Research on Converged Media Communication Strategies for Scientific Journals—A Case Study of The Chinese Journal of Nonferrous Metals

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Abstract

Purpose Against the backdrop of media convergence, this study aims to summarize highly feasible integrated media communication strategies for scientific journals, enabling them to engage academic users with a more proactive attitude, richer functionalities that better align with users' actual needs, and more diverse communication forms and channels, thereby enhancing the integrated media communication capacity of scientific journals. Methods Guided by the philosophy of meeting users' academic needs, this study analyzes the challenges and opportunities faced by scientific journals in integrated media communication, and investigates the specific content and effects of the integrated media communication practices of *The Chinese Journal of Nonferrous Metals* as a case study. Results From the four dimensions of service, platform, content, and efficiency, universally applicable communication strategies for scientific journals are proposed. Conclusion Enhancing service consciousness, building communication platforms, optimizing communication content, and improving communication efficiency are important means to strengthen the communication capacity and academic service of scientific journals, which can expand their influence and achieve high-quality communication.

Full Text

Research on Communication Strategies for Scientific Journals in the Era of Integrated Media: A Case Study of *The Chinese Journal of Nonferrous Metals*

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Abstract

[**Purpose**] In the context of media convergence, this study summarizes feasible integrated media communication strategies for scientific journals, aiming to enable them to engage academic users with a more proactive attitude, richer functionality that meets actual user needs, and more diverse communication forms and channels, thereby enhancing their integrated media communication capabilities.

Methods Grounded in the concept of meeting users'academic needs, we analyze the challenges and opportunities faced by scientific journals in integrated media communication, and investigate the specific content and effectiveness of the integrated media communication practices of *The Chinese Journal of Nonferrous Metals*.

[**Findings**] We propose a highly universal communication strategy for scientific journals from four dimensions: service, platform, content, and efficiency.

[**Conclusions**] Enhancing service awareness, building communication platforms, optimizing communication content, and improving communication efficiency are important means to strengthen the communication capacity and academic services of scientific journals, which can expand their influence and achieve high-quality dissemination.

Keywords: Scientific journals; Integrated media; Communication strategy; User requirements

Introduction

On August 16, 2019, the China Association for Science and Technology, the Publicity Department of the CPC Central Committee, the Ministry of Education, and the Ministry of Science and Technology jointly issued the *Opinions on Deepening Reform to Cultivate World-Class Scientific and Technological Journals*, which requires that by 2035, the comprehensive strength of China' s scientific journals should rank among the world' s top tier, with the establishment of a batch of internationally competitive brand journals and publishing groups, significantly enhanced scientific influence and discourse power, and the creation of an important hub for global academic exchange and scientific culture dissemination, making substantive contributions to the construction of a science and technology powerhouse [1]. On May 18, 2021, the Publicity Department of the

CPC Central Committee, the Ministry of Education, and the Ministry of Science and Technology jointly issued the *Opinions on Promoting the Prosperous Development of Academic Journals*, which put forward guiding opinions and detailed requirements for the development of academic journals [2]. Enhancing the communication capacity of scientific journals and promoting the deep integration of traditional print media and emerging media in terms of communication content, channels, and platforms is of great significance for cultivating world-class scientific and technological journals.

In the era of integrated media, scientific journals have gradually updated their communication concepts, making full use of various new media communication channels and attempting diverse new media communication forms, resulting in significantly improved communication effects [3]. Currently, domestic scientific journals mainly disseminate academic content through major databases such as CNKI and Wanfang Data, as well as through journal websites and WeChat official accounts. With the continuous updating and iteration of information technology, the channels for information acquisition and presentation methods will become increasingly diverse, and users' demands for academic information will exhibit personalized and diversified characteristics. As media information technology continues to develop and the media literacy and academic demands of Chinese academic users improve, scientific journals face numerous challenges, such as cumbersome processes, long publication cycles, blocked communication channels, and a lack of all-media communication talent. These issues have led to the lagging development of scientific journals and difficulty in promoting integrated media development and improving communication effectiveness. Simultaneously, the traditional scope of academic user services provided by scientific journals can no longer meet current academic user needs, and fails to form a two-way interactive media platform between academic users and scientific journals. Therefore, there is an urgent need to conduct research on communication strategies for scientific journals, enabling them to seize opportunities from technological and demand upgrades, seek more academic value growth points, and address challenges such as single channels and forms for academic achievement dissemination and low academic user satisfaction.

Currently, researchers have explored aspects such as communication mechanism innovation, content innovation, and concept innovation [4-12]. For example, Zhu Jingjing [4] discussed communication mechanism innovation, content innovation, and concept innovation, providing reference and basis for research on improving the communication power of scientific journals. The "Tianqin Project" special issue of *Acta Scientiarum Naturalium Universitatis Sunyatseni* conducted in-depth mining and value-added services for special content based on online data resources, while carrying out personalized precise push, achieving good communication effects [10]. Gao Cunling et al. [12] argue that scientific journals should implement a mobile publishing priority strategy, using the rich and diverse channel platforms of mobile Internet to expand publishing channels, while also exploring rich media publishing using video, VR, audio, animation, and other media forms. However, research on integrated media communication

strategies for scientific journals from the perspective of "academic user needs" is relatively scarce. Based on the "Uses and Gratifications" theory in communication studies, this study analyzes the challenges and opportunities faced by scientific journals in integrated media communication, and conducts case analysis of the integrated media communication practices of *The Chinese Journal of Nonferrous Metals* to summarize and design integrated media communication strategies. The aim is to enable scientific journals to face academic users with a more proactive attitude, richer functionality that meets actual user needs, and more diverse communication forms and channels, thereby improving their integrated media communication capabilities.

Methods

1. Methodology and Research Subject

This study combines the "Uses and Gratifications" theory with questionnaire surveys and in-depth interviews to investigate academic users' actual needs, their satisfaction with scientific journals, and the functions of integrated media in scientific journals. The "Uses and Gratifications" theory is based on the user' s standpoint and perspective, examining the psychological and behavioral effects of mass communication on humans by analyzing audience motivations for media use and the gratification of their needs. In 1959, American scholar Katz first proposed that communication research should study not only what media does to people, but also what people do to media, thus giving birth to the user-perspective concept of "Uses and Gratifications" [13]. The theory posits that people contact media to satisfy specific needs in certain domains, and these needs have certain social and personal psychological origins [14]. When academic users' needs can be satisfied through the integrated media of scientific journals, the communication effect of the journal will be enhanced, thereby gaining higher attention and influence in the academic community. Based on this, the research plan aims to understand the actual needs of academic users, enabling the integrated media of scientific journals to help academic users conduct research while improving user experience, thereby increasing academic user satisfaction and helping scientific journals achieve better communication.

This study primarily takes *The Chinese Journal of Nonferrous Metals* as the research subject. Founded in October 1991, *The Chinese Journal of Nonferrous Metals* is a high-tech, foundational scientific and technological journal supervised by the China Association for Science and Technology, sponsored by the Nonferrous Metals Society of China, and undertaken by Central South University, making it representative. To investigate academic users' satisfaction with *The Chinese Journal of Nonferrous Metals*, the editorial office conducted a satisfaction survey in May 2021 covering seven aspects. The questionnaire was distributed through five channels: the journal website, academic exchange groups, ScienceNet, academic WeChat official accounts, and scholar interpersonal com-

munication. After one week, 205 questionnaires were collected, with 197 valid responses. University teachers and students accounted for 76.65%, enterprise researchers for 13.71%, and science and technology enthusiasts for 4.06%. The age of respondents was mainly concentrated between 20 and 50 years old, with users aged 20-30 accounting for 46.19%, 30-40 for 28.43%, and 40-50 for 16.24%. Users under 20 and over 50 accounted for 4.06% and 5.07%, respectively. Survey response options were assigned scores according to intervals: very satisfied = 5 points, satisfied = 4 points, basically satisfied = 3 points, not very satisfied = 2 points, and dissatisfied = 1 point, which served as the satisfaction scores for each survey indicator. The satisfaction scores of academic users of *The Chinese Journal of Nonferrous Metals* are shown in Table 1 .

To understand academic users' expectations and real needs for the integrated media communication of *The Chinese Journal of Nonferrous Metals*, the editorial office selected 10 scholars who care about journal development from the academic user base for interviews in June 2021, using online audio calls. The frequency of mentions of real needs by experts in the interviews is summarized in Table 2 .

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2. Shortcomings and Dilemmas in Integrated Media Communication

Based on the results of the first questionnaire survey and in-depth interviews of academic users of *The Chinese Journal of Nonferrous Metals*, the following shortcomings and dilemmas in integrated media communication can be identified.

2.1 Insufficient Communication Service Awareness

Scientific journals themselves are important information dissemination and service platforms within the scientific community, and the essence of the publication process is to provide good services (serving scientific exchange, industry development, and social development). First-class journals are also gathering platforms for first-class scholars and industry experts, as well as first-class academic exchange or industry service platforms. As can be seen from the questionnaire survey and in-depth interviews, *The Chinese Journal of Nonferrous Metals* lacks sufficient communication service awareness, fails to fully consider users' personalized reading needs, and does not provide personalized services to meet user demands. Additionally, the journal lacks interaction and communication with academic users, and has not provided an exchange platform where academic users can comment and consult.

2.2 Lagging Construction of Communication Platforms

Building communication platforms for scientific journals is conducive to shaping first-class journal brands and expanding their influence. Strong communication platforms enable high-quality scientific journal content to be widely disseminated, thereby gaining attention from academia and industry. However, in the context of integrated publishing and communication, most scientific journals in China have not yet comprehensively utilized multiple communication platforms to form scale advantages. The questionnaire survey and in-depth interviews reveal that *The Chinese Journal of Nonferrous Metals* lacks awareness and innovative thinking in communication platform construction, has not formulated precise communication strategies for diverse media platforms, and suffers from poor integrated media communication power. Its communication platforms are monotonous and outdated in form, fail to leverage the communication characteristics of different media, and do not fully exploit the advantages of different media platforms, making it difficult to form communication synergy. The main promotional platform is only the official website, which publishes only monthly journal tables of contents and irregular announcements, with outdated styling and incomplete catalogs and functions.

2.3 Low-Quality Communication Content

In the communication process of scientific journals, content is always a particularly important aspect for academic users. Currently, domestic scientific journals generally suffer from limited content and scarce forms. Taking WeChat official account operation as an example, most scientific journals' daily pushes are limited to reprinting journal papers, with less original content based on academic hotspots, and have not yet fully exploited differentiated advantages. *The Chinese Journal of Nonferrous Metals* lacks differentiated innovation in communication content, with text-based content predominating while rich media forms such as audio and video are scarce, lacking distinctive content to attract users and making it difficult to achieve further expansion of communication power.

2.4 Low Communication Efficiency

The communication efficiency of scientific journals is jointly constrained by the efficiency of review, proofreading, typesetting, and publication, with these processes generally operating as one-way workflows that are fragmented and closed. *The Chinese Journal of Nonferrous Metals* has not met academic users' expectations for communication efficiency, with the time from submission to formal publication requiring six months to one year, affecting researchers' submission experience and the timeliness of research achievement dissemination. Therefore, continuous optimization of communication efficiency is needed.

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3. Practice and Effects of Integrated Media Communication

Starting in May 2021, *The Chinese Journal of Nonferrous Metals* conducted targeted integrated media communication practices based on questionnaire survey and in-depth interview results, implementing reforms in communication service, platforms, content, and efficiency, and achieving good practical effects.

3.1 Optimizing Communication Services

(1) People-oriented, implementing academic user service concepts. *The Chinese Journal of Nonferrous Metals* vigorously implements a "people-oriented" academic user service concept, controlling the implementation effects of various services and functions in the process of achieving scientific communication. By using indicators such as browsing volume of scientific communication content, usage volume of various services by academic users, and user satisfaction, the journal identifies feasible academic service projects and applies them to the construction and promotion of integrated media communication platforms for scientific journals. Simultaneously, the journal conducts investigations through academic forums such as "Xiaomuchong," the official WeChat account, journal user WeChat groups, and users' private domain traffic to develop the next stage of academic services. Through satisfaction questionnaire surveys and in-depth interviews of academic users (see Tables 1 and 2), the journal promptly identifies its own shortcomings and comprehensively enhances its brand image through business process reengineering of publishing operations, laying a good foundation for building communication platforms.

(2) Leveraging key individuals to expand academic user groups. *The Chinese Journal of Nonferrous Metals* recruits young editorial board members from all academic users through ScienceNet, the official journal website, and WeChat official accounts, enabling the journal and editorial board members to jointly assume responsibility for promoting the domestic and international dissemination of high-quality academic content. Academic user groups serve as both "senders" and "receivers" in the process of scientific communication by scientific journals, and sharing through editorial board members' social media accounts is also an important channel for journal content dissemination. By continuously radiating from "old users" to "new users," the journal can efficiently expand its academic user group, enhance communication effects, and increase its influence.

(3) Transforming communication attitudes and expanding digital publishing services. *The Chinese Journal of Nonferrous Metals* uses existing website resources and the latest database technology to independently develop mobile application clients, achieving multimedia composite publishing for internet and mobile network publishing. By integrating traditional and new media development, the journal realizes cross-platform holographic communication, improving the accuracy and timeliness of information dissemination

and exchange. The journal strengthens the operation of its WeChat official account, publishing content related to academic activities such as single paper recommendations, special issues, conference information, and brand promotion. Simultaneously, the journal vigorously builds convenient communication platforms for authors and readers, establishing three young scholar groups and one young editorial board member group, enhancing scholars' sense of belonging and identity with *The Chinese Journal of Nonferrous Metals* so that they can consciously and voluntarily promote the journal, greatly expanding its influence, attracting excellent manuscript sources, and improving its visibility.

3.2 Building Communication Platforms

(1) Using WeChat as a focal point to build integrated media communication platforms for scientific journals. *The Chinese Journal of Nonferrous Metals* actively explores communication platforms such as WeChat official accounts and WeChat video channels, achieving remarkable results. Since its operation began in December 2020, the WeChat official account has published nearly 500 original posts with total views reaching 600,000, and its follower count has increased from 1,700 to 17,000, representing a 1,000% growth. The WeChat official account has been selected among the Top 10 Chinese Academic Journals in WeChat Communication Power. Through data platforms such as WeChat official accounts, academic journals can conveniently collect data on academic papers' browsing and sharing on social networks, thereby inferring academic users' interested research directions and hotspots, adjusting the topics and planning of communication content accordingly, organizing various online and offline academic exchange activities and academic resource sharing activities, and assisting user research and industry development.

(2) Adapting measures to journal characteristics and enriching online media forms. *The Chinese Journal of Nonferrous Metals* launched the WeChat video channel "Youse Niu" (Nonferrous Bull), gradually attempting the production and dissemination of academic videos. Currently, the produced and published academic video content and themes are mainly divided into three categories: academic training videos, academic activity videos, and scientific journal promotional videos, achieving good communication effects. Simultaneously, the journal conducts live academic lectures through its video channel, successfully planning the "High-Level Paper Writing Series Lecture Live Course," which was simultaneously broadcast on four platforms: CNKI, China Nonferrous Metals Society, Research Cloud Live Platform, and the journal' s video channel, attracting a large number of researchers and achieving excellent results.

(3) Utilizing resources effectively and conducting offline communication activities. *The Chinese Journal of Nonferrous Metals* actively organizes academic seminars to build communication and exchange platforms and promote academic exchange. In December 2021, the 30th Anniversary Commemoration Conference of *The Chinese Journal of Nonferrous Metals* was successfully held at Central South University. The conference invited the Chairman of the China

Nonferrous Metals Society, the President of the International Union of Materials Research Societies, eight academicians, more than ten university presidents, and over 200 industry experts, greatly enhancing the journal' s visibility, expanding manuscript sources, and improving the quality of communication content.

3.3 Optimizing Communication Content

(1) Being "specialized" to improve communication content quality. Special issues and special columns are important ways for scientific journals to build integrated media communication platforms, as they can concentrate on reporting academic achievements in a specific research field with high content quality. *The Chinese Journal of Nonferrous Metals* has planned a series of special issues and special columns focusing on national policies and guidelines, major scientific research progress, frontier research teams, important academic conferences, and significant historical nodes to enhance communication content quality. The development of special issues and columns requires support from communication technology, channels, and academic users, and cooperation with industry societies, well-known universities, and research teams is also an important source for special issues and columns.

(2) Being "refined" to deeply explore communication content. In an era of massive academic information dissemination, deeply exploring communication content and refining scientific communication content can become a focal point for scientific journals' integrated media communication. By finely processing high-quality academic papers, *The Chinese Journal of Nonferrous Metals* WeChat official account regularly releases virtual special issues and selects high-impact papers in addition to journal tables of contents and reading guides, promoting academic exchange among users and providing new research ideas while increasing attention. Simultaneously, the journal invites editorial board members in the same research field to interpret and analyze current research hotspot papers to identify the journal' s positioning based on its characteristics.

(3) Being "innovative" to keep communication content abreast of the latest research developments. *The Chinese Journal of Nonferrous Metals* fully utilizes the advantages of the university' s disciplines, fields, and platforms, focuses on disciplinary frontiers, keeps up with hotspots, and strives to guide high-quality papers in interdisciplinary and emerging disciplines to be published in the journal, thereby mastering academic discourse power. Academic conferences are important ways for the scientific community to conduct academic exchange, cooperation, and communication to stimulate innovative research thinking. Scientific journals can adopt online and offline combined conference organization forms based on research hotspots identified through big data retrieval, continuously absorbing new academic user groups through academic conferences and establishing expert databases for high-quality content creation with the help of user groups.

(4) Being "distinctive" to enhance the characteristics and attractive-

ness of communication content. The distinctive content of *The Chinese Journal of Nonferrous Metals* mainly focuses on the field of nonferrous metal science and technology, with the purpose of "prospering nonferrous metal science and technology and promoting the development of the nonferrous metal industry," striving to create distinctive columns in the nonferrous metal field. Using a communication matrix including WeChat official accounts and video channels, the distinctive content covers industry dynamics in the nonferrous metal field, live picture and video broadcasting, and technical exchange exhibition reports. Simultaneously, based on personalized reading needs, *The Chinese Journal of Nonferrous Metals* has built a professional vertical field knowledge service platform "Nonferrous Metals Online" to provide users with distinctive services.

3.4 Improving Communication Efficiency

(1) Precise push to improve content review speed. Scientific journals can build their own reviewer expert databases and user information databases to precisely match reviewers based on academic users' research information, and improve content review efficiency by providing real-time updates on content review status on integrated media communication platforms and receiving user consultations. *The Chinese Journal of Nonferrous Metals* has added more than 400 outstanding young scholars to its reviewer team, fully mobilizing their enthusiasm, improving review efficiency, and significantly shortening review time.

(2) Technology updates to shorten digital publication time. *The Chinese Journal of Nonferrous Metals* has fully implemented the Founder Cloud Typesetting System to reshape the publication process. Based on the basic workflow of single-article production, release, and dissemination, the system achieves effective management of editing, proofreading, and operations roles. Through functions such as proof upload, comparison, and transfer, the system realizes information interaction and transmission, breaking spatial resistance and time delays in the production process and demonstrating the advantages of "staggered time, parallel synchronization" in information communication channels in the Internet era.

(3) Online-first publication to break the space-time limitations of print media communication. To address the problem of delays in scientific communication, scientific journals can adopt online-first publication. Starting in August 2021, all accepted manuscripts of *The Chinese Journal of Nonferrous Metals* undergo priority publication on both CNKI and its self-built official website immediately after revision and improvement, with continuous release of online-first special topics on the journal' s WeChat official account. The average time from submission to online-first publication for accepted manuscripts is two months, shortening the publication cycle by about ten months compared to the previous method.

3.5 Practical Effects

The Chinese Journal of Nonferrous Metals conducted a second user satisfaction survey in February 2022. The results of the two user satisfaction surveys are shown in Figure 2 [Figure 2: see original paper] (single-choice full score = 5 points). Through the two surveys, it can be clearly and intuitively seen that the integrated media communication practice has achieved good results. Within ten months, the total user satisfaction score increased from 3.98 to 4.36, with improvements in all seven aspects. The largest score increases were in the new media operation and user service/management sections, which increased by 0.55 and 0.49, respectively. In the *Deep Analysis Report on Journal Development Based on Big Data* recently provided by CNKI, a third-party organization explicitly stated: "In the past two years, various key indicators of *The Chinese Journal of Nonferrous Metals* have shown a recovery trend with significant improvement. It is recommended to carefully analyze the reasons, summarize the experience, maintain the good development trend, and strive to reach new heights." This demonstrates that the integrated media communication practice of *The Chinese Journal of Nonferrous Metals* has achieved good results and provides valuable reference.

Figure 1 [Figure 1: see original paper] User satisfaction surveys before and after integrated media communication practice of *The Chinese Journal of Nonferrous Metals*

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4. Strategies and Recommendations

Scientific journals urgently need to improve their academic service level and integrated media communication capacity to continuously attract new academic users to obtain academic services and scientific content through integrated media platforms. Relying on a large academic user group and high-quality scientific communication content, they should build a sustainable integrated media communication platform to expand their influence. Based on the integrated media communication practice experience and data analysis results of *The Chinese Journal of Nonferrous Metals*, the following strategies and recommendations are proposed.

4.1 Enhance Service Awareness, Improve Service Capacity, and Extend the Publication Service Chain

Facing the digital era and the transformation of reading methods, traditional scientific journals should cooperate with discipline-related networks (platforms) and industry networks (platforms) to provide multi-dimensional services to readers and authors through various approaches based on journal paper content. This helps improve the level of authors and reviewers on the one hand, and helps scientific journals establish friendly cooperative relationships with scholars on the other hand, providing support for manuscript solicitation and topic

planning. For individual authors, scientific journals can extend the publication service chain based on a user service model, providing more "post-publication" services to enhance author stickiness. Examples include timely feedback on various index data, providing paper publicity assistance and guidance, building communication bridges between authors and readers, and providing special content push services. Additionally, journals can use their author and expert resources to build academic exchange platforms for discipline or industry services. By leveraging the clustering effect of journals based on author groups and expert groups, journals can organize academic conferences according to characteristic fields and disciplinary directions, gather high-level manuscripts by creating brand conferences, unite scholars and industry experts, prosper academic exchanges, and enhance the brand influence of the journal.

4.2 Fully Leverage the Role of Communication Platforms and Strive to Build Multi-Dimensional Communication Channels and Operation Systems

With the popularization of digitalization, networking, and mobilization, readers' reading methods have shifted to a "reading + sharing" model. Scientific journals need to adapt to this change quickly and build convenient communication platforms with authors and readers. Communication platforms have extremely high traffic and can rapidly disseminate published papers. To achieve the widest possible dissemination: first, conduct precise delivery (print and electronic) to editorial board members, authors, and reviewers; second, ensure direct dissemination through journal official websites and industry websites; third, utilize as many communication platforms as possible to achieve barrier-free multi-platform dissemination; fourth, leverage the communication efficiency of various social platforms to achieve three-dimensional sharing, reprinting, evaluation, and discussion of academic content to promote deeper dissemination, understanding, and exchange; and fifth, actively encourage editors to become influencers, participate in conferences and forums, and conduct communication through Weibo and WeChat. Ultimately, this will achieve three-dimensional operation of precise directional communication and pan-communication for scientific journals as a whole, promoting integrated innovation in scientific journals.

4.3 Strengthen Manuscript Solicitation for Key Disciplines, Advantageous Disciplines, and Frontier Hot Topics

Journals should attach importance to the long-term construction and sustainable development of key and advantageous disciplines. By analyzing publishing institutions within the journal' s key disciplines, they can identify institutions with high research output and strong research capabilities. Editorial offices can solicit manuscripts from authors at these institutions, or pay attention to their research hotspots and priorities and increase interaction as a basis for manuscript solicitation topics. Journals must continuously optimize their topics, closely monitor disciplinary hotspots and frontier topics, and conduct targeted

and directional manuscript solicitation. Based on journal quality, they should track disciplinary development and pay attention to emerging and interdisciplinary dynamics in the field, solicit hot and top-level manuscripts according to high standards and strict requirements, and focus on cultivating characteristic columns based on the sponsor' s characteristic disciplines.

4.4 Emphasize the Publication Process and Improve Publication Efficiency

Publication timeliness is one of the most important concerns for authors and readers and is an important manifestation of the operation level and service capacity of scientific journals. As the main carrier for disseminating and exchanging scientific and technological information, scientific journals should be characterized by large information volume, fast dissemination speed, and timeliness. Therefore, shortening publication delay and improving timeliness are particularly important. Short publication delay is a manifestation of the competitiveness and vitality of excellent brand journals. The shorter the publication timeliness, the stronger the journal' s ability to seize hot topics. It is recommended that scientific journals make full use of online-first publishing platforms to effectively solve the problem of overly long publication cycles for academic papers. Online-first publication not only accelerates the dissemination of academic achievements but also results in higher download rates for the same article compared to traditional print publication, greatly enhancing the journal' s academic influence. Its advantages in timeliness and influence can help journals attract more high-quality manuscript sources, maximize academic influence and market competitiveness, and contribute to the long-term development of scientific journals.

With the continuous development of media information technology and the increasing personalized needs of academic users, the communication strategies and academic services of scientific journals need to be improved. This study investigates academic users' needs for integrated media communication functions and services of scientific journals through interviews and questionnaire surveys. Through four dimensions—communication service, communication platform, communication content, and communication efficiency—we conducted a case analysis of the integrated media communication practice of *The Chinese Journal of Nonferrous Metals* and summarized the experience gained. This study also has certain limitations: due to the large number of scientific journals, the sample size of the questionnaire survey based on academic users is limited, and the individual needs of academic users in different fields may vary, requiring continuous summarization and improvement in future research.

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Author Contributions Statement

WANG Chao: Proposed research direction, formulated research methodology, designed paper framework, revised paper;
CHEN Yiqun: Conducted in-depth interviews and questionnaire surveys, summarized research content, wrote paper;
YUAN Saiqian: Revised paper and finalized manuscript;
PENG Chaoqun: Provided revision suggestions, revised paper

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