values reader feedback and exchanges, maximizes dissemination through social networks, and ultimately promotes the construction of an academic paper research integrity system.

#### 3.1 Creating an Online Interactive Academic Platform

The OSID platform 致力于 connecting authors, reviewers, and readers to foster a clean, collaborative, and positive academic ecosystem. During the review stage, authors can upload supporting materials including video introductions, experimental data, PDF course materials, award certificates, and patent authorizations to demonstrate originality and objectivity, and revise papers based on reviewer comments to improve quality. After publication, authors can build their own reader communities, answer questions, verify experimental data and processes, and find breakthrough ideas for future papers through intellectual exchanges. Reviewers can scan the OSID code to view supplementary materials, question and challenge authors about paper content, and provide evaluation opinions, thereby enhancing peer review transparency and trust. If readers have questions about paper content, they can simply use their mobile phones to scan the embedded OSID code with WeChat, enter the dedicated Q&A section, and engage in online discussions with authors. They can also access open content through the data interface to repeat experiments or gain experience for their own writing.

#### 3.2 Establishing a Single-Paper-Based Academic Evaluation Mechanism

Traditional peer review and impact factor-based evaluation methods suffer from one-sidedness, lag, and insufficient transparency, making them increasingly unsuitable for academic evaluation needs in the internet era. In 2010, Priem proposed a new method for evaluating academic papers based on social impact—Altmetrics [17]—which has gradually gained widespread application. Altmet-

rics incorporates social network browsing, likes, comments, and shares into the evaluation system, though cultural and language differences currently limit its applicability to China's academic evaluation system.

Leveraging the OSID platform, reader scans, page views, duration, and comments can serve as reference points for a comprehensive academic paper evaluation system [18]. Additionally, author-reader interactions can increase paper downloads and citations, enhancing the openness and effectiveness of academic evaluation systems, reducing competitive pressure caused by unreasonable evaluation methods, and promoting research integrity development.

### 3.3 Vigorously Promoting the Popularization of Open Science

Currently, academia lacks a clear and unified definition of open science, which encompasses numerous aspects including open access, open data, open peer review, open educational resources, and open methodologies. However, its ultimate goal is to encourage broader participation in scientific research and establish a free-sharing, open-collaboration scientific society.

The OSID-based Open Science Initiative is a public welfare program for the academic journal industry designed to respond to open science advocacy. Authors can upload experimental data, images, and other open data content for readers who need them, and provide brief explanations of research background and experimental methods through voice introductions, presenting papers in a richer, more three-dimensional form. This makes the entire research process and workflow transparent, improving research integrity levels.

To curb academic misconduct tendencies, implement research integrity system reform, and promote research integrity system construction, China issued a series of laws, regulations, and policies from central to local levels in 2018. This demonstrates that China's research integrity construction has reached a critical juncture in the face of a severe academic misconduct environment. In this context, journal publishers should fulfill their role as "gatekeepers" of research integrity, actively promote digital transformation, embrace the open science movement, emphasize the impact and dissemination of single papers, stimulate author enthusiasm and creativity, and develop journal brand effects.

## References

[1] Office of Research Integrity Construction, Ministry of Science and Technology. *Reader on Research Integrity Knowledge* [M]. Beijing: Scientific and Technical Documentation Press, 2009.

[2] Ministry of Education of the People's Republic of China. *Measures for Preventing and Handling Academic Misconduct in Higher Education Institutions* [A/OL]. (2016-06-16) [2018-12-12]. [http://www.moe.gov.cn/srcsite/A02/s5911/moe\\_{621}/201607/t20160718](http://www.moe.gov.cn/srcsite/A02/s5911/moe_{621}/201607/t20160718)

[3] Chen Qiaoling. Multi-dimensional construction of China's research integrity system [J]. *Journal of Huaqiao University (Philosophy & Social Sciences)*, 2018(3): 63-69.

- [4] Wu Shouqian. Misconduct in scientific research and its prevention [J]. *Science and Technology Management Research*, 2006, 26(11): 29-31.
- [5] Yang Shu. Fact-checking work on mass retraction incidents in academic journals basically completed [N]. *Guangming Daily*, 2017-07-28(6).
- [6] Wang Jiaqing. “Liang Ying incident” again proves obsession with papers disrupts “academic circles” [N]. *China Youth Daily*, 2018-10-24(10).
- [7] The Paper. Han Chunyu on investigation results of retracted paper: Experimental design flaws, irrational response to doubts [EB/OL]. [https://www.thepaper.cn/newsDetail\\_{{forward}}\\_{{2400676}}](https://www.thepaper.cn/newsDetail_{{forward}}_{{2400676}}), 2018-09-01/2018-12-07.
- [8] Lei Jia. Tsinghua University revokes doctoral degree of author involved in fraud [N]. *Beijing Youth Daily*, 2018-10-22(4).
- [9] Mu Xi. Harvard stem cell expert’s paper fraud causes industry to regress ten years? [N]. *China Discipline Inspection and Supervision Daily*, 2018-11-25(4).
- [10] Feng Wenyu. Analysis of “academic dishonesty” in university research and its prevention strategies [J]. *Science and Society*, 2018, 8(3): 39-48.
- [11] Yuan Junpeng, Huai Mengjiao. Analysis of concepts, manifestations, and influencing factors of research dishonesty [J]. *Science and Society*, 2018, 8(3): 22-38.
- [12] Zhou Heng. Cause analysis of academic misconduct incidents and possible prevention methods [J]. *Science and Society*, 2018, 8(2): 1-9, 35.
- [13] Kong Yan, Zhang Tieming. Review of academic misconduct research and establishing a “third court” to curb it [J]. *Acta Editologica*, 2013, 25(5): 422-424.
- [14] Fang Yudong, Fang Jikun, Zhang Lili, Chen Yue. Review of research on causes of academic misconduct [J]. *China University Science & Technology*, 2011(11): 15-17.
- [15] Hu Zhibin, Liu Ziliang, Sun Chao. Research on criminal law regulation of academic misconduct [J]. *Academics*, 2011(10): 39-47, 267-269.
- [16] Li Ting, Shi Qiming, Liu Qi. “OSID Open Science Initiative” assists innovative development of academic journal integration [J]. *Publishing and Printing*, 2018(3): 11-17.
- [17] Priem J, Groth P, Taraborelli D. The altmetrics collection [J]. *PloS One*, 2012, 7(11): e48753.
- [18] Chen Xiaofeng, Liu Yongjian, Shi Qiming, Liu Qi. Research on digital transformation of scientific journals based on modern paper book models [J]. *Science-Technology & Publication*, 2018(8): 55-59.

**Author Affiliations:** 1. Key Laboratory of Publishing Integrated Development (Wuhan), National Press and Publication Administration;  
2. School of Humanities and Law, Wuhan University of Technology;  
3. Editorial Office of *Science and Technology Entrepreneurship Monthly*, Hubei Academy of Scientific and Technical Information.

*Note: Figure translations are in progress. See original paper for figures.*

*Source: ChinaXiv – Machine translation. Verify with original.*