Editing Practice

ORIGINAL ARTICLE

Practices and strategies for enhancing knowledge services in academic journals: A multicase study

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ABSTRACT

Background: In the era of digitization, academic journals face the challenge of transforming from content providers to knowledge service providers. Academic journals play an important role in promoting scholarly communication and popularizing scientific knowledge. **Methods:** This paper reports a multicase study of four leading Chinese academic journals in science. Through in-depth interviews and content analysis, we investigated their practices and strategies for enhancing knowledge services. **Results:** Successful journals employ these approaches: (1) content customization, requiring a clear definition of target audiences and tailored service portfolios; (2) cultivation of authors to build professional communities that sustain scholarly excellence; and (3) development of integrated academic platforms to facilitate knowledge exchange. However, challenges still exist, including limited technical capacities, resource allocation imbalances, and traditional editorial mindsets. **Conclusion:** This research provides actionable insights for academic publishers seeking to enhance their knowledge service capabilities, including embracing digital transformation, adopting user-centric service models, and redefining the role of editors as knowledge curators rather than gatekeepers.

Key words: knowledge service, academic journal, service model, digital transformation

INTRODUCTION

The development of digital technologies has transformed the production and dissemination of scientific knowledge, creating a network of several research institutions, academic journals, government agencies, and the public.[1] This transformation has reshaped the ways in which academic knowledge is generated and shared and has posed challenges to the traditional role of academic journals as content providers.[2] Meanwhile, significant differences exist in knowledge services, particularly in terms of publishing institutions and their fields of focus.[3–5] To remain relevant, journals must evolve from static content providers to service-oriented platforms that bridge the gap between scholarly rigor and societal impact by becoming knowledge service providers.

Knowledge services integrate domain-specific resources, analytical capabilities and expertise, and users' context to promote the use of knowledge. Knowledge services go beyond content delivery by transforming information into insights through curation, contextualization, and customized dissemination. In academic publishing, this paradigm shift requires moving beyond passive distribution of scholarly content to active knowledge stewardship—leveraging editorial expertise to repurpose content into tailored formats, foster interdisciplinary dialogue, and address audience-specific requirements. The ultimate objective is to create value-added services

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Received: 7 July 2025; Revised: 21 July 2025; Accepted: 25 August 2025
https://doi.org/10.54844/ep.2025.1022

that enable users to efficiently acquire, critically evaluate, and effectively utilize knowledge.

In the era of new and convergent media, scientific communication is evolving toward diversification and precision. Although several scientific journals have initiated a transition to knowledge services, challenges such as limited resources and dissemination channels remain. Digital technologies such as artificial intelligence (AI) and social platforms are key enablers for this transformation.[6–8] Prior research highlights the impact of new media and more precise customer segmentation on addressing such challenges.[9–11]

To understand and promote this transformation, prior research has recognized the need for a paradigm shift among editors and authors to foster effective communication and identity alignment.[12] Although several journals have integrated digital systems that connect editorial workflows, online submissions, and subscriptions,[13] reviewer scarcity remains a common challenge.[14] Moreover, the emergence of generative AI (GenAI) is reshaping academic publishing, raising concerns regarding research integrity and prompting calls for community-wide dialogue and standard-setting.[15,16] Digitalization and open access further disrupt traditional models, making print-only formats less attractive and hybrid models the norm.[17,18] To enhance accessibility and impact, several success factors for academic journals are recognized, such as embracing open access, optimizing online presence, and maintaining high-quality standards through rigorous peer review.[19]

In addition to scholarly communication, academic journals also play an important role in enhancing public engagement. To achieve this, prior research advocates for cultivating science communicators, building cross-platform dissemination networks, and monitoring social issues.[20,21] The increased online visibility of scientific content connects expert and general audiences through information and communication technology (ICT) mediated interaction.[22] Institutional reforms, including alternative publication models and revised evaluation systems, may sometimes be necessary for empowering such change.[23] In addition, data- and technology-driven approaches can be used to optimize workflows and maximize service value.[24,25]

Existing research on popular scientific journals in China has primarily focused on their overall development and their transformation in the context of the new media era. However, relatively little attention has been given to the knowledge services provided by these journals, revealing a gap in both domestic practice and international comparison. Therefore, this study seeks to address the following questions: What are the current practices and strategies of knowledge services in Chinese scientific and academic journals? What development challenges do they face under existing models? How can these journals advance their knowledge service offerings in the future?

The remainder of this paper is organized as follows. We first describe our research methodology, data collection and analysis methods. Next, we present and discuss our results and findings. Finally, we conclude with a summary and implications for future research.

METHODS

We employed a mixed-methods approach that combines semi-structured expert interviews with thematic content analysis to investigate knowledge service practices in academic journals.[26–28]

To better understand different types of academic journals at various stages of development and to propose constructive suggestions, we interviewed experienced directors and editors from four leading scientific journals representing diverse disciplines, namely, *Bulletin of Chinese Academy of Sciences*, *Acta Aeronautica et Astronautica Sinica*, *Light*, and *Science & Technology Review*. These academic journals cover a broad range of science and technology journals and national key journals that cover multiple domains and fields, including light and aeronautics, and are among the top journals in their fields. In short, these journals exhibit both diversity and representativeness and can enhance the transferability and richness of the analysis. The interviews were conducted in November and December 2024. The semi-structured interview protocol focused on service workflows, operational models, implementation challenges, and strategic innovations in the knowledge services of these journals. The interview questions covered the journal's vision and strategy, target audience, communication channels, and typical cases, as well as aspects such as knowledge service models, strategies, processes, issues, and challenges.

The interviews lasted for 45-80 min and were audio-recorded with participant consent. We then transcribed and conducted thematic analysis of the interview data to develop a comprehensive knowledge service workflow model, capturing industry best practices and experiential insights.

Our research can be illustrated using the following three aspects (Figure 1). (1) Sample selection: 4 representative academic journals were selected from diverse scientific fields and types; (2) Data collection: semi-structured interviews were conducted with experienced directors and editors; (3) Data analysis: qualitative thematic coding was conducted according to a multidimensional analytical framework.

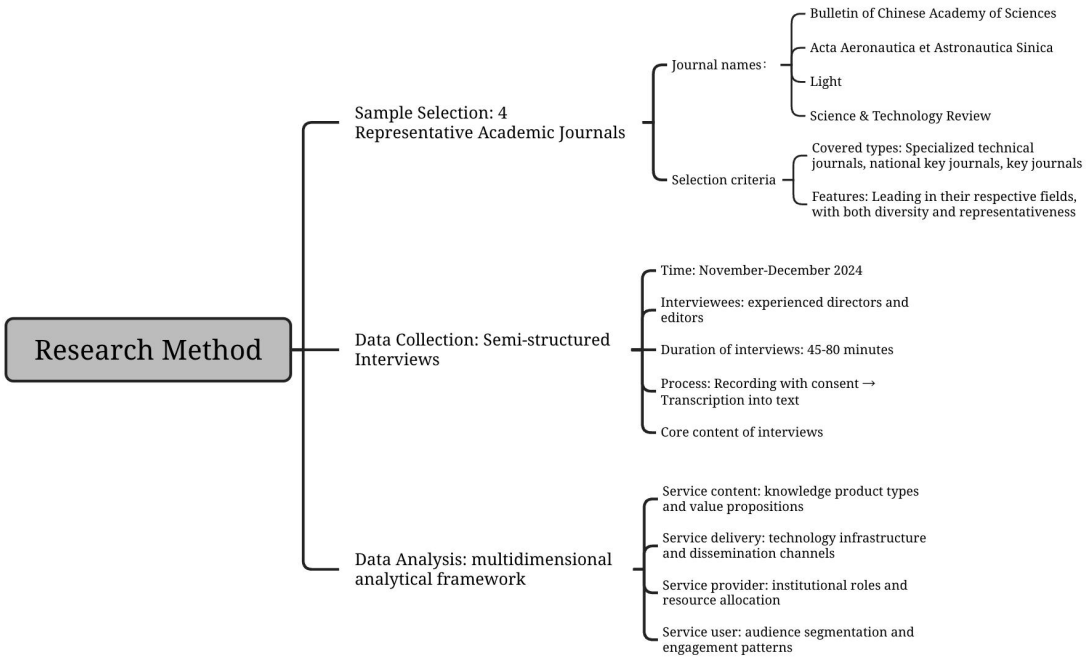

Figure 1. Research method.

Transcription data were coded and categorized to identify core service components, enabling the identification of operational characteristics, systemic challenges, and emerging trends in academic journal knowledge services.

RESULTS

Customized content services based on target audience

A central finding of this study is that customized content services, grounded in a clear understanding of target audiences, are crucial for enhancing the knowledge service capabilities of academic journals. Successful journals begin by defining their positioning in a disciplinary or thematic niche, which then informs how they select, adapt, and present content for different user groups.

For instance, *Light* uses its disciplinary positioning in optics to serve both specialists and the broader public, which suggests that topic selection should align with scientists' research interests and capture social trends to ensure that the content is both in-depth and close to the everyday experiences of people. Its "Featured Mini Encyclopedia" column transforms complex optical research into accessible explanations, employing plain language and vivid examples to communicate new materials and phenomena. As one workshop organizer from the editorial team explained, "We primarily try to impart knowledge through a central pathway that relies on the readers' own ability to understand and internalize it" (P3).

Another case illustrates how an aerospace journal aligns its thematic planning with emerging industry trends, ensuring that its content remains timely and relevant to practitioners and researchers. Meanwhile, the *Bulletin of Chinese Academy of Sciences* uses a multitiered approach to content customization, recognizing the diverse needs of decision-makers, researchers, and the public. Its publications range from internal reference articles supporting policy decisions to popular science pieces that present research outcomes in an accessible format, ensuring practical value across audience segments. As another example, *Science & Technology Review* primarily serves professionals in science and technology and addresses broader societal concerns. Its editorial team selects topics that align with major research projects and social issues, repackaging complex scientific findings into popular science articles and short video content to extend their reach and impact.

A commonality across these practices is the prioritization of audience segmentation and the deliberate transformation of disciplinary knowledge into formats

suitable for various levels of expertise. However, differences emerge in how journals balance breadth and depth: highly specialized journals tend to focus more narrowly on professional audiences, whereas influential general-purpose journals actively combine scholarly and popular content to expand their societal impact. This suggests that successful customization depends not only on disciplinary context but also on editorial vision and institutional goals.

Cultivating high-quality authors and building professional communities

Developing and sustaining a pool of high-quality authors emerged as another key strategy for strengthening knowledge services in academic journals. Although the importance of scholarly communication is widely recognized ("Scientists don't conduct research in isolation without practical feedback, they need to disseminate their findings", P2), effective science communication depends not only on the quality of research but also on the ability to translate complex findings into clear, engaging narratives for different audiences—a skill that not all researchers naturally have. Sometimes, publishing in leading international journals and writing for a domestic general audience may not be compatible. As one editor pointed out, "For our journal, one of the difficulties is that scientists in the field of natural sciences tend to pay more attention to the leading international journals and are reluctant to contribute articles to Chinese domestic audiences". Content customization becomes difficult because of high professional barriers and the race for global competitiveness.

This study found that leading journals actively identify and cultivate authors with both strong disciplinary expertise and a demonstrated interest in science popularization. For example, *Light* has identified scientists with a strong interest in science popularization through its previous work similar to science popularization initiatives and has established a panel of scientist advisors. Other journals organize offline events such as lectures, workshops, and competitions that help researchers share their work more effectively and develop their communication skills. Such a diverse range of activities also helps in attracting young talent to participate, facilitating their communication and growth in relevant fields. One case highlighted how these initiatives help journals quickly disseminate content when emerging topics gain public attention.

A shared approach among successful journals is to treat author cultivation as a long-term investment. Editors emphasized the importance of forming stable communities of contributors who can produce high-quality content on demand and act as ambassadors for the journal's mission. However, challenges persist, including competition from higher-impact international journals and concerns over intellectual property in highly competitive fields, which can limit researchers' willingness to share findings openly.

In conclusion, although all journals value the development of a stable author base, they vary in the degree to which they institutionalize this process. Some rely on individual editors' networks and informal relationships, whereas others adopt more systematic approaches such as targeted recruitment, recognition schemes, or structured training for potential science communicators. This suggests that building a sustainable professional community requires balancing opportunistic strategies with deliberate, long-term capacity building.

Providing an integrated academic platform for science communication

Academic journals play an important role as integrated platforms that facilitate science communication and knowledge exchange beyond traditional publishing. Rather than acting solely as content distributors, we found that these journals increasingly serve as platforms that connect researchers, practitioners, decision-makers, and the general public through multichannel engagement.

For instance, some journals combine online communication channels—such as websites and social media feeds—with offline activities (such as the Light Science Popularization Workshop)—such as public lectures, expert workshops, and academic competitions. These initiatives strengthen community ties and encourage researchers to participate in outreach. The *Bulletin of Chinese Academy of Sciences* demonstrates how a journal systematically manages its audience through a tiered communication matrix, collaborating with mainstream media and specialized outlets to reach diverse user groups effectively. "We have established a communication matrix consisting of an inner circle, a middle circle, and an outer circle" (P1). The inner circle ensures that the core audience receives information through WeChat, Weibo, website, and mass email push notifications. The middle circle cooperates with official media and uses their influence to accurately disseminate scientific content. The outer circle coordinates market media to comprehensively cover different audience groups. Finally, the journal realizes multilevel new media communication.

Others have developed thematic events and new media strategies to align research content with societal concerns, leveraging public discourse to increase visibility and participation. For example, *Acta Aeronautica et Astronautica Sinica* holds various competitions and academic activities, such as the Aerospace Doctoral Student Competition and the Aerospace Frontier

Conference. Meanwhile, the journal's extensive use of new media facilitates the dissemination of academic achievements and research trends in the aerospace field, attracting numerous young talents to participate in exchanges and promoting the dissemination and communication of disciplinary knowledge.

Across cases, the common theme is a commitment to extending the reach of academic content by embracing a hybrid model that blends professional knowledge with accessible formats and interactive activities. Differences arise in the scope and intensity of these platforms: some journals focus on nurturing small scholar communities, whereas others invest more heavily in multilevel dissemination strategies to maximize social impact. These practices illustrate the evolving role of journals as active facilitators of knowledge circulation in a digital environment.

DISCUSSION

Through a detailed analysis of four representative popular scientific journals to examine the service providers, recipients, content, and delivery, this research reveals several challenges facing the knowledge services of popular scientific and academic journals.

First, the current evaluation system for popular scientific journals remains underdeveloped. A well-established framework specific to this field is lacking. In practice, the quality of science popularization work is often judged using traditional journal metrics or new media reading volume, which neglects the unique characteristics and impact pathways of science popularization itself.

Second, issues related to insufficient resource integration and weak service designs exist. Several journals possess rich academic resources and substantial content reserves, but fall short in effectively integrating these resources and translating them into targeted services. Demand analysis and strategy formulation for different service recipients are often inadequate.

Third, the development of new media dissemination platforms is unbalanced. Significant differences exist among journals in terms of their operational capacity and investment in new media. Although some journals have established official accounts and websites, these platforms are often updated infrequently and lack sufficient interactivity.

Finally, sustainability challenges for the author and editorial teams exist. The long-term development of popular science knowledge services depends on the cultivation of high-quality authors and stable editorial teams. However, effective incentive mechanisms and systematic team-building plans are lacking, making it difficult to maintain a stable capacity for knowledge services.

CONCLUSION

To summarize the findings from the cases and respond to the challenges, we suggest the following strategies for academic journals to transform from content distributors to knowledge service providers.

Provide customized content services based on a clear understanding of target audiences

By aligning with their positioning and objectives, journals can clarify core service recipients and demands, leverage existing resource advantages such as expert networks, focus on core fields, and develop distinctive service strategies. Academic journals providing decision-making support need to strengthen the analysis of the news events, adopt a problem-oriented approach, and pay attention to the practical implications of the articles.

Invest in building diverse author and editorial teams to strengthen capabilities and ensure stability

This could include regular training in science popularization writing, cultivating authors and editors with strong communication skills, and establishing incentive mechanisms, such as monetary rewards and honorary recognition, to attract motivated scientists. academic journals that focus on specialized disciplines need to place greater emphasis on building a healthy academic ecosystem involving scholars, journals, and editors. collaboration with external partners, such as universities, research institutions, and enterprises, can further broaden sources of high-quality content and facilitate the transformation and application of scientific research.

Focus on key themes and promote projects in a phased manner

Rather than adopting a broad and unfocused approach, journals should identify a few pivotal topics aligned with public interest, policy directions, or pressing societal concerns and should develop in-depth, branded science popularization initiatives. consistent implementation and management can help in transforming these into well-known flagship projects.

Strengthening the integration and operation of new media platforms is essential

In the digital age, scientific journals must fully leverage diverse digital channels. this includes improving content quality, increasing the frequency of updates on official accounts and short-video platforms, and enhancing interactivity with audiences. by using data analysis tools to monitor user behavior and feedback, journals can

continuously refine their knowledge service content and dissemination strategies.

This study also has limitations. Owing to time constraints, it only examined four leading journals, which may not fully represent the broader landscape of knowledge services. In addition, the findings are based primarily on specific cases, and their generalizability may be limited by the representativeness of the sample. Finally, the construction and optimization of knowledge services are inherently a long-term process. Given the short timeframe of this research, it is difficult to assess long-term impacts.

Future research should expand the sample size and adopt dynamic observation and quantitative approaches to further enrich and validate these conclusions. This will help in providing a more comprehensive reference for advancing the development of knowledge services in popular scientific and academic journals.

DECLARATIONS

Acknowledgement
None.

Author contributions
Zhang J: Investigation, Writing—Original draft, Writing—Review and Editing. Zhang P: Conceptualization, Supervision, Project administration, Writing—Review and Editing. Yan Y: Conceptualization, Supervision, Project administration. Yang J: Formal analysis, Investigation, Resources. Xie Y: Formal analysis, Investigation. All authors have read and approved the final version of the manuscript.

Source of funding
This work was supported by the program of China Research Institute for Science Popularization (#24QT028).

Ethical approval
The study protocol was approved by the Ethics Committee at Department of Information Management, Peking University.

Informed consent
The participants were informed that the interview data were only used for research purposes, and their information would be anonymized when presenting the research result. Moreover, they are also allowed to stop the recording at any moment during the interview, and they can refuse to respond to any question asked during the review.

Conflict of interest
The authors have no conflicts of interest to declare.

Use of large language models, AI and machine learning tools
None.

Data availability statement
Data used to support the findings of this study are available from the corresponding author upon request.

REFERENCES

1. Dementiev VE. Socially useful services of scientific journals should be funded by the state. *Vopr Èkon.* 2023(4):135-150.
2. Cope B, Kalantzis M. Signs of epistemic disruption: transformations in the knowledge system of the academic journal. In Cope B, Phillips A, eds. *The Future of the Academic Journal.* Elsevier; 2009: 13-61.
3. Liu X, Li X. [Development status and countermeasures of Chinese popular science journals: a quantitative study based on "Chinese Excellent Popular Science Journals Library"]. *Chin J Sci Tech Period.* 2023;34:249-257.
4. Fan Q, Yang P, Du Y. [Comparative analysis of science popularization research between domestic and abroad based on bibliometrics in recent six years]. *Innov Dev Intell Serv.* 2019.
5. Fan Q, Yuan R, Zhou L, Du Y. [Knowledge mapping and hot topics of science communication and popularization abroad: a bibliometric analysis based on SCI and SSCI]. *Stud Sci Pop.* 2019;14:24-33+111.
6. Rubinstein AY. Paternalistic state: Academic science and scientific journals. *Vopr Èkon.* 2022;(9):139-157.
7. Xue C, Wang Y, Yue R, Wang Y. [Media integration in scientific journals and strategies for communication: taking journals included in the Excellence Action Plan for China STM Journals as examples]. *Chin J Sci Tech Period.* 2023;34:461-472.
8. Xi Z, Xu Y. [Discussion on the new media operating status and improving path of popular science journals: focusing on 50 Chinese outstanding popular science journals in 2020]. *Acta Ed.* 2021;33:434-439.
9. Chen JH. Knowledge service innovation of scientific journals in media convergence environment. *Chin J Sci Tech Period.* 2017;28:1099-1103.
10. Brossard D. New media landscapes and the science information consumer. *Proc Natl Acad Sci U S A.* 2013;110(Suppl 3):14096-14101.
11. Demchenko PN, Maltsev IV. Mediatization as a factor in increasing interest in modern popular science media ("science and life" and "popular mechanics"). *Nauchnyi dialog.* 2021;(3):171-189.
12. Brossard D. Media, scientific journals and science communication: examining the construction of scientific controversies. *Public Underst Sci.* 2009;18(3):258-274.
13. Xiao N, Li SH. The formation mechanism of trust between editors and authors of academic journals from the perspective of symbolic interaction theory. *AJHSS.* 2024;7(11):77-85.
14. Wu J., Zhang B., Chen D. [Modeling and Implementation of Academic Journals Network Subscription System]. *J Wuhan Univ Technol (Inf Manag Eng).* 2012;34(4):455-459.
15. Belém Neto J. The challenge of reviewers scarcity in academic journals: payment as a viable solution. *Einstein (Sao Paulo).* 2024;22:eED1194.
16. Ganjavi C, Eppler MB, Pekcan A, *et al.* Publishers' and journals' instructions to authors on use of generative artificial intelligence in academic and scientific publishing: bibliometric analysis. *BMJ.* 2024;384:e077192.
17. Tang K-S, Cooper G, Nielsen W. Philosophical, legal, ethical, and practical considerations in the emerging use of generative AI in academic journals: guidelines for research in science education (RISE). *Res Sci Educ.* 2024;54(5):797-807.
18. Greco AN. The impact of disruptive and sustaining digital technologies

on scholarly journals. *J Sch Publ.* 2016;48(1):17-39.

19. Klus MF, Dilger A. Success factors of academic journals in the digital age. *Bus Res.* 2020;13(3):1115-1143.
20. Mazov NA, Gureyev VN, Sinyavina SV. Topicality of preparing fully functional electronic archives of paper-based Russian academic journals. *Sci Tech Inf Process.* 2024;51(4):297-309.
21. Yang MQ, Zhang JY, Yu XT, *et al.* Current situation, existing problems, and suggested strategies of science popularization of academic journals—taking medical academic journals as examples. *Publ Print.* 2024;30(2):61-70.
22. Cheng L. [Role of academic cancer journals in the knowledge popularization of tumor prevention and treatment: taking *Journal of Basic and Clinical Oncology* as an example]. *China Cancer.* 2022;31(3):235-240.
23. Valerio PM, Ribeiro Pinheiro LV. From scientific communication to popularization. *Transinformacao.* 2008;20(2):159-169.
24. Trueblood JS, Allison DB, Field SM, *et al.* The misalignment of incentives in academic publishing and implications for journal reform. *Proc Natl Acad Sci U S A.* 2025;122(5):e2401231121.
25. Wu Q, Wu H. Research progress and advantage analysis of big data application in Chinese academic journals. In Tallón-Ballesteros AJ, ed. *Fuzzy Systems and Data Mining.* IOS Press; 2020.
26. Xie J, Sun L. A content analysis of journal of library science in China in 2007-2016. *J Electron Resour Librariansh.* 2011;30:185-197.
27. Järvelin K, Vakkari P. Content analysis of research articles in library and information science. *Libr Inf Sci Res.* 2002;12:395-421.
28. Tong C, Zhao YX. [Exploring Users' Motivations and Behaviors on Danmaku Video Sharing Websites:A Content Analysis]. *Library Tribune.* 2019;39(6):80-89.