Digital Resource Development for Textbooks in Convergent Publishing: Practice and Reflection (Postprint)

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

Abstract

With the in-depth development of media convergence, digital resource construction has provided robust support for transforming teaching content and learning methods in textbooks. This article systematically examines the concepts of digital resource construction for textbooks in integrated publishing, content development methodologies, and deep resource utilization, and proposes methods and pathways for digital resource construction in textbook publishing that focus on cultivating product projects to accumulate resources, clarifying service objectives to aggregate advantageous resources, and emphasizing scenario-based experiences to deliver value-added services.

Full Text

Practice and Reflection on Digital Resource Construction for Textbooks in Integrated Publishing

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Abstract: With the deepening development of media convergence, digital resource construction has provided strong support for transforming teaching content and learning methods in textbooks. This article examines the concepts, content construction methods, and in-depth utilization of digital resources for textbooks in integrated publishing, proposing approaches for digital resource construction that center on cultivating product projects to accumulate resources, clarifying service objectives to aggregate advantageous resources, and emphasizing scenario experiences to provide value-added services.

Keywords: integrated publishing; textbooks; digital resources; methods and pathways; media convergence

Currently, many educational publishers are transforming from traditional textbook publishers to educational resource service providers. Through independent development, collaborative construction, and outsourcing, digital resource construction has evolved from merely supplementing paper textbooks to presenting a new, integrated form of textbook publishing. This transformation has changed how publications are presented, restructured publishing workflows, and enhanced user experiences. To further achieve deep integration in textbook resource construction, we must explore the underlying concepts and methods for building digital textbook resources in the context of integrated publishing, while developing digital products that align with this integrated approach.

1. Media Convergence Driving Digital Resource Development in Publishing

The rapid popularization of new online media has intensified collisions between different values and cultures, posing serious challenges to ideological and cultural education. Media convergence is not only crucial for media organizations' survival but also a national strategy, as articulated in the 14th Five-Year Plan for National Economic and Social Development and the Long-Range Objectives Through 2035. In September 2020, the General Office of the CPC Central Committee and the State Council issued the *Opinions on Accelerating the Deep Integration Development of Media*, clarifying the overall requirements for deep media convergence and emphasizing its importance and urgency in the new era. This shifting landscape is transforming the educational publishing sector and giving rise to integrated publishing formats.

Textbooks serve as the core carriers of educational activities. The National Plan for Textbook Construction in Universities, Secondary and Primary Schools (2019-2022) explicitly calls for developing new-form textbooks that deeply integrate information technology with education and teaching, utilize multiple media comprehensively, and offer rich expressiveness to meet the learning needs of the Internet era. New-form textbook construction has emerged within this context of integrated publishing, where media convergence represents an encounter in parallel worlds united by themes—specifically, teaching themes in education.

Since the pandemic outbreak, educational informatization must further adapt to teaching requirements. The forms of publishing content resources are closely tied to technological carriers, which have become key drivers of integrated publishing development. This integration inevitably leads to the fusion of intrinsic elements in content resource construction, directly transforming educational communication and learning methods. Promoting deep integrated development of digital textbook resources aims to achieve teaching objectives through integrated curriculum design, making resource content better aligned with teaching themes—based on textbooks yet transcending them.

2. Exploration and Practice of Digital Resource Construction in Integrated Textbook Publishing

Textbooks are the core resources serving teaching objectives. In educational integrated publishing, textbooks form the foundation, integration is the focus, and the key challenge is transforming the textbook system into a teaching system. Textbook publishing has evolved from paper media to electronic media, then to integrated teaching resources based on electronic media, progressively moving toward platformization, integration, intelligence, and openness. In this technology-enabled knowledge "space," textbook learning is no longer purely cognitive activity involving abstract symbols representing the external world, but rather an embodied activity where users navigate constructed virtual reality situations through multiple sensory participations. Knowledge learning has shifted from cognitive immersion in flat textual symbols to physical immersion in vivid knowledge spaces.

2.1 Conceptual Approach: Centering on Teaching Themes

From an integrated publishing perspective, digital resource construction for textbooks should revolve around teaching themes. If disciplinary knowledge is compared to the human body, teaching resources are the blood, knowledge points are the acupoints, basic concepts and theories are the internal organs, and knowledge threads are the meridians. The teaching theme is fundamental—the convergence point and basis for aggregating all resources. Once determined, the challenge lies in combining knowledge points into units and ultimately a complete system, much like stringing pearls into a necklace. Teaching themes can be grasped through core concepts and keywords that provide a commanding perspective and clarity.

For instance, in studying Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, understanding the "two overall situations," grasping the new development stage, implementing the new development philosophy, and building the new development pattern become key terms for comprehending China' s present and future. By focusing on the "Four-Pronged Comprehensive Strategy," the "Five-Sphere Integrated Plan," the "Eight Clarifications," and the "Fourteen Basic Strategies," learners can understand the core essence of what socialism with Chinese characteristics to uphold and how to uphold it. The relationship between textbooks and digital resources should develop around teaching themes, with resource association methods resembling cinematic "montage" — presenting multi-dimensional knowledge connections through teaching software or platforms by linking text, images, audio, video, and animation resources.

2.2 Methodological Approach: Building Knowledge Networks Around Knowledge Threads

Methodologically, digital resources for textbooks should construct knowledge network systems organized around knowledge threads (topics). Digital text

resources can use traditional paper textbook content systems as layout nodes, while knowledge graph resources based on electronic texts can employ basic concepts, knowledge points, and keywords as entry points. Through digital resource structuring, practical multi-dimensional classification navigation can be established for university students and teachers using knowledge system tags and professional reading tags. Users can reach knowledge nodes through navigation and conduct extended reading through inter-node associations.

Teaching courseware, video lectures, cases, literature, and exercise banks can be integrally linked with textbook content, achieving effective fusion that breaks traditional chapter-section structures and builds knowledge networks according to thematic threads. While knowledge threads extend vertically and horizontally, knowledge networks enable multi-dimensional expansion. Textbook knowledge can be decomposed into nodes scattered throughout the network, connecting with external texts through links that "divide textual context into smaller parts."

For example, Higher Education Press' s *Situation and Policy* textbook addresses the timeliness requirements of the course through live lectures on "Carrying Forward the Great Founding Spirit of the Communist Party and Striving Toward the Second Centenary Goal." The textbook organizes theoretical achievements of Marxism' s sinicization over the Party' s 100-year history. Following the philosophy of "making theory engaging and letting thought illuminate life," digital courses transform political, academic, and propaganda discourse into student-accessible content through characters, events, and historical achievements.

Drawing on nearly 20 accumulated topics from a decade of *Situation and Policy* publications, Higher Education Press has created four thematic areas—"Comprehensively Strict Governance of the Party," "Economic and Social Development Achievements," "Hong Kong, Macao, and Taiwan," and "International Situation and Policy" —aggregating content to serve university ideological and political theory courses. Course topics and textbook topics complement each other in serving teaching themes, with university teachers and experts participating in co-construction and sharing.

If theme-centered digital resource publishing represents multimedia publishing, then resource-type publishing is on-demand publishing. After clarifying service targets and market positioning, product content should prioritize specificity over scale. Higher Education Press' s *Situation and Policy* textbook achieves interactive association between textbook and course topics, enabling integrated publishing packages with combined or separate pricing. The Press has also explored knowledge graph publishing, electronic course publishing, audio-visual publishing, test bank development, and topic database publishing, investigating both theme-based and resource-type publishing models.

2.3 Presentational Approach: Enabling Multi-Media Publishing

Integrated content resources are expressed simultaneously through text, images, audio, video, and other forms rather than single media. This represents integration of publishing products and media. "Paper-digital" integration has become mainstream in educational publishing, using QR codes to link resources for student convenience. Interactive learning through platforms represents the future direction of integrated textbook development.

Digital courses (live streaming) enable remote education, directly serving or supplementing classroom instruction. By replacing abstract, document-based language with concrete, visual, and narrative teaching, courses develop descriptive, explanatory, discussion-based, and narrative styles that enrich educational communication. These can be presented on PCs, mobile devices, and other terminals, with platforms like China University MOOC gaining widespread acceptance while achieving course-textbook interoperability.

3. Reflections on Digital Resource Construction in Integrated Textbook Publishing

Planned digital resource project construction for textbooks enriches content, accumulates proprietary knowledge resources, and diversifies resource types. Structured thematic resources enable targeted value-added services and promote integrated publishing.

3.1 Cultivating Product Projects to Accumulate Resources

Integrated publishing requires holistic planning and strengthened top-level design. Publishers must accumulate resources through product project construction. Content resource development requires collaborative product development with relevant departments and unified format standards to enable resource reuse across the publishing house and avoid redundant construction. Constructing high-quality, proprietary resources independently, collaboratively, or through procurement, while actively seeking national, local, and industry project support, represents a viable pathway. Publishers should holistically advance resource construction and standardization in resource building, management, utilization, and copyright protection; develop content cloud platforms using intelligent technology for unified storage, management, utilization, and copyright protection of paper and digital resources; and explore quality inspection mechanisms and standards for content and products. Platform and technological innovation integration improves product operation efficiency to comprehensively meet textbook curriculum reform needs.

3.2 Clarifying Service Targets to Aggregate Advantageous Resources

Only by clarifying service targets can products address user "pain points" through precise planning based on investigating actual teacher and student

needs, course characteristics, learning levels, and disciplinary fields. Using modern educational tools such as online courses, virtual simulation, resource databases, big data, and smart classrooms, digital resources can interact with textbooks to make educational communication more effective. For teacher instruction and professional development, collective lesson preparation platforms and demonstration courses developed through teaching guidance committees, master teacher studios, and teaching competitions can specifically address "how to teach" challenges. For students, visual learning systems like mind maps and test bank analytics can address "how to learn" challenges.

Achieving deep digital resource integration requires shifting from traditional publishing concepts to focus on overall resource construction that targets specific needs. As only a fundamental component of overall resource construction, textbooks serve a basic role. Planning editors, as instructional designers, should identify hot and difficult issues that textbook texts cannot resolve, leverage digital resource advantages, and focus on concepts, knowledge points, keywords, and challenging teaching issues. Concentrating on solving specific problems represents the direction for resource construction in integrated publishing.

For example, collaborating with professional companies to develop thematic database services based on textbooks can address practical issues like resource scarcity. Accumulating content to form thematic resource databases organized by knowledge association systems transforms content structure from tree-shaped to network-shaped and spherical. Weaving knowledge networks through teaching themes requires textbook compilation to transcend fragmented knowledge points and employ broader holistic and systematic thinking.

3.3 Emphasizing Scenario Experience to Provide Value-Added Services

Students' learning scenarios have changed dramatically. Since the pandemic, we must consider whether teachers and classmates can conveniently use virtual spaces, learn anytime and anywhere, and properly manage online-offline teaching relationships. Emphasizing scenario application requires understanding application scope and habits, such as designing user models based on user portraits and iteratively improving them through teacher and student feedback. Personalized value-added services follow a three-step content resource path: electronic text resources, structured content resources, and semanticized content resources.

Electronic text resources represent online reproduction of traditional publications, fundamentally no different from their print counterparts—a step now fully realized. Structured content resources involve fine-grained processing of text and audio-visual materials to create structured knowledge bases that can be reorganized instantly and presented in multiple modalities according to user needs. Semanticized content resources incorporate semantic technology for more flexible retrieval and service attributes. Generally, only after achieving semanticization can true publishing resource integration be realized.

Resource construction in integrated publishing should focus on personalized services. Beijing Language and Culture University Press's "Telling Good Chinese Stories" tribute series, guided by Xi Jinping Thought, has been carefully planned as an international thematic publishing project. Released through the "Wutong Chinese" App for international students and overseas Chinese learners, it achieves genuine international dissemination. As a professional international Chinese language teaching publisher, the Press focuses not only on teaching product development but also on disseminating culture and values through language.

Digital resource construction for textbooks always revolves around learning objectives, implemented through knowledge points, units, systems, spaces, and services. Integrated textbook development treats textbooks and teaching resources holistically, creating scenarios suitable for teaching and learning, cultivating user stickiness, and ultimately providing intelligent push through big data and learner models. This transforms learning from "I have to learn" to "I want to learn," driving reform in textbook development and learning methods. Digital resource construction is a means, not an end. We must recognize the irreplaceability of traditional teaching and avoid being "kidnapped" by technology. The fundamental task is serving education and achieving the goal of fostering virtue and cultivating talent.

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(Editor: Zhang Xiaojing)

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