

Dilemmas and Countermeasures for the Development of China's Scientific Journals in the Era of Media Convergence: Postprint

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

Abstract

Objective

This study investigates the characteristics of information dissemination in the era of media convergence to provide references for the media convergence development of scientific journals in China.

Methods

This research employs methods including literature review, experience summarization, expert consultation, and case study analysis.

Results

Information dissemination in the media convergence era places greater emphasis on interactivity, features higher timeliness, and becomes more personalized. Scientific journals face considerable development dilemmas during this transformation, including insufficient understanding of media convergence, singular dissemination forms, lack of targeting, outdated ideas and means, and a shortage of media convergence talent.

Conclusion

The government should facilitate the transformation of media convergence for scientific journals. Journals must strengthen their awareness of media convergence development, build operational platforms and media matrices, enhance the development of interdisciplinary talent teams, enrich content and dissemination forms, and provide personalized services for audiences. Only through these measures can scientific journals achieve further reform, development, and expansion in the era of media convergence.

Full Text

The Dilemmas and Countermeasures of Chinese Scientific Journals Development in the Era of Media Convergence

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Abstract: [Objective] To examine the characteristics of information dissemination in the era of media convergence and provide references for the integrated development of media in Chinese scientific journals. [Methods] Literature research, experience summarization, expert consultation, and case study methods were employed. [Results] The media convergence era places greater emphasis on interactivity, timeliness, and personalization of information dissemination. Scientific journals face significant development challenges, including insufficient understanding of media convergence, monotonous dissemination forms, lack of targeted communication, outdated concepts and methods, and a shortage of media convergence talent. [Conclusion] Only through government support for the transformation of scientific journals, enhanced awareness of media convergence development, construction of integrated media operation platforms and matrices, development of interdisciplinary talent teams, enrichment of dissemination content and forms, and provision of personalized services for audiences can scientific journals achieve further reform and development in the media convergence era.

Keywords: media convergence; media integration; scientific journals; dilemmas; countermeasures

Classification: G633

Document Code: A

Article ID: 1671-0134(2023)01-060-04

DOI: 10.19483/j.cnki.11-4653/n.2023.01.010

Citation Format: Zhang Y. The Dilemmas and Countermeasures of Chinese Scientific Journals Development in the Era of Media Convergence[J]. *China Media Technology*, 2023(01): 60-63.

Introduction

Media convergence, first proposed by Nicholas Negroponte, refers to the complementary advantages and resource sharing between traditional media (television stations, radio stations, journals, newspapers) and emerging network-era media (digital television, smart handheld devices, computers) to create information products that better serve users, disseminated simultaneously through

these various channels.[1] Around 2014, relevant state departments issued the “Guiding Opinions on Promoting the Integrated Development of Traditional and Emerging Media” and the “Guiding Opinions on Promoting the Integrated Development of Traditional and Emerging Publishing,” marking China’s official entry into the era of media convergence. For a long time, mainstream media represented by radio, television, and newspapers, relying on their professional editorial teams, rich editing experience, and extensive social resources, have produced high-quality, authoritative content that has become an indispensable information medium in people’s lives. New media better caters to audiences’ needs for fragmented time and reading, providing them with greater selectivity and largely solving the problems of the top-down model and limited choices of mainstream media. Consequently, new media has rapidly occupied the media market, gradually weakening the competitiveness of traditional media in terms of influence and profit models. Scientific journals, as important members of traditional media, have experienced significant impact from media convergence development on their traditional operational models. How scientific journals can further reform and strengthen themselves in the media convergence era is a topic worthy of research.[2] Therefore, this study aims to examine the characteristics of the media convergence era, identify the dilemmas facing scientific journal development, and propose countermeasures.

1.1 Greater Emphasis on Interactivity

In the traditional media era, audiences passively received information—watching television, reading newspapers, perusing print journals, etc. Due to the lack of interactivity and experiential engagement, audiences’ interest in traditional media has increasingly declined. With the explosive growth of information, traditional dissemination methods struggle to capture audience attention, resulting in diminishing communication effectiveness. In the media convergence era, television media has gradually transitioned to Internet TV, while newspapers and journals have begun developing electronic versions and even launching official Weibo and WeChat accounts.[3] In new media dissemination modes, audiences no longer unilaterally receive information but can easily participate in commenting, sharing, and forwarding through computers or even mobile phones, which not only enhances audience interest but also broadens the reach of media information through audience sharing and forwarding.

1.2 Higher Timeliness

In the traditional media context, content production typically involves multiple stages: topic selection, text creation, editorial processing, layout design, and broadcast dissemination. Newspapers generally require a 3-10 day publication cycle, books and journals need one to two months or even one to two years, and television news requires at least 1-3 days of production time.[4] In the media convergence era, the effect of immediate dissemination upon completion has been essentially realized, greatly improving communication timeliness. For instance,

television and newspaper media can rapidly push relevant content to audiences through new media platforms such as Weibo, WeChat, Toutiao, and Douyin before traditional media release. With the emergence of live streaming media, a “zero-lag” effect where content creation and dissemination occur simultaneously has been achieved. Some news interviews, science popularization campaigns, and entertainment performances have realized simultaneous creation and dissemination, satisfying audiences’ thirst for information about novel events and emergencies while significantly enhancing communication timeliness.[5]

1.3 Personalization of Dissemination

In the traditional media era, information dissemination catered only to the preferences of the majority, largely ignoring the personalized and differentiated needs of niche audiences. Television, radio, newspapers, and books considered only the needs of the main audience during topic selection and planning. Even early network products such as portals, electronic bulletin boards, and online games pushed identical information, with every audience member seeing the same web page at the same time, resulting in inefficient information dissemination. However, in the media convergence era, with the rapid development of the Internet and the refinement of user profiling and push algorithms, Internet information providers represented by Toutiao, Taobao, Baidu, and Tencent can customize personalized information solutions for each user based on differences in age, gender, education, and interests, thereby pushing completely different content to each user and greatly improving information dissemination efficiency.[6]

2. Development Dilemmas of Scientific Journals in the Media Convergence Era

With the rapid development of new media and continuous advancement of media convergence, scientific journals face increasingly narrow content distribution channels and shrinking audiences. The vast majority of scientific journals have sensed the crisis and challenges and have taken some measures. However, overall, Chinese scientific journal publishers’ understanding of media convergence remains insufficient, with most still remaining at the stage of opening official email accounts, official websites, and Weibo/WeChat accounts. Moreover, the UI (User Interface) design of these online media is generally outdated and unattractive, poorly maintained and managed, providing suboptimal user experiences, with infrequent information updates and long-term “zombie” status.[7] Additionally, China’ s scientific journal publishing community generally lacks understanding and knowledge of emerging media such as Zhihu, Toutiao, Douyin, and Xiaohongshu, has no systematic consideration of how to leverage the strengths of these new media for integrated development, and has basically failed to adopt effective development measures and methods.

2.1 Insufficient Understanding of Media Convergence

The above general assessment reveals that most scientific journals have a superficial understanding of media convergence, limiting their development.

2.2 Monotonous Dissemination Forms

Most Chinese scientific journals lack profound understanding of dissemination forms in the media convergence era and are unfamiliar with the communication language characteristics favored by audiences. They remain at the stage of simply copying print journal content and posting it on official websites, Weibo accounts, and WeChat public accounts. Such monotonous content lacks sufficient appeal and is unlikely to trigger dissemination booms in the media convergence era. Furthermore, most Chinese scientific journals fail to adequately emphasize the interactive and experiential features of new media in their dissemination forms, showing insufficient attention to user experience and feedback. In terms of reading format design, they seldom employ forms preferred by audiences in the media convergence era, such as illustrated text, comics and illustrations, music narration, questionnaires, Q&A formats, and game-based challenges, failing to fully leverage new media technologies.

2.3 Lack of Targeted Dissemination

Currently, most new media users of Chinese scientific journals come from direct conversion of readers, authors, and other groups from the traditional print era, without utilizing the natural advantages of new media in technology and dissemination to rapidly expand user volume and broaden user types. Due to limited user quantity and type, scientific journals lack sufficient big data as a foundation for precise algorithms, making it difficult to carry out personalized customization of dissemination content. Most Chinese scientific journals have opened official email accounts, official websites, and Weibo/WeChat accounts, but basically have not conducted user profiling or precise user identification, lacking in-depth analysis and understanding of user group characteristics. Dissemination content essentially copies print journal material, and media convergence information pushing lacks differentiation, personalization, and precision. Because scientific journal dissemination content lacks targeting, pushing identical information to every user creates reading content fundamentally no different from traditional print journals, failing to increase user reading interest and resulting in continuous user loss.

2.4 Lagging Concepts and Methods

With the rapid development of media convergence, especially the Internet and new media, although scientific journals are actively exploring and striving for breakthroughs, overall they still fall far short of media convergence development requirements, with lagging concepts of media convergence development

and lagging dissemination methods. First, most scientific journals conduct limited research and in-depth thinking on media convergence development, still promoting media convergence using traditional journal development thinking, resulting in predictable efficiency and outcomes. Second, methods and means of media convergence development are monotonous and lagging, with some new media methods adopted partially and separately, but media are incompatible, non-integrated, and operate independently, losing the inherent advantages of integrated development.

2.5 Lack of Media Convergence Talent

Scientific journal talent is primarily cultivated through traditional journal publishing processes. These professionals generally possess high-level writing, editing, and reviewing skills and rich experience in scientific journal publishing, but overall have low mastery of new media technologies and media convergence thinking, becoming an important reason for the slow transition of scientific journals from traditional media to media convergence. During the transition from traditional to new media, the transformation of these professionals' thinking and logic requires considerable time and extensive training, which also requires substantial human and material support, increasing media operation and management costs. On the other hand, the relatively rigid talent management system of scientific journals has become an important factor preventing talent retention, and talent loss is damage that traditional media cannot afford. After product development, during the operation, maintenance, and bug-fixing stages, developers have already job-hopped, and the technological discontinuity caused by talent loss becomes an important factor affecting product upgrading.[8]

3. Countermeasures for Scientific Journal Development in the Media Convergence Era

3.1 Government Should Support Scientific Journals' Media Convergence Transformation

Scientific journals hold significant importance in disseminating scientific and technological achievements, expanding scientific exchanges, and improving public science literacy, yet face tremendous difficulties in the media convergence era. The government should provide necessary assistance and support for the integrated development of scientific journals, such as introducing more lenient supportive policies allowing scientific journal media convergence to enjoy the same treatment as Internet companies and unified standardized management systems. It should also provide necessary financial support for platform construction, talent introduction, and technology upgrading for scientific journal media convergence, creating a favorable business environment for competition with Internet enterprises, stimulating market competition vitality, and improving market-oriented operation efficiency. Additionally, the lack of media convergence talent is an important factor limiting the transformation and devel-

opment of scientific journals, but the vast majority of scientific journal talent is introduced and managed according to personnel management systems for government institutions and public service units, preventing many excellent media convergence professionals from entering traditional scientific journals. The government should allow scientific journals to flexibly introduce and utilize outstanding media convergence talent, providing talent and technical support for transformation. Finally, the government should leverage the massive traffic advantages of local official media convergence platforms to help scientific journals quickly acquire users and markets, laying a solid foundation for transformation.

3.2 Strengthen Awareness of Media Convergence Development in Scientific Journals

The continuous emergence of new media and the development of media convergence have become irreversible trends in the publishing and media field. Media convergence has brought significant impact to the inherent operational models, particularly content dissemination models, of scientific journals, leaving many feeling confused, helpless, and even fearful of the new trends in media convergence development.[10] Scientific journals must abandon old thinking from the traditional media era and continuously strengthen awareness of media convergence development, actively adapting to new changes brought by media convergence to journal operations. First, in terms of ideology, media convergence development should not be regarded as a “flood beast” blocking scientific journal development, but rather as a new opportunity for traditional scientific journals to transform and strengthen themselves. Second, media convergence development should be viewed as a guiding principle rather than an auxiliary means for scientific journal operations, using it as an operational goal to drive process reengineering in all aspects of journal operations and optimizing traditional operational models with media convergence requirements, rather than hoping media convergence will adapt to traditional models. Finally, abandon the old operational model of closed-door, isolated operations, embrace media convergence with an open and integrated mindset, learn new promotional and dissemination methods in the media convergence context, and strive to expand the influence of scientific journals.

3.3 Build Integrated Media Operation Platforms for Scientific Journals

Most scientific journals are sponsored by industry academic societies, universities, and research institutions, which typically sponsor multiple journals. It is unrealistic and inefficient for a single journal to build its own media convergence platform. Multiple related journals (under the same supervising unit, sponsoring unit, or within the same industry) can, under the leadership of their supervising unit, sponsoring unit, or industry academic society, build scalable and upgradable integrated media operation platforms for scientific journals covering “planning, gathering, editing, distribution, and control” for shared use by

multiple journals. This leverages the scale advantages of cluster development models to improve the efficiency of media convergence transformation. Scientific journal integrated media operation platforms should possess functions including centralized management, material import, graphic production, video editing, review assignment, automatic proofreading, effect preview, and quality assessment. In the media convergence era, such platforms should also feature openness and compatibility, establishing linkage mechanisms for regional coordination, inter-journal coordination, multi-element integration, and multi-disciplinary complementarity, reasonably absorbing beneficial content from mass journals, newspapers, television, radio, and new media to achieve broad-dimensional development while enhancing the appeal of published content.

3.4 Build Integrated Media Matrices for Scientific Journals

We should continue deepening reform and innovation in the scientific journal media field, focusing on building integrated media matrices for scientific journals. Through efficient integration with both division of labor and cooperation among networks, newspapers, broadcasting, television, and news agencies, we can form “group combat” advantages. We should actively establish presence on various online media platforms, utilizing the credibility of authoritative media and the reach of commercial media to disseminate scientific journal content, continuously expanding the audience for scientific papers and bridging the spatial and emotional distance between netizens and scientific research. We should skillfully leverage the potential of civilian online public opinion, scientifically use social media to push relevant information, improving the reach probability and dissemination effectiveness of public opinion campaigns. We should shift from “unilateral action” to “multilateral linkage,” adept at leveraging the power of the entire society, organically connecting family and society, online and offline resources, cooperating and fighting as a group to form a comprehensive, multi-domain, three-dimensional grand publicity pattern.[11]

3.5 Strengthen the Construction of Interdisciplinary Talent Teams

Traditional scientific journal editors are primarily natural science and technology professionals who generally lack the new technologies required for media convergence development in scientific journals. Scientific journals must continuously strengthen the construction of interdisciplinary talent teams, building a group of composite talents with high political quality, strong academic ability, high professional proficiency, along with media convergence awareness and concepts, and mastery of product design and digital technologies. First, there should be division of labor within scientific journal editorial departments, allowing some to continue focusing on editing and proofreading work to produce high-quality content and materials, while others with initiative in media convergence development strengthen training and learning to master new media technology application skills. Additionally, intensify talent introduction efforts, recruiting professionals who master computer technology, Internet technology,

digital technology, and new media development technology to provide talent guarantees for the integrated development of scientific journals and support platform development, product design, product development, content release, and feedback collection.

3.6 Enrich Dissemination Content and Forms of Scientific Journals

The reason why information dissemination in the media convergence era is faster, more effective, and more likely to trigger online hotspots is primarily because the content is richer and the methods more diverse. Compared with mass media and self-media, scientific journals possess more professional and authoritative academic materials and cutting-edge information, and should theoretically perform better in information dissemination and journal promotion in the media convergence era. First, scientific journals should deeply analyze information preferences of online audiences in the media convergence era. For example, basic research journals should seize the opportunity of patriotism further heightened by films such as *Wolf Warrior* in recent years to publish special issues and articles on major breakthroughs in China's scientific research. Medical and health journals should capitalize on widely followed online health and wellness hotspots to publish special issues and articles on popular health and wellness based on scientific research. Second, information dissemination and promotion of scientific journals in the media convergence era should not simply copy the narrative model of academic papers by directly publishing abstracts, introductions, charts, references, and other content obscure to general audiences. Instead, these academic research results should be rewritten in language that general audiences can understand, comprehend, and find interesting. Finally, in terms of content presentation, besides common text and tables, efforts should be made to employ emerging forms such as comics and illustrations, music narration, questionnaires, Q&A formats, and game-based challenges to increase reading interest among online audiences.

3.7 Provide Personalized Information for Audiences

Authors, readers, reviewers, and editorial board members of journals are important assets that can be transformed into powerful human resources for sustainable journal development.[12] Due to the strong professional nature and high entry threshold of scientific journal dissemination, their users exhibit niche characteristics. Compared with mass communication, niche communication requires refined processing of both communication subjects and content to enhance users' initiative in obtaining information. Scientific journal new media platforms should, based on their reported content and niche communication characteristics, utilize big data technology to selectively target users, clarify their information needs, and conduct precise pushing of scientific information, transforming mass services into personalized services for users.

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(Responsible Editor: Zhang Xiaojing)

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

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