Research on Cultivating Talents for Intelligent Publishing of University Journals in the Context of Artificial Intelligence and Media Convergence Postprint

Authors: Tan Hua, Xi Bei, Zhu Tianxiao, Wang Xiaodan

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Abstract

With the application of digital technology and artificial intelligence in the publishing domain, academic publishing is transitioning toward a smart publishing model, mainly reflected in that publishing products and content are no longer limited to single text and images but have become more three-dimensional, diverse, and intelligent, that the publishing process has become smarter through greater use of intelligent technologies in content production, editorial processing, publishing and distribution, and integrity management, and that the integration of artificial intelligence and digitalization has made academic communication and publishing services more precise, personalized, and intelligent. The smart publishing model has put forward new requirements for publishing talent in university journals; university journals should, through pathways such as participating in training programs organized by publishing industry institutions, leveraging collaborative cultivation with professional publishing colleges and universities, and relying on "industry-academia-research" cultivation within publishing units, enhance their personnel' s capabilities for innovation in smart publishing content, mastery of smart publishing technologies, and management of smart publishing services, thereby building a smart publishing talent team that can adapt to media convergence development and providing talent support for constructing a world-class journal formation.

Full Text

Preamble

Title: Research on Cultivating Smart Publishing Talent for University Journals in the Context of Artificial Intelligence and Media Convergence

Authors: Tan Hua, Xi Fei, Zhu Tianxiao, Wang Xiaodan
(Journal Editorial Department, Nantong Vocational University, Nantong, Jiangsu 226007)

Abstract: With the application of digital technology and artificial intelligence in publishing, academic publishing is transitioning toward a smart publishing model. This transformation manifests in three key dimensions: First, publishing products and content have evolved beyond single-format text and images into more multidimensional, diversified, and intelligent resources, offering users unprecedented real-time and interactive experiences. Academic content has become readable, audible, visual, and interactive. In news publishing, intelligent robots like Microsoft Xiaoice can even "chat" about news with readers, enabling deep intelligent interaction. In essence, converged publishing enriches product formats and makes content more multidimensional and intelligent. Second, the publishing process itself is becoming smarter, with intelligent technologies increasingly used in content production, editorial processing, distribution, and integrity management. Third, the convergence of AI and digitalization renders academic communication and publishing services more precise, personalized, and intelligent. This smart publishing model imposes new requirements on publishing talent at university journals. To address these challenges, university journals should enhance their staff' s capabilities in smart content innovation, smart technology mastery, and smart service management through participation in industry training programs, collaborative cultivation with professional publishing schools, and internal "industry-academia-research" integration. This will build a talent pool capable of adapting to media convergence and provide human resource support for developing world-class journals.

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At present, "deepening reform, promoting integrated development, and transforming from a major publishing country to a publishing powerhouse" represents the strategic direction set by the Party Central Committee for the publishing industry' s development. The concept of converged publishing development is taking root and becoming an industry consensus. With the advent of the artificial intelligence era and the deep integration of 5G and blockchain technologies in publishing, all aspects and formats of the publishing industry will be profoundly affected. Academic publishing will inevitably undergo intelli-

gent transformation from content production and knowledge services to process reengineering and communication methods. The emergence of new publishing formats featuring deep integration in content, production, platforms, operations, and management [1-2] calls for the cultivation of smart publishing talent.

1.1 Smartification of Publishing Content

With the deep application of digital technology and AI in publishing, the direction of "publishing + technology" has become clear. Smart publishing products continue to emerge, such as knowledge service platforms built on cloud technology and big data resources, intelligent voice knowledge bases like "Clinical Assistant" [3], and "converged media books." These developments signal that smart publishing formats like "content + life," "content + production," and "content + academia" are becoming mainstream. In this converged development context, smart publishing models that integrate big data, AI, virtual reality, and augmented reality technologies have made academic content more than just text and images. Instead, they aim to provide readers with multidimensional resources combining audio, video, and services, creating unprecedented real-time and interactive user experiences. Academic content has become readable, audible, visual, and interactive. In news publishing, intelligent robots like Microsoft Xiaoice can even "chat" about news with readers, achieving deep intelligent interaction. In short, converged publishing enriches product formats and makes content more multidimensional and intelligent.

1.2 Smartification of Publishing Processes

The new "human-machine hybrid" model of intelligent digital content production is advancing the smartification of publishing processes. Based on intelligent big data analysis and knowledge reasoning, publishers can accurately capture readers' needs, academic interests, and authors' research directions and output formats, enabling effective topic planning for academic publishing. In smart publishing workflows, repetitive and low-creativity tasks such as editing, proofreading, typesetting, and printing are gradually being replaced or partially substituted by AI. For instance, intelligent editing assistants and smart products like "iFlytek Hearing" and Google Subtitle Translation help editors rapidly process content, convert formats, and translate languages, reducing desk workload and improving efficiency. As data sharing deepens, integrated intelligent systems for review, editing, and proofreading built on big data and AI can automatically detect academic misconduct such as plagiarism, tampering, or fabrication, and implement automated corrections based on massive vocabularies and machine learning, accelerating interactions among authors, editors, and reviewers.

Blockchain-based copyright protection systems can make transactions transparent and trustworthy. The deep integration of blockchain and AI enables not only the recording and tracking of intellectual property but also the development of highly intelligent detection systems that automatically monitor online

infringement of text, images, audio, and video. This makes academic gatekeeping more rigorous and ensures safer, more efficient copyright attribution and protection for published works.

1.3 Smartification of Publishing Services

Intelligent technologies can accurately simulate users' visual, auditory, and tactile perceptions and thinking processes, considering personalized needs from cognitive, emotional, and habitual dimensions to determine communication methods and customize content. For example, the OSID (Open Science Identity) Open Science Initiative, developed by the Wuhan Key Laboratory of the National Press and Publication Administration, aims to break the one-way service model from editor to reader in traditional publishing. Through SAYS technology, it presents content in diversified formats, establishes multidirectional interactions with readers, authors, and reviewers, and achieves precise push services to help print journals overcome homogeneous competition.

Currently, scientific communication and preprint services have become hot topics. Preprint services involve posting submissions online after initial screening (not peer review), with versions changeable before formal publication and direct links to the final version upon publication. The latest academic results in preprint form can be rapidly disseminated through platforms like EJP, Editorial Manager, Bench Press, and Scholar One. Preprint content is freely accessible and downloadable, with open commenting features that effectively promote scientific exchange. This rapid pre-publishing approach, initially used in physics and mathematics, is now widely accepted by authors.

Additionally, Persistent Identifiers (PIDs) encompassing identifiers such as DOI and ORCID will permeate all aspects of academic publishing, covering various content elements. Using PID services can increase the visibility, reusability, and measurability of academic achievements and research activities. Through the persistence of PIDs and integrated application of multiple PID systems, rich, interlinked, reusable, and open metadata can be provided to enable usage tracking and measurement of academic literature and research data, academic search engines, repositories, data mining, and other services, maximizing overall benefits for the academic community. In summary, smart publishing services are becoming more applicable and effective in the smart publishing model.

2.1 Smart Publishing Content Innovation Capability

Smart knowledge services are key to developing new channels and cultivating new users for academic publishing. By establishing smart publishing platforms and uploading paper content and materials in various formats that facilitate expert review and reader understanding—such as audio, video, animations, PPTs, and images—publishers can provide readers with intuitive, in-depth, and thorough reading experiences. Community and social network-based targeted dissemination of scientific papers, along with mobile terminal push notifications

of enhanced materials and open content, is faster, broader, and more precise. Additionally, smart tools like OSID, PID, Kudos, and SAYS enable integrity statements and guarantees, allowing authors to upload background information and research contribution details that help readers quickly identify, screen, and filter content. Uploading supporting materials for authors' research can reveal more about the research process, raising the bar for academic fraud. These management tools clarify researchers' contributions, eliminate honorary authorship, and achieve smart management of research integrity.

University journal editors must cultivate user thinking, using intelligent technology to analyze historical records, interaction data, real-time environments, and emotional characteristics to accurately grasp users'personalized needs, accelerate review speed and quality, and effectively retain journal readers for precise service management. By building knowledge platforms to promote academic exchange among users and enhancing management capabilities across content, channels, platforms, and operations, editors can effectively manage various smart products and provide better smart academic and knowledge services.

2.2 Smart Publishing Technology Mastery Capability

In the context of converged publishing, smart publishing technologies continue to emerge. "Media Brain" focuses on intelligent and automated video production technologies. AI has penetrated collection, production, video, distribution, and review processes throughout the entire media industry chain [4-5] and is gradually integrating into academic publishing and communication. University journal editors must actively master AI fundamentals and cutting-edge applications, develop capabilities in big data analysis, knowledge services, and smart platform usage, and become smart publishing talent who best understand media technology within academic publishing and best understand academic publishing within media technology. First, they must master smart editing software and manuscript processing systems to standardize and improve publishing workflows. Second, they must master the latest converged media publishing skills to achieve intelligent, precise push and simultaneous release of academic content. Through smart publishing technologies, they can integrate information collection, topic planning, manuscript organization, review processing, graphic handling, and distribution into a unified, smart system [6], making the entire editorial production process more efficient.

Additionally, editors must promptly learn and master the latest editing tools and publishing technologies. For example, Kudos is a tool tailored for science journal editors and rapidly developing researchers, helping them and their institutions increase visibility and impact of published articles and research results. The SAYS system, accessed via OSID codes, provides a rich open science and media convergence toolkit including authors'voice introductions to article backgrounds, open content from research, interactive Q&A between authors and readers, and academic circle establishment. Editors must learn to use these smart tools and technologies to enrich extended paper content and achieve multidimensional,

smart publishing of articles.

2.3 Smart Publishing Service Management Capability

In the converged publishing context, profound changes in academic publishing content and communication methods have substantially altered the connotation and extension of editorial work. The smartification of editing and publishing determines that university journal editors must engage in multidisciplinary intersections. Beyond broad knowledge of natural sciences, humanities, social sciences, and editing and publishing, they must possess content innovation capabilities.

First, editors must have effective big data processing capabilities. Faced with massive academic data, university journal editors need keen perception and learning abilities to quickly discover useful information, collect, sort, analyze, and refine data for topic planning and manuscript organization. They must efficiently complete tasks such as content duplication checks, processing, and reorganization to present text and images to readers more effectively, achieving multi-channel, diversified, and effective expression of publishing themes.

Second, editors must possess multi-media publishing integration capabilities. They should skillfully use rich media elements for smart and innovative content editing, such as splitting, merging, mining, organizing, and reorganizing to form information content that meets media communication requirements. For instance, pushing complete academic papers from university journals directly to mobile terminals is not optimal—they require fragmentation, refinement, or splitting of core content. Similarly, simply republishing print content unchanged on academic journal websites or open data platforms fails to fully exploit the service functions of academic journals and open platforms. Editors can integrate and push content in cluster journal formats based on different themes to enhance precise communication effectiveness.

3. Cultivation Pathways for Smart Publishing Talent in University Journals

The smart development of publishing formats has generated demand for smart publishing talent. Facing the digital wave and the strong impact of AI technology, university science and technology journals must seize national strategic opportunities for smart publishing talent cultivation, leverage their own "industry-academia-research" advantages, and actively build a first-class editorial talent team adapted to smart publishing to serve first-class journal construction.

3.1 Participating in Industry Training and Professional Development

In recent years, the State Administration of Press, Publication, Radio, Film and Television has implemented the "Digital Publishing Thousand Talents Plan" to

comprehensively advance talent cultivation for converged publishing development. Many publishing units have jointly launched pilot programs with universities, research institutions, and innovative enterprises. For example, the Wuhan Key Laboratory of Publishing Convergence Development of the National Press and Publication Administration, the China Publishing Association, the China Periodicals Association, the China Editors Association, and other key industry organizations jointly host the "Publishing Convergence and Editorial Innovation Seminar." Publishing industry organizations such as the Science and Technology Publishing Committee of the China Publishing Association, the National Committee for Terms in Sciences and Technologies, and the China Association for Science and Technology Journals are also committed to hosting continuing education training programs that lay a solid foundation for improving editors' professional competence. These training programs cover not only publishing expertise and editorial skills but also the latest trends and policy interpretations in online-offline converged publishing, as well as smart publishing technology promotion. Publishing staff at university journals should take advantage of these training resources, actively participate in seminars, enhance their digital capabilities and converged publishing competence, and improve their smart publishing literacy and technical skills.

3.2 Leveraging Collaborative Cultivation with Professional Publishing Schools

Currently, over 100 Chinese universities have offered digital publishing programs or related courses, and nearly 40 universities have established digital publishing specializations under majors such as communication science, printing engineering, editing and publishing, and computer science, with directions including electronic publishing, digital media, digital printing, digital media arts, and new media. University science and technology journals can also enhance the smart publishing quality of their talent and improve their personnel structure by recruiting digital publishing graduates and sending current editors for professional degree studies in digital publishing, thereby facilitating the smart transformation of university science and technology journals.

3.3 Relying on "Industry-Academia-Research"Cultivation within Publishing Units

University science and technology journal publishing units must attach great importance to editors'own converged development and vigorously promote talent cultivation by relying on their internal "industry-academia-research" system to build a new talent 梯队 (echelon) that meets the needs of traditional and emerging publishing convergence. University journal editorial departments can implement a combined "industry-academia-research" smart talent cultivation system at micro, meso, and macro levels.

At the micro level, focusing on article editing and processing as the center, editorial activities should lead to innovation in journal content and the "pro-

duction" of smart journal products, integrating smart publishing skills learning and training throughout daily editorial workflows and publishing processes. At the meso level, focusing on cultivating smart publishing talent as the center, the core competitiveness of journal editors should be enhanced through improved institutional incentives and internal learning mechanisms, creating a mentoring atmosphere and competitive learning environment, and providing on-the-job training to promote editors' smart publishing capability enhancement. At the macro level, the editorial department should actively respond to the national media convergence development strategy, engage in media convergence practice, strengthen learning of publishing convergence concepts and research on convergence publishing technologies, and reinforce integrated research and training on big data thinking, platform thinking, user thinking, and cross-boundary thinking [7]. By actively participating in the OSID (Open Science Identity) Open Science Initiative launched by national key laboratories and relying on "converged publishing support special projects," the journal can form a synergy for smart publishing and enhance its smart publishing capabilities.

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Author Information:
Tan Hua (1968-), female, from Jingjiang, Jiangsu, Senior Editor and Executive Editor-in-Chief, research direction: journal management and editing and publishing.
Xi Fei (1980-), female, from Nantong, Jiangsu, Editor, research direction: editing and publishing.
Zhu Tianxiao (1986-), female, from Qidong, Jiangsu, Assistant Editor, research direction: editorial studies.
Wang Xiaodan (1990-), female, from Nantong, Jiangsu, Editor, research direc-

tion: editorial studies.

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