The Historical Mission and Responsibility of Science and Technology Book Editors in the Era of Convergent Publishing: Postprint

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

Abstract

Purpose: To investigate the historical mission and responsibilities that science and technology book editors should undertake during the transition from traditional to convergent publishing in the "Internet+" era.

Method: This paper examines five dimensions: the impact of convergent media on science and technology book publishing, the role definition and historical mission of editors within convergent publishing, the competency requirements imposed by convergent publishing on editors, and pathways for editorial competency development.

Results: Editors should recognize the evolving landscape, transform their mindset, actively enhance their capabilities through continuous learning of new knowledge and skills, integrate traditional and new media seamlessly, proactively engage in convergent publishing practices, and thereby facilitate the successful transformation of the publishing industry.

Conclusion: Science and technology book editors must courageously shoulder historical responsibilities, support industry transformation, achieve self-actualization in this era of digital transformation, develop into versatile professionals meeting contemporary developmental demands, and comprehensively fulfill the historical mission and responsibilities entrusted by the times.

Full Text

Preamble

ChinaXiv Cooperative Journal: The Historical Mission and Responsibility of Scientific Book Editors in the Era of Integrated Publishing (Beihang University Press, Beijing 100000)

Abstract

[**Objective**] This paper explores the historical mission and responsibilities that scientific book editors should undertake during the transformation from traditional to integrated publishing in the context of the "Internet Plus" era. [**Method**] The discussion proceeds from five perspectives: the impact of integrated media on scientific book publishing, the role positioning and historical mission of scientific book editors in integrated publishing, the competency requirements for editors in this new context, and pathways for enhancing editor quality. [**Results**] It is argued that scientific book editors must clearly recognize the current situation, transform their mindset, actively improve themselves while acquiring new knowledge and skills, integrate traditional and new media seamlessly, proactively participate in integrated publishing practices, and ultimately facilitate the successful transformation of the publishing industry. [**Conclusion**] Scientific book editors must bravely shoulder their historical responsibilities, support the industry' s transformation, achieve self-actualization in this great era of digital transformation, develop into comprehensive talents suited to the demands of the times, and fully undertake the historical mission and responsibilities entrusted to them.

Keywords: integrated publishing; scientific publishing; new media; digitalization; innovative practice

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At the fourth meeting of the Central Leading Group for Comprehensively Deepening Reform, General Secretary Xi Jinping emphasized the need to strengthen internet thinking, maintain that traditional and emerging media should complement each other' s strengths and develop in an integrated manner, and promote deep integration in content, channels, platforms, operations, and management. Integrated publishing represents a new publishing form led by emerging technologies such as 5G, cloud computing, and AI in the new era and under new circumstances, with the goal of achieving shared integration of content, technology, terminals, and talent.

Against the backdrop of the "Internet Plus" era, the transformation from traditional publishing to integrated publishing is not only necessary but also urgent. Simultaneously, the digital transformation of the publishing industry provides broader development space for scientific publishing and scientific book editors. How to clearly understand and adapt to the situation at this critical juncture of industry transformation, recognize the historical mission editors face, embrace integrated publishing, and actively participate in integrated publishing practice are important issues that contemporary scientific publishing practitioners must consider and put into practice.

1. Impact of Integrated Media on Scientific Book Publishing

In recent years, integrated publishing has become an inevitable trend in the publishing industry' s development. Traditional publishing houses have actively embarked on exploring integrated media in terms of business philosophy and technical means. Consequently, the work mindset and methods of scientific book editors must also change accordingly.

First, integrated publishing reduces the labor cost investment in the editorial process. Traditional manuscript acquisition often required several rounds of correspondence between editors and authors to determine the direction and content structure of a project, after which authors would begin writing and mail their completed manuscripts to the publishing house for initial editing and processing. During manuscript review, editors would read through and organize the material, and whenever questions arose, correspondence with authors for clarification would be necessary, consuming enormous human and time costs. In the era of integrated publishing, planning editors can discuss project intentions and establish manuscript outlines with authors via video conferences, transfer manuscripts through email, and utilize functions such as search, replace, and annotation to quickly organize content during editing, even employing software like Heima and Founder Proofreading to assist in improving editorial quality.

Second, scientific books possess strong academic and professional characteristics, often involving numerous charts, formulas, and variables, making them difficult in terms of topic planning, manuscript review, layout coordination, and marketing. In topic planning, editors must fully utilize the internet to identify and cultivate frontline engineers who understand technology, have experience, and are willing to share, in various technical forums and groups. By grasping their technical direction and characteristics, editors can tailor one or a series of hot topics for them and invite them to join the author team, thereby forging one or a series of high-quality technical books. In manuscript review and layout coordination, editors with professional backgrounds are needed to carefully refine content in conjunction with the book' s new forms (such as micro-lesson videos, dynamic simulation diagrams, audio explanations of key and difficult points, operation demonstration videos, etc.), truly achieving "content is king."

Finally, in terms of marketing scientific books, affected by the pandemic, publishing houses have abandoned offline promotion and shifted to online platforms, mobilizing editors, distribution personnel, and technical staff for online and offline collaboration. By finding appropriate platforms and utilizing live streaming, short videos, and other forms for precise promotion to target reader groups, they have also shortened the distance between readers and authors, giving readers direct opportunities to dialogue with authors. This not only helps improve user stickiness and reader loyalty but also facilitates the formation of better reader exchange platforms in related fields, thereby driving sales of the specific title and even similar books.

2. Role Positioning of Scientific Book Editors in Integrated Publishing

Editorial work is the central link in publishing. Particularly for planning editors, their work runs through the entire lifecycle of each title. Therefore, in the context of integrated publishing, clarifying the role positioning of editors is crucial for improving the overall quality of books from content to form.

2.1 Screener

Gatekeeping is the primary task of editorial work. A crucial aspect of editorial work is the screening of publishing content, which includes two dimensions: correctness and advancement. Correctness encompasses both political correctness and content correctness. Especially since the emphasis on "ideological and political education entering the classroom," editors must remain politically vigilant. Some technology manuscripts, in pursuit of a so-called "relaxed and witty" style, incorporate vulgar or even crude content that does not align with socialist core values. Editors must carefully identify such content and never let down their guard, lest they mislead readers or even encourage undesirable social trends.

In traditional publishing, the publishing cycle was generally quite long. In today' s era of rapid technological iteration and massive amounts of online information, editors need forward-looking vision and strong discernment. If the publishing cycle is too long or the technology becomes outdated, the book cannot meet market demand and can be categorized as "incorrect and non-advanced" content. The day a book is launched may be the day it is eliminated from the market, making social and economic benefits impossible to achieve. Therefore, in the integrated media era, how to publish books and what kind of books to publish are major issues facing scientific book editors. In the "Internet Plus" era, editors must keep their eyes open, use their professional knowledge, fully utilize digital technology to simplify the process of collecting, sorting, and integrating various types of information, identify and eliminate errors, explore forward-looking topics in their familiar fields, find authors with strong execution capabilities, and coordinate all aspects of publishing to quickly, accurately, and effectively ensure that scientific book content is cutting-edge, complete, and accurate, thereby making due contributions to the development and dissemination of science and technology in China.

2.2 Innovator

In the "Internet Plus" era, young people encounter in their daily lives many new media forms with diverse information and varied formats, which broadens their horizons and raises their expectations for media forms. As an important domain for the dissemination and inheritance of science and technology in China, scientific books will inevitably be eliminated if they remain unchanged. Therefore, as scientific book editors, they must shoulder the era' s mission of innovation and transformation, strengthen their own innovative consciousness, and strive

to achieve a unity of knowledge and interest in scientific books. By fully utilizing digital technology to change the presentation form of knowledge content and organically integrating audio, video, animations, and other forms with text, they can optimize the reader experience. For example, when planning the book *Python Programming (Micro-lesson Edition)*, considering that readers might feel intimidated when starting out, micro-lesson videos of about 20 minutes each were inserted at appropriate points covering key and difficult knowledge areas to help readers understand and master the material. When programming a small game, dynamic images of the program execution effect were inserted, all accessible via QR codes scanned with mobile phones.

2.3 Guide

In addition to scientific textbooks, scientific books also include an important category of scientific academic works, which may involve relatively profound professional knowledge such as charts that cannot be presented in monochrome printing, complex formulas, and numerous variables and constants. How to guide readers to better learn such content is no longer just the author' s task but a comprehensive issue that editors must consider. Against the backdrop of digital publishing, editors have a greater responsibility and obligation to play the role of guide well. First, they must understand the professional and academic content in scientific books, and then, on this basis, provide readers with convenient inquiry methods such as QR code scanning for reading, hyperlink jumping, and precise information retrieval. This facilitates readers' use of internet resources to comprehensively understand and learn certain professional knowledge, saving the time and effort previously spent manually searching for materials and enhancing readers' reading experience and learning efficiency.

2.4 Mentor

Scientific book authors often focus more on the advancement and practicality of science, technology, and academia, proposing many good ideas for content structure but often neglecting updates and iterations in publishing forms and technologies. Therefore, scientific editors in the integrated media era need to grow into composite talents who understand technology, management, and editing. When communicating with authors about topics or discussing questionable content in manuscripts, editors must fully mobilize their rich publishing experience and professional understanding of the book industry' s development trends to engage in in-depth exchanges with authors, forming complementary advantages with the authors' professional knowledge. This may not only lead to further improvements in the current manuscript but, more importantly, inspire authors and stimulate their creative inspiration. By refining knowledge that is not limited to single paper media forms, authors can create more high-quality books, achieving the unity of social and economic benefits.

3. Historical Mission of Scientific Book Editors in the Context of Integrated Publishing

In the context of integrated publishing, the functionality of editors is continuously improving. The overall level of editors determines the development standard of China' s publishing industry in the coming period. Therefore, at this important historical juncture of transformation from traditional to integrated media publishing, scientific book editors must adhere to their mission of disseminating scientific and cultural knowledge, clearly recognize industry development trends, identify their direction of effort, and shoulder their historical responsibilities.

3.1 Carrying Forward the Past and Forging Ahead with Innovation

In recent years, driven by the rapid development of digital technology, integrated publishing has begun to see practical applications in various forms. In this era of transition between old and new, scientific book editors must inherit traditional editorial expertise and a rigorous and realistic professional spirit while innovating with new technologies and processes. They must organically integrate traditional editing models and publishing forms with modern technology, managing the connection, transformation, and enhancement between paper book publishing and digital book publishing to meet modern market demands. This requires scientific book editors to aim at optimizing content and enhancing reader experience, optimizing the presentation of knowledge content through innovative layout and reading methods, and proactively providing readers with more and more convenient learning methods. First, they must inherit the traditional concept of "content as the core."Second, they must enrich readers' reading forms, enhance readers' reading experience, fundamentally transform publishing forms, improve book quality, and meet readers' potential needs. At the same time, modern editors cannot completely discard traditional editorial work content without screening—tasks such as tracking technology hotspots, interacting with readers, and receiving reader feedback to pass on to authors remain fundamental to editorial work. On this basis, editors must fully utilize modern technical means to gather hotspot information and reading feedback through websites, forums, social media, and popular apps, and transmit new book information to readers, achieving two-way barrier-free communication with readers. This allows editors to grasp first-hand reader needs and suggestions and optimize the content and form of scientific books accordingly.

3.2 Active Learning and Capacity Building

For publishing houses to achieve high-level digital publishing technology and improve the content quality of scientific books in the integrated media publishing era, the first step is to strengthen the selection and training of editorial personnel as the first link in publishing and enhance their competencies and capabilities.

First, editorial personnel must deeply recognize the importance of tracking pro-

fessional academic knowledge and keep pace with cutting-edge science and technology and hot topics in one or several disciplines. In recent years, competition in various professional segments of the scientific book market has been fierce, with publishing houses unanimously focusing on content optimization as the foundation for development. This requires editors not only to master traditional scientific knowledge but also to keep up with the development of emerging and hot technologies, such as blockchain technology and micro-nano robotics technology, and maintain timely and effective communication with technology leaders and university professors. This ensures that planned books can keep pace with the forefront of technology, maintaining their practicality and innovation.

Second, editorial personnel must constantly pay attention to and understand the promulgation of new policies in various industries in China and even the development of the global situation, continuously expanding their horizons, enriching their knowledge, updating their information reserves, and enhancing their judgment abilities. This enables them to more accurately screen frontier information with publishing value, grasp market trends, seize hot topics of reader interest, and thereby improve the alignment between planned scientific books and market demand.

Finally, editorial personnel must master and understand more digital publishing-related technologies. From Bi Sheng' s invention of movable type printing to today's promotion of new-form textbooks, we can see that the development of the publishing industry relies on its technical attributes. In recent years, China has attached great importance to the development of digital technology and guided the transformation of books toward multimedia and new forms. The trend of traditional paper books developing in a diversified and three-dimensional direction has become very obvious. Therefore, to meet development needs, editorial personnel need to master as many digital publishing-related technologies as possible. In actual work, traditional editors must abandon outdated ideas that rely solely on paper publishing, change their rigid thinking patterns, actively increase information collection channels, and reasonably utilize computer technology and network resources to keep pace with the times. Only then can they obtain more information on advanced technologies, frontier disciplines, and popular fields, avoid being eliminated by the rapid development of the times, discover more potential authors and readers, strengthen communication and exchange among authors, editors, and readers, and learn and master various document processing software, graphics software, various apps, and WeChat mini-programs. This expands the means and channels for gathering information and provides sufficient technical support for the integrated media editing, publishing, and distribution of scientific books.

3.3 Exploration, Practice, and Optimizing Thinking

As the saying goes, "Knowledge gained from books is superficial; thorough understanding comes from practice." After making adequate preparations, editors must boldly try multiple times to promote continuous optimization and

improvement of different forms of integrated media publishing products. Taking textbooks as an example, whether they are new-form textbooks combining online and offline elements or cloud textbooks that completely break away from paper textbook forms, their essence remains serving teaching. Therefore, in practice, editors must fully communicate with frontline teachers and students to understand their actual needs and explore their potential needs, truly achieving tailored and precise services in both content and form.

Additionally, in the "Internet Plus" era, special attention must be paid to strengthening copyright awareness. The open and efficient "Internet Plus" publishing form is a double-edged sword. Scientific book editors must both protect their own publishing copyrights and avoid unnecessary copyright disputes. Therefore, editorial personnel must enhance their awareness of legal risk prevention, actively study laws and regulations related to internet publishing, and consciously accept relevant training. At the same time, digital publishing-related copyright agreements signed with authors should be as long-term as possible to ensure the certainty and legitimacy of the publishing house' s acquisition and dissemination rights, achieving a win-win situation for authors and publishing houses on a reasonable and legal basis. Only then can a stable virtuous cycle of development be gradually formed.

4. Quality Requirements for Scientific Book Editors in Integrated Publishing

Publishing is both a traditional and constantly evolving industry. Therefore, the requirements for editors include both established basic requirements and new requirements brought about by the technical attributes that drive the development of publishing. These are analyzed and discussed below.

4.1 Cultural Literacy and Professional Knowledge

Publishing belongs to the cultural industry, which requires editors to possess not only a dedication to working behind the scenes, a truth-seeking and pragmatic professional spirit, and solid editorial theoretical knowledge but also in-depth understanding of one or several professional fields. For example, they should have a clear understanding of the current situation, characteristics, and technological development of fields such as single-chip microcomputers and embedded systems. Only on the basis of being able to communicate effectively with industry experts can editors fully identify the publishing value of a manuscript, discuss its market positioning with authors, and even discover and correct the use of professional terminology in the manuscript.

4.2 Innovative Thinking and Planning Ability

The continuous development of the publishing industry and the constant emergence of new publishing technologies drive editors to pay attention to innovative

forms of book presentation, using innovative thinking to help achieve "one content, multiple developments; one product, multiple sales." That is, book content can be presented through traditional paper printing, mobile reading, cloud textbook network publishing, and other methods to meet different readers' reading habits and usage requirements. The same product can also be launched in different publishing forms simultaneously, achieving joint online and offline distribution. This not only meets the purchasing needs of different consumers but also guides readers to achieve better usage effects.

Taking several cloud textbooks recently launched by the author' s publishing house in cooperation with Zhiqi Lanmo as examples, in coordination with the use of apps like Cloud Class, they have achieved innovative service content by fully linking existing relevant professional network resources. They provide teachers and students with a "content information overpass"one-stop service that is vivid, flexible, intuitive, and comprehensive in multiple media forms. The emergence of such new-form textbooks requires editors to have a certain screening ability of authors in the early planning stage and a comprehensive understanding of the taboos of using network resources. They must not only process content information through simple semantic processing but also conduct structured processing of content. Standing at the height of truly serving readers and ensuring content is king, editors guide and help authors integrate and realize the "fragmentation" of content. This is the reading mode that meets future readers' needs and the planning direction for editors in the context of integrated publishing.

4.3 Quality Awareness and Service Awareness

The fundamental purpose of publishing is to serve readers. Therefore, editors must always maintain quality awareness and service awareness. Publishing services can only reach each reader through product quality. Specifically, this first requires editors to constantly improve their communication and expression skills, pay attention to industry dynamics to maintain keen information insight and screening abilities and strong professional competencies. They must be able to communicate more deeply with authors about manuscript content structure, reader positioning, and innovative models. Using internet-based communication tools such as WeChat public accounts, WeChat Moments, Weibo, and professional forums, they can timely understand reader needs and better build a bridge between authors and readers. Using internet website platforms, they can quickly, timely, and comprehensively display new titles, establish and enhance publishing brands, thereby attracting more readers and authors and continuously expanding the publishing house' s brand influence in the industry field.

5. Paths for Enhancing the Quality of Scientific Book Editors

5.1 Strengthen Learning to Enhance Editorial Professionalism

"Learning never stops as long as life continues." This is especially true for editors in the publishing industry transformation period. To plan good books that meet the demands of the times, editors must first keep pace with the rapid development of technology and industry, constantly updating their understanding and knowledge of their specialized fields to maintain good communication with scientific book authors. Second, they must keep up with publishing technology development, understand new publishing methods from multiple perspectives, and effectively graft them onto authors' professional knowledge to achieve the best reading experience for readers, thereby promoting the marketing of scientific books.

5.2 Emphasize Training to Guide Rapid Editor Development

Editors must participate in a fixed number of training hours each year. Many people, due to heavy business tasks, are perfunctory during training or do two things at once. Editors growing up in the integrated media era need to enhance their training awareness, consciously and actively embrace new publishing forms, and join the wave of integrated media publishing to jointly promote the transformation of the publishing industry. Especially new editors have a lot to learn when starting. In addition to consulting senior editors daily, they must seize annual training opportunities to concentrate on intensive learning. Some publishing houses also regularly hold business exchange meetings between new and senior editors. Such training opportunities are more targeted, and new editors must actively participate, take notes for daily review and consolidation, and strive to achieve twice the result with half the effort in training. Only then can they grow rapidly in the industry.

5.3 Strengthen Practice to Accelerate Implementation of Innovations

Whether it is text processing or planning processes, theoretical knowledge alone is far from enough. Only by boldly practicing, exploring in practice, and constantly revising can editors gradually find methods suitable for themselves and their publishing houses. Particularly, the implementation of integrated media forms requires the cooperation and coordination of multiple departments across the publishing house and even leadership, which presents certain execution difficulties. However, if editors rigidly adhere to conventions and cannot break through and advance, they will be eliminated by the times. With the emergence of more integrated media publishing forms, editors must recognize that publishing work is no longer a single process from production to sales but requires simultaneous participation and collaboration from editors, technical staff, and marketing personnel. Therefore, to promote product implementation, communication and collaboration with various departments are also required courses

for editors. In short, by recognizing the development trends of the publishing industry, improving their own quality, conducting preliminary research, communicating with upstream and downstream departments, and promoting the practical implementation of innovative results from multiple aspects, editors can live up to their era' s mission.

The digital transformation of the publishing industry has provided a broader stage for scientific publishing and scientific book editors. What scientific book editors need to do is adapt to the situation, transform their thinking habits, actively improve themselves while learning new knowledge and skills, integrate traditional and new media seamlessly, proactively participate in integrated publishing practices, and promote the successful transformation of the publishing industry. Only in this way can they achieve self-actualization in the context of digital transformation, develop into comprehensive talents suited to the demands of the times, and ultimately undertake the historical mission and responsibilities entrusted to them.

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(Edited by: Zhang Xiaojing)

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