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## Postprint: Development of Quality Assurance Systems for Academic Journals in the New Media Era

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### Abstract

The quality of academic journals constitutes the fundamental cornerstone of their construction and development. [Purpose] This study aims to explore the construction and optimization of quality assurance systems for academic journals in the new media era. Through systematic analysis of internal quality assurance systems and external quality monitoring systems, as well as the impact of new media on these two major systems, it provides references for other academic journal publishers to enhance journal quality and influence in the new media environment. [Method] This paper summarizes the specific impacts of the new media era on the internal and external systems of academic journals, and takes the practice of Chongqing Functional Materials Journal Press in the new media era as a case study to analyze in detail its experience in gradually improving the journal quality assurance system through digitalization, information construction, and user interaction. [Result] Through the analysis of the practice of Chongqing Functional Materials Journal Press in the new media era, this study reveals the specific pathways and effectiveness of constructing quality assurance systems for academic journals in the new media environment. [Conclusion] This paper proposes optimized development strategies for constructing quality assurance systems for academic journals in the new media era, including: strengthening digitalization and information construction to enhance editorial quality and dissemination efficiency; enhancing user interaction to improve journal visibility and influence; and continuously improving internal quality assurance systems and external quality monitoring systems to ensure sustained improvement in journal quality.

## Full Text

### Preamble

#### Development of Quality Assurance System Construction for Academic Journals in the New Media Era

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### Abstract

**[Objective]** This study aims to explore the construction and optimization of quality assurance systems for academic journals in the new media era. Through systematic analysis of internal quality assurance systems and external quality monitoring systems, as well as the impact of new media on these two systems, it provides references for other academic journal publishers to enhance journal quality and influence in the new media environment. **[Methods]** The study summarizes the specific impacts of the new media era on internal and external systems, using the new media practices of Chongqing Functional Materials Journal Society as a case study to analyze in detail its experience in gradually improving the journal quality assurance system through digitalization, informatization, and user interaction. **[Results]** Through analysis of Chongqing Functional Materials Journal Society's practices in the new media era, the study reveals specific pathways and effectiveness for constructing academic journal quality assurance systems under new media conditions. **[Conclusion]** The study proposes optimized development strategies for academic journal quality assurance system construction in the new media era, including strengthening digitalization and informatization to improve editorial quality and dissemination efficiency; enhancing user interaction to increase journal visibility and influence; and continuously improving internal quality assurance and external quality monitoring systems to ensure sustained quality enhancement.

**Keywords:** new media; academic journals; assurance system; quality assurance; development strategies

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### Introduction

With the rapid advancement of technology, new media forms such as the internet, mobile devices, and social media have evolved continuously, fundamentally

transforming not only people's lifestyles but also exerting profound influence on academia. As crucial platforms for academic exchange, the quality assurance of academic journals has become particularly important. In this new media context, constructing and improving quality assurance systems for academic journals to ensure their academic value and influence has emerged as a subject worthy of in-depth investigation. The advent of the new media era has dramatically accelerated the dissemination of academic information and unprecedentedly expanded the breadth and depth of academic exchanges. However, it has also introduced numerous challenges, including information overload and the spread of misinformation, which impose higher demands on academic journal quality. Therefore, establishing and refining quality assurance systems for academic journals represents a critical means to address these new media challenges.

The quality of academic journals directly relates to the dissemination and impact of academic research. High-quality journals not only attract outstanding scholars and research outputs but also drive disciplinary development and progress. Consequently, establishing and perfecting quality assurance systems holds significant importance for enhancing journal quality and influence while promoting academic advancement. This study delves into quality assurance system construction for academic journals in the new media era by analyzing new media's impact, clarifying system components, and conducting an in-depth case study of Chongqing Functional Materials Journal Society's new media practices to propose development strategies. Through this research, we aim to provide valuable references for academic journal publishers seeking to enhance journal quality in the new media era.

## 1. Components of Academic Journal Quality Assurance Systems

An academic journal quality assurance system refers to a comprehensive set of institutions, processes, and mechanisms established to ensure publication quality, ethical standards, and publishing criteria. This integrated, multi-faceted system aims to guarantee the reliability and credibility of academic journals as important channels for disseminating research findings, thereby ensuring published content meets high academic standards. The system typically comprises two complementary components: internal quality assurance systems as the foundation, and external quality monitoring systems as supplementation, working together to drive continuous quality improvement.

### 1.1 Internal Quality Assurance System

The internal quality assurance system consists of institutions and processes established within a journal publisher to ensure internal operations and publication quality. This system forms the foundation of academic journal quality assurance, primarily encompassing manuscript quality control, editorial team

development and training, and standardized publication workflow management. Manuscript quality represents the direct manifestation of journal quality and must be secured from the source through rigorous screening of high-quality submissions. Editorial team development is equally critical, as editors' professional competence and sense of responsibility directly impact journal quality. The internal system should emphasize continuous training and exchange to enhance editors' professional expertise and academic level, thereby improving overall editorial quality. Additionally, standardized workflow management across all stages—including manuscript solicitation, screening, peer review, editing, typesetting, and proofreading—ensures each 环节 strictly follows standard procedures. Through internal quality assurance system operation, internal management and editorial workflows become more streamlined, improving efficiency, shortening publication cycles, and enabling faster dissemination of academic achievements.

### 1.2 External Quality Monitoring System

The external quality monitoring system comprises external evaluation and supervision mechanisms for academic journal quality, primarily including participation of professional evaluation institutions, inter-journal cooperation and exchange, and establishment of social supervision mechanisms. Third-party evaluation institutions such as Science Citation Index (SCI) and Chinese Social Sciences Citation Index (CSSCI) provide objective assessments of academic quality, editorial standards, publication quality, and influence, offering scientific and impartial evaluation results that establish clear quality benchmarks and improvement directions. Organizing academic exchanges and cooperation among journals promotes information sharing and experience exchange, collectively enhancing overall quality and advancing the field. Furthermore, external quality monitoring systems strengthen connections and interactions with society, which both enhances social influence and promotes dissemination and application of academic achievements, while establishing external supervision mechanisms such as peer review and expert evaluation to reinforce quality awareness and social responsibility. This system plays a vital role in promoting quality improvement and academic exchange prosperity.

## 2. Impact of the New Media Era on Academic Journal Quality

The diversification of information technology and network dissemination methods in the new media era has profoundly impacted academic journal quality assurance systems, manifesting in both internal quality assurance and external quality monitoring dimensions.

## 2.1 Streamlining Internal Processes and Elevating Editorial Requirements

The new media era has transformed academic journal dissemination, enabling faster and broader distribution. This requires journals to prioritize timeliness and relevance in content selection, editing, and publication to meet readers' needs for rapid access to academic information. In the new media environment characterized by massive and diverse information, ensuring the academic, professional, and authoritative nature of published content poses a significant challenge to internal quality assurance systems, making rigorous content review and quality control particularly crucial. Additionally, new media has diversified content formats beyond traditional text and graphics to include audio, video, and other multimedia elements, requiring editorial innovation and skillful use of multimedia to present academic findings and enhance readability and appeal. The rapid development of new media technologies also demands continuous learning and mastery of new technologies from editorial staff, requiring them to update their knowledge structure, improve academic literacy and editing capabilities, and strengthen proficiency in digital publishing technologies to meet rising quality standards.

## 2.2 Enhancing External Cooperation and Raising Monitoring Standards

The new media era has promoted interdisciplinary exchange and cooperation, creating more opportunities for academic journals to collaborate with other institutions and platforms on academic activities and research. This not only improves academic standards and influence but also expands the scope of external quality monitoring. Moreover, new media has significantly transformed evaluation systems. Traditional metrics based primarily on impact factors and citation frequency may shift in weight, supplemented by new indicators such as online dissemination reach and social media influence, requiring journals to emphasize network dissemination and social media marketing to improve evaluation scores. However, the vast and diverse information in the new media era presents challenges in verifying authenticity, making it crucial for external quality monitoring systems to screen and identify genuine evaluation information while avoiding false evaluations and malicious attacks. The diversity and complexity of evaluation standards in the new media era—where different readers, disciplines, and institutions have varying criteria—necessitate the development of reasonable, unified standards aligned with academic development patterns. With increasing network-based supervision and reporting of academic misconduct and non-standard editorial practices by scholars and readers, journals must emphasize self-discipline, strengthen internal management, and prevent quality issues.

### 3. Case Study: New Media Practices of Chongqing Functional Materials Journal Society

The new media era has profoundly impacted academic journal quality assurance systems. To actively adapt to these trends, Chongqing Functional Materials Journal Society has implemented a series of proactive measures emphasizing user needs and experience to achieve more efficient, convenient, and personalized services.

#### 3.1 Digital Transformation and Content Innovation

Facing challenges and opportunities in digitalization and informatization, Chongqing Functional Materials Journal Society launched its digital transformation initiative in 2011 to comprehensively enhance quality and influence. To ensure success, the society established a dedicated digital transformation team responsible for developing and implementing digital strategies. Through partnerships with professional organizations, the society achieved online publication and dissemination of journal content. By developing an online publishing platform with full-text search and semantic analysis capabilities, users can quickly locate needed content. To meet diverse content quality and format demands in the new media era, the society encourages content and format innovation through multimedia and interactive content to enhance reader engagement. Multimedia elements such as online live streaming, video, and audio have been introduced to enrich presentation formats and improve user experience. These digital transformation and content innovation efforts have significantly increased the society's visibility and influence in the functional materials academic community, advancing the digitalization of academic publishing.

In 2018, the society integrated the Chinese Academy of Sciences academic evaluation system and database to enable data-driven decision-making for comprehensive data governance and evaluation. The evaluation system provides objective, quantitative indicators helping editors understand the journal's position and strengths in academia, while the database offers rich resources including article quality, citation frequency, and download statistics to provide scientific evidence for ensuring content quality and academic value. In 2022, the society developed a cloud-based editorial management platform, migrating all data from the original system—including personnel, manuscript, and dynamic review data—to the new platform. Leveraging big data and cloud computing technologies integrated with editorial workflows, the platform enables unified and standardized management of the entire editorial process, from manuscript receipt, review, revision, editing, fee management, to statistical analysis. The platform also provides authors with professional data analysis, transforming complex data into intuitive charts that enhance article readability and provide clearer information presentation. These initiatives have further improved the quality assurance system, enhancing both quality and influence while injecting new vitality into academic exchange and knowledge dissemination.

### 3.2 Social Media Marketing and Promotion

To better interact with readers and disseminate information, Chongqing Functional Materials Journal Society launched its WeChat official account in 2015. Through this platform, the society regularly publishes latest academic articles, event notifications, and academic resources while providing online reading and download services. The WeChat account not only expanded the journal's audience but also enhanced reader interaction and engagement. To further expand influence in knowledge sharing and academic exchange, the society established a Chaoxing column in 2017 for in-depth interaction with users, sharing research findings and perspectives to attract more materials science researchers. This provided a new dissemination channel and increased brand awareness. The society has also strengthened cooperation with other new media platforms such as China Post Reading Network and China Functional Materials Network to publish content and interact with academics. Through targeted content distribution, the society has expanded its audience and improved visibility while leveraging platform interactivity to strengthen reader communication, collect feedback, and continuously optimize content quality and presentation.

To enhance international influence, the society strengthened cooperation with international journals in 2014 through co-publishing and joint journal operations to improve international reputation. By partnering with international publishers such as Trans Tech Publications, the society attracts more international submissions and promotes globalized academic exchange and knowledge dissemination. The journal also actively promotes itself at international academic conferences and seminars to establish connections with the global academic community, providing a platform for domestic and international functional materials scholars to present research and exchange ideas. To better adapt to diverse user needs in the new media era, the society established a user feedback mechanism in 2020 to continuously optimize content and operations based on input from readers, authors, and reviewers. Through dedicated feedback channels on official websites, social media, and academic forums, users can submit suggestions on content quality, layout design, and readability. Real-time communication with reviewers via email and WeChat groups enables more timely manuscript processing and feedback. This user feedback mechanism has significantly improved user experience and enhanced the journal's influence in the functional materials academic community.

## 4. Development Strategies for Academic Journal Quality Assurance Systems in the New Media Era

### 4.1 Strengthening Content Innovation and Quality Enhancement

In the new media era, competition among academic journals has intensified as readers access information through diverse channels including traditional print, internet, social media, and mobile applications. To maintain reader appeal, journals must strengthen content innovation and quality enhancement. Content-

wise, journals should encourage interdisciplinary collaboration and cross-domain research to break disciplinary barriers and provide comprehensive, diverse content. Editorial processes should be optimized by introducing double-blind peer review and external evaluation to strictly control manuscript quality and enhance academic rigor and innovation. Journals should support publication of original research, promote academic innovation and independent thinking, and provide new perspectives for academia. In layout and design, journals should emphasize standardization and aesthetics through clear article structures that avoid information overload and chaotic formatting, thereby improving readability and appeal. Introducing multimedia elements such as charts, audio, and video enriches content formats and enhances reader experience.

#### **4.2 Enhancing Digital Publishing and Online Dissemination**

The new media era demands that academic journals transition to digital and networked operations. Journals should strengthen digital publishing by establishing comprehensive digital platforms including online submission systems, digital editing systems, and electronic journal archives to improve efficiency, reduce paper-based processes, and provide more convenient services. Advanced digital editing tools such as grammar checkers and typesetting software should be introduced and promoted to enhance editing quality and efficiency while minimizing formatting errors. Publishers should adopt open access models to widely disseminate research findings and increase journal visibility and influence. Journals should also leverage new media platforms to improve dissemination efficiency by broadly distributing content through diverse social media channels to attract more readers and increase exposure in academic communities. Establishing professional journal websites providing online browsing, downloading, and subscription services, along with regularly sharing academic highlights and news, attracts deeper reader engagement.

#### **4.3 Establishing Scientific and Rational Evaluation Systems**

In the new media era, establishing scientific and rational evaluation systems is crucial as they directly affect journal reputation and influence in academia and the public. Evaluation systems should integrate both traditional and new metrics. While impact factor and citation frequency remain important quality measures, new indicators such as online dissemination reach and social media influence should be incorporated to reflect digital platform attention and impact more comprehensively. Multiple evaluation methods including peer review and expert evaluation should be more widely applied. Peer review represents a long-standing academic tradition, while expert evaluation in the new media era provides more comprehensive understanding of academic level, editorial quality, and academic ethics. Reader feedback and evaluation also help understand journal impact on different audiences. Evaluation systems must emphasize openness and transparency—journals should clearly publish and regularly update evaluation criteria to increase trust and drive continuous improvement. Given disci-

iplinary diversity, evaluation systems should be flexible and inclusive, adjusting to specific contexts to ensure fair assessment of different journals.

#### **4.4 Strengthening External Cooperation and Academic Exchange**

Academic journals should enhance cooperation and exchange with other institutions and platforms to jointly conduct academic activities and research. Strengthening international cooperation and exchange promotes journal internationalization, improving influence while fostering collaborative research development. Collaboration with academic communities through partnerships with other institutions and research groups to organize seminars and academic activities effectively expands influence. Journals should actively participate in academic conferences to exchange ideas with peers, understand latest research trends, and showcase achievements to attract more submissions and readers. New media platforms such as WeChat and Weibo enable online exchanges and cooperation with other institutions for releasing academic information, sharing research findings, and conducting online seminars to expand visibility. Additionally, journals can collaborate with other platforms to establish resource-sharing platforms for online academic resource exchange, promoting collaborative research development.

#### **4.5 Strengthening Talent Cultivation and Team Building**

While ensuring quality, academic journals must continuously adapt to technological and media transformations, making professional talent cultivation and team building particularly important. Journals should develop multi-level training programs to meet diverse editorial staff needs and optimize team structure to ensure comprehensive coverage and support across all domains, establishing a more holistic, hierarchical, and collaborative workforce. Journals must strengthen cultivation of editors' professional competence through training by invited experts to improve understanding of disciplinary fields for better reviewing and editing. Enhancing editors' academic level is key to improving journal quality—editors must continuously learn latest research developments and actively participate in academic exchanges to strengthen academic literacy. With new media emergence, cultivating editors' information technology application skills, digital editing capabilities, and data analysis skills is crucial. Editors should proficiently operate new media platforms and editing software for journal promotion and dissemination, while possessing basic data analysis skills to extract valuable information from platforms for better understanding reader needs, supporting strategic decision-making, and enhancing competitiveness.

The construction of quality assurance systems for academic journals in the new media era requires continuous improvement. Journal publishers should further strengthen digitalization and informatization to improve online publishing and dissemination efficiency while monitoring new media platform trends. They should fully leverage new media interactivity and real-time capabilities to strengthen reader communication, collect feedback, and continuously opti-

imize content quality and presentation. Chongqing Functional Materials Journal Society' s practical experience offers important insights: first, recognize both challenges and opportunities of the new media era and actively adapt to trends; second, strengthen cooperation with professional institutions to build high-quality online publishing platforms that increase visibility and influence; third, emphasize data governance and evaluation to ensure content quality and academic value. In summary, building quality assurance systems in the new media era is an ongoing process. Through enhanced digitalization, effective new media platform utilization, and attention to reader feedback, academic journal publishers can continuously improve quality and inject new vitality into academic exchange and knowledge dissemination.

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