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Exploration of Integrated Publishing Forms for Sci-Tech Journals in the New Era: Postprint

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Abstract

Amidst the growing prominence of new media, scientific journals are experiencing more severe impacts due to their specific characteristics, such as a relatively narrow audience reach. To expand journal influence, it is imperative to break existing publishing models and enhance both social and economic benefits—a key issue requiring focused attention at present. This study focuses on new technologies and new business forms in scientific journal editing and publishing, conducting research on novel integrated publishing models within the open science environment. It aims to strengthen the integrated innovation, dissemination, and service capabilities of journal publishing, lead disciplinary development, foster scientific culture, and promote research integrity in academic publishing.

Full Text

Preamble

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Title: Exploring Convergent Publishing Models for Scientific Journals in the New Era

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Abstract: In today's era of rising new media, scientific journals face even greater impact due to their specific characteristics, such as relatively narrow audiences. To expand journal influence, it is essential to break existing publishing models and enhance social and economic benefits, which represents a critical issue requiring focused attention. This paper focuses on new technologies and

business forms in scientific journal editing and publishing, conducting research on new convergent publishing models within the open science environment. It aims to enhance innovation capacity, dissemination capability, and service capability in journal publishing, lead disciplinary development, foster scientific culture, and promote the construction of research integrity.

Keywords: convergent publishing; editing; digitalization; influence

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The concept of media convergence was proposed by American scholar Ithiel de Sola Pool in 2006, primarily referring to the integration of traditional media such as journals, newspapers, and television with intelligent emerging media like the Internet to achieve resource sharing and disseminate various information resources through different platforms [1]. Currently, media convergence has become a consensus across the news, publishing, and communication fields. Driven by diverse demands, content in various media forms is being comprehensively disseminated through multiple channels in numerous ways [2].

Traditional publishing primarily expresses ideas through linear formats, whereas digital convergent publishing integrates multiple forms of expression to construct a three-dimensional reading space through non-linear network structures, making works more compelling [3-6]. The emergence of new phenomena inevitably brings new business processes and management models, requiring methodological innovation throughout the entire process of content production, dissemination services, and business management.

1. Fusion Publishing Background

Media convergence is a complex systematic project. Through relevant practices in the initial stages of media convergent publishing, applying video-based dissemination as an extended channel has demonstrated positive guiding effects on expanding journal influence. However, in most cases, short video applications impose excessive production burdens without yielding productivity transformation. Current convergent publishing remains at a rudimentary additive stage; convergent publishing is not equivalent to digital publishing—merely building two websites or creating several Apps is insufficient. More importantly, the Internet should not be treated merely as a channel or technology; rather, integration must be promoted from the perspectives of content, dissemination, and users [7-10].

2. Fusion Publishing Methods

2.1 Technology Convergence

Convergent publishing involves numerous points, broad scope, and long chains, while related businesses feature high technical content and significant management challenges. It is necessary to carefully study the latest policies promoting publication development through convergent publishing and advance structural reorganization of the publishing industry from market and user perspectives, aggregating resources in various forms including text, images, audio, and video [19-22].

2.1.1 New Technologies for Journal Operation Authors commonly use online searches to obtain relevant information. From the perspective of convergent publishing, new online media technologies are simultaneously driving the integrated construction of content production and dissemination services in publishing units [11-14]. Under existing publishing formats, it is essential to integrate technology, content, market, and talent, actively follow academic frontiers to optimize manuscript sources, broaden result formats to enrich publication content, explore the establishment of academic communities to optimize review teams, conduct multi-dimensional verification of academic integrity to maintain the research environment, and establish sound operational mechanisms to promote professional cooperation. Through these measures, academic achievement dissemination can be enhanced and journal influence elevated [15-18]. Improved influence subsequently feeds back to manuscript source construction, creating a virtuous cycle, as illustrated in Figure 1 [Figure 1: see original paper].

2.1.2 Following Academic Frontiers and Optimizing Manuscript Sources Academic journals demonstrate research achievements in disciplinary fields, primarily through experimental studies, model simulations, and review articles. Academic journals also serve as information media enabling relevant practitioners to understand the latest status of domestic and international academic research. However, insufficient attention has been paid to their inherent media function, resulting in limited development paths for academic journals.

By tracking data and analyzing markets, we can fully demonstrate the relevance between scientific and technological information products and industrial needs, gaining deeper understanding that academic journals constitute an important component of the scientific and technological industry chain. This enables more objective and rational article selection, avoiding blind pursuit of sophistication, and instead focusing on current hot topics, high download rates, and high citation data, guided by market demand.

2.1.3 Broadening Publication Formats and Enriching Content Inviting authors to provide open content and data from their research, experimental process images or videos, and strengthening interactive Q&A between authors

and readers can guide readers to quickly and intuitively understand core and difficult points through enhanced materials, facilitating better comprehension of papers.

Media technology has evolved from face-to-face communication to continuously expanding interaction forms through technological means, with communication morphologies developing from initial sound and images to moving pictures and current live situations, realizing remote “face-to-face” exchanges through new Internet media.

Inviting authors to record relevant voice or process videos about their articles through self-media means—introducing writing backgrounds, purposes, interesting anecdotes during the writing process, and key technical aspects of experiments—can rapidly help readers understand papers clearly and multidimensionally, enriching paper presentation forms.

Short videos concretize abstract knowledge in visible ways, connecting online content with actual papers. Authors, disseminators, and readers of scientific knowledge constitute a unified knowledge body, with authors becoming part of the knowledge themselves and adding personalized charm to make knowledge less abstract and more intuitive and vivid. When profound professional knowledge connects with daily experience, the knowledge-sharing process becomes an equal exchange, transforming learning from a tedious process into a friendly, equal, and enjoyable dialogue.

2.1.4 Multi-dimensional Verification of Academic Integrity The OSID (Open Science Identity) system serves as an excellent tool for journals to enhance research integrity levels and strengthen innovation capabilities. Authors providing voice, experimental data, and videos incidentally verify the authenticity of paper data.

Four key measures should be implemented: (1) Establish a comprehensive system for academic integrity to maintain sound academic order. (2) Fully integrate China’s promulgated standards and internationally accepted academic ethics and norms to establish practical ethical standards for editors-in-chief and reviewers. (3) Implement a veto system for any violation of standards discovered during the review or editorial process to strictly eliminate academic misconduct. (4) Resolutely retract published papers subsequently found to have academic ethics issues to safeguard research integrity.

2.2 Content and Community Strategies

2.2.2 Planning Special Issues and Thematic Collections Relying on relevant industry associations (academic societies, professional academic journal associations) to concentrate advantageous resources and achieve mutual information sharing can establish “platform-based media.”

2.2.3 Synchronous Author-Reader Communication Ultimately, the integrated development of academic journals aims to facilitate reader usage. Based on readers' application habits, unique reader databases can be formed to analyze their focus areas and provide targeted recommendations of interested content, achieving personalized differentiated services. Simultaneously, refined analysis of reader data can provide foundations for content production.

2.3 Market Convergence

2.3.1 Author Market Strengthening communication and contact with authors, tracking academic conferences, and visiting scholars can expand journal influence. Understanding disciplinary dynamics and hot topics through publicity and promotion, actively organizing and participating in relevant academic activities, and sending editorial teams to first-class domestic research institutions and high-impact academic conferences for manuscript solicitation and commissioning can provide comprehensive publicity and exchange for the journal. Inviting editorial board members and review experts to submit high-quality manuscripts to the journal and organizing annual academic conferences can further expand influence.

2.3.2 Reader Market Three primary strategies can enhance reader engagement: (1) Utilize “localized” social media to promote newly published content, organize or sponsor events to attract users, and increase publication influence and audience reach. (2) Use OSID QR codes as entry points, enabling experts and readers to immediately ask questions via voice or text on their mobile phones when they have questions about paper content or wish to discuss topics with authors. (3) Display related academic exchange content complementarily to save readers' problem-solving costs. Experts, authors, and readers can conduct open evaluation, discussion, and exchange on individual papers through OSID codes, expanding academic networks and publishing academic topics related to paper subjects.

2.3.3 Establishing Sound Operational Mechanisms Leveraging the advantageous disciplines or brand journals of publishing institutions to extensively carry out strategic cooperation with local journals through a model of “editorial departments responsible for content, publishing institutions responsible for production and promotion” can achieve high-quality enhancement of journal influence through complementary advantages, resource sharing, and integration.

2.3.4 Institutional Relations Strengthening connections with publishers and various database indexing institutions, cooperating and exchanging with other scientific journals, and actively enhancing ties with organizations such as the China University Journal Association, China Science and Technology Journal Editors Association, and China Natural Science Journal Editors Association can provide access to cutting-edge information on scientific journal construction.

2.4 Talent Convergence

2.4.1 Strengthening Editorial Team Building Convergent publishing places higher demands on the professional capabilities of talent teams, requiring not only specialization and mastery of publishing expertise and capabilities but also professional political discernment, convergent editorial processing power, and manuscript planning capabilities. Three training strategies should be implemented: (1) Select outstanding editors for professional training to build high-level specialized and professional journal operation teams, learning advanced models and experiences in Chinese journal management, operation, and marketing promotion. (2) Invite experts for face-to-face guidance and transmission of excellent journal publishing experience. (3) Scan QR codes to access OSID editorial operation video courses online and actively participate in the Publishing Convergence Technology Editor Innovation Competition jointly launched by the Publishing Convergence Development (Wuhan) Key Laboratory of the National Press and Publication Administration, China Publishing Association, China Journal Association, and China Editors Association.

2.4.2 Building Academic Communities and Optimizing Review Teams

Two approaches can optimize review teams: (1) Invite renowned domestic and international experts in relevant scientific fields to join editorial boards. (2) Organize academic conferences to identify outstanding academic leaders within industries and enrich the reviewer expert database. The dissemination power and methods of journals should be diversified. Combining journal characteristics to deeply explore suitable dissemination methods for precision communication, adapting to new convergent publishing situations, and fully exploring reader and author needs for content improvement and adjustment can effectively enhance journal dissemination power and influence.

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