

Exploration and Practice of Value-added Content Construction in Medical Integrated Textbook Publishing (Postprint)

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Abstract

Objective: Driven by advances in global science and technology, the traditional publishing industry is undergoing a rapid transformation toward integrated publishing, which has spurred the emergence and development of integrated textbooks in the medical publishing domain. The construction of value-added content plays a pivotal role in integrated textbook publishing. This article examines the development of value-added content in medical integrated textbook publishing from a publishing perspective, aiming to provide valuable references for professionals engaged in value-added content development.

Methods: Taking People's Medical Publishing House as a case study, this paper reviews the developmental trajectory of its medical integrated textbook publishing, elaborates on its practical explorations in advancing value-added content construction for integrated textbooks, analyzes existing challenges in the value-added content development process, and summarizes key experiential insights.

Results: In medical integrated textbooks, the development of value-added content necessitates user demand-oriented planning, assurance of content quality in production, establishment of a comprehensive resource integration system, and simultaneous leveraging of editorial initiative.

Conclusion: Mastering value-added content development through the four dimensions of planning, content production, resource integration system, and editorial initiative enables the creation of superior value-added content.

Full Text

Preamble

ChinaXiv Cooperative Journal: Exploration and Practice of Value-Added Content Development in Integrated Medical Textbook Publishing

(People' s Health Electronic & Audio-Visual Publishing House, Beijing 100000)

Abstract

[Objective] Driven by global scientific and technological progress, the traditional publishing industry is rapidly transitioning toward integrated publishing, which has spurred the emergence and development of integrated textbooks in the medical publishing field. Value-added content development plays a crucial role in this process. This article explores value-added content construction in medical integrated textbook publishing from a publishing perspective, aiming to provide valuable reference for practitioners engaged in this work.

[Methods] Using People' s Medical Publishing House as a case study, this paper reviews its development history in medical integrated textbook publishing, elaborates on its practical explorations in advancing value-added content development, analyzes existing problems in the process, and summarizes key experiences.

[Results] In medical integrated textbooks, value-added content development requires user-demand-oriented planning, quality assurance in production, construction of a complete resource integration system, and full utilization of editors' subjective initiative.

[Conclusion] By mastering value-added content development across four dimensions—planning, content production, resource integration systems, and editorial initiative—high-quality value-added content can be successfully created.

Keywords: integrated publishing; medical textbooks; value-added content; resource construction; integrated textbooks

With the rapid advancement of science and technology worldwide, traditional publishing is transitioning toward integrated publishing, infusing new vitality into the industry through integration with cutting-edge technologies. In the medical field, integrated textbooks have developed rapidly by enriching traditional textbooks with videos, animations, images, AR models, and other content, promoting secondary development of traditional publishing resources and effectively achieving content value addition. The author, drawing from experience at People' s Medical Publishing House (hereinafter referred to as "the House"), briefly reviews the development history of value-added content for medical integrated textbooks and analyzes practical experiences to provide reference for

future development.

1. The Inception and Development of Medical Integrated Textbook Publishing at the House

In medical education, textbooks serve as crucial carriers of knowledge. Under the leadership of the National Health Commission, the House has published numerous influential textbooks since its establishment in 1953, including the landmark five-year clinical medicine “stem cell” textbooks first launched in 1978. On August 18, 2014, the Central Leading Group for Comprehensively Deepening Reforms reviewed and approved the “Guidelines on Promoting the Integrated Development of Traditional and Emerging Media,” elevating media convergence to a national strategy with clear requirements and specific deployment for promoting media integration under new circumstances, which greatly accelerated this transformation. Subsequently, the House vigorously developed paper-digital integrated textbooks, experimenting with various value-added content including videos, micro-lectures, images, animations, and AR models, and published multiple influential integrated textbook series such as the highly acclaimed ninth-round undergraduate clinical medicine planning textbooks, accumulating rich experience in value-added resource development.

After the COVID-19 outbreak in 2020, universities nationwide responded to the national call by postponing the spring semester while actively utilizing online platforms to “suspend classes without stopping learning.” Students shifted from offline campus learning to online learning, and teachers transitioned from traditional face-to-face instruction to online teaching. Through extensive exploration, teachers gained substantial online teaching experience and consistently reported that the greatest advantage of online teaching lies in the ability to fully utilize various types of value-added content, particularly valuing the resources published by the House in recent years. This has strengthened the House’s confidence in further advancing value-added content development and laid a solid foundation for future growth.

2. The House’s Explorations in Advancing Value-Added Content Development for Integrated Textbooks

2.1 User-Demand Orientation and User Experience Focus

Fundamentally, textbooks are systematic teaching materials compiled according to curriculum standards that reflect subject content. Although medical school teachers need textbooks to guide and standardize their teaching, and medical staff sometimes consult textbooks to solve work-related problems, students constitute the absolute majority of medical textbook users. The House’s products have over one million users, most of whom are students. However, past value-added content development focused on teachers’ priorities, relatively neglecting the perspective of students as the primary user group, resulting in a

certain deviation from actual market needs. This stemmed from the traditional teacher-centered teaching model in medical schools, where students were passive recipients and textbook content design naturally prioritized teachers' needs. Today, with interactive teaching and flipped classrooms becoming prevalent in medical school practice, teachers' lecture models have fundamentally changed, requiring value-added content design in medical textbooks to adapt accordingly.

In recent years, the House has attached great importance to this new trend, conducting extensive research at multiple key medical schools and sending editors into frontline classrooms to observe numerous courses and teaching activities. Through broad discussions with teachers and students, the House identified shared concerns and unanimously recognized key difficulties in textbooks, enabling targeted value-added content development and truly achieving a user-demand-oriented transformation. For example, in 2021, the House investigated Binzhou Medical College to understand its radiology teaching practices, discovering that imaging equipment—expensive and limited in quantity—represented a major teaching challenge and content that students urgently needed to master. Consequently, the House collaborated with Binzhou Medical College to develop virtual simulation teaching resources on imaging equipment usage.

On the other hand, in traditional paper medical textbook compilation and publishing, both authors and publishers struggled to accurately track user experiences and make timely improvements. The House's new digital publishing platform better integrates value-added content while absorbing feedback from medical school teachers, students, and other users, enabling user experience upgrades for value-added content and providing more convenient and satisfying experiences for all users. In recent years, the House launched the "Renwei Teaching Assistant" software, a new teaching platform that achieves deep integration of information technology with classroom teaching. Teachers can conveniently create digital courses using this software, effectively reducing preparation difficulty and improving work efficiency, while achieving support for all aspects of classroom teaching through the online platform. The "one-click course creation" feature in Renwei Teaching Assistant can quickly generate online course directories based on existing textbook directories, organizing corresponding courses using existing value-added content (see Figure 1 [Figure 1: see original paper]), achieving deep integration of value-added content with the teaching assistant and facilitating teacher preparation while effectively improving teaching quality.

2.2 Content Quality as the Foundation

Constrained by the traditional teacher-centered teaching organization model, the House previously focused only on medical school teachers' opinions when designing value-added content, collecting and processing whatever materials teachers needed and provided. For example, micro-lectures have flourished in recent years as an important teaching method in medical education. The House recognized the great potential of micro-lectures early on and began organizing teachers from various institutions to record them years ago. However, due to lack of

experience, initially the House could only accept teachers' micro-lecture designs completely, processing and producing them exactly as teachers designed and delivered. Many teachers initially failed to grasp the essence of micro-lecture teaching, and editors could not offer their own suggestions during production. Consequently, early micro-lectures were essentially replicas of traditional classroom lectures on a different platform, with teachers still conducting pure didactic teaching, sometimes even reading directly from textbooks. Some courses were delivered very rigidly, lacking case-based teaching and course demonstrations that failed to engage listeners. Such micro-lectures suffered from low content quality and could not truly meet user needs.

After product launch, the House consistently tracked and collected user feedback, quickly identifying this problem. Through extensive research and investigation, the House formulated value-added content standards, establishing detailed production requirements for different types of materials based on their characteristics. For micro-lecture production, comprehensive and operable regulations were developed for all stages—content planning, content design, script writing, and production workflow (see Figure 2 [Figure 2: see original paper])—supplemented with specific technical requirements that effectively improved content quality and truly achieved user-demand-oriented goals, initially realizing targeted services for users with various needs.

2.3 Resource Integration and Optimization of Resource Systems

In the traditional medical education system, disciplines are strictly compartmentalized with poor interoperability, and the same applies to medical textbooks—basic medical textbooks only cover basic medicine, while clinical medicine textbooks only cover clinical practice. This “railway police, each guarding their own section” teaching model does not facilitate the cultivation of new medical talents. In fact, both the House and the broader community of medical textbook compilers and users have long recognized this situation but could not fundamentally change it due to technical limitations. In recent years, with the promotion of AR (Augmented Reality) technology applications, the House has achieved major breakthroughs in addressing this challenge. This new technology offers extremely broad prospects for integrating value-added content in medical textbooks. Currently, the House's AR products can process and place on the same platform anatomical structures from basic medicine, histology and embryology images, pathology images, as well as diagnostic videos, examination procedures, and surgical videos from clinical medicine, thereby achieving organic integration from basic to clinical medicine.

2.4 Better Leveraging Editorial Initiative

Publishers traditionally occupied a passive position in the publishing model, a phenomenon particularly evident in textbook publishing. In the past, since medical textbook compilers were authoritative scholars in their respective fields with absolute discourse power over textbook content, editors could only implement

revisions according to experts' opinions, lacking initiative in publishing work. The emergence of paper-digital integrated textbooks has effectively changed this situation. In recent years, the House has exercised increasing initiative in integrated textbook topic planning, not only conducting detailed surveys and sorting of the vast resource repository accumulated since its founding but also actively "going out" to major medical schools to understand user needs firsthand, proactively planning value-added content development directions and discussing with subject experts how to identify focus areas for value-added content development, thereby enabling editors to play a greater role and truly establishing the publishing house' s leading position in integrated textbook publishing. For example, in planning value-added content for textbooks, digital planning editors conduct top-level design based on key teaching points and difficulties in their assigned textbooks, combined with student research, to determine the direction and requirements for value-added content production, and finalize the production catalog list based on experts' preliminary lists.

3. Problems and Reflections on Value-Added Content Development in Medical Integrated Textbooks

3.1 Mastering Direction and Degree When Grasping User Needs

The direction of user needs refers to key learning difficulties for medical students, particularly those relevant to their future licensing examinations. Throughout current value-added content development, the House has consistently focused on medical teaching priorities and examination syllabi for licensed physicians, pharmacists, and other professionals, which aligns with user needs in broad terms. However, challenges remain in mastering the degree—specifically, depth (how deep to go for a particular value-added content) and breadth (how much related value-added content to include around a key difficulty). Different resource depths and breadths must be constructed for students of different majors and levels. Currently, the House' s value-added content development is not particularly precise in this regard. For example, during value-added content development for *Systematic Anatomy*, vocational and undergraduate programs share identical syllabus requirements for certain knowledge points but differ in mastery levels— "understand" for vocational students versus "master" for undergraduates. This suggests that during value-added content development, besides maintaining direction, more precise control of degree is necessary.

3.2 Quality Control Must Start from the Source

Although the House has conducted extensive explorations in value-added content quality control, such as developing value-added content construction standards and review specifications, no corresponding system exists for value-added content planning. Previously, top-level design started from single textbooks or individual resource planning rather than systematically from the discipline perspective, causing massive duplication of similar resources and serious waste of

human, material, and financial resources. For example, some nursing and clinical skill operation videos have consistent teaching requirements for the same student level across different regional textbooks, but because design considered only single resources without disciplinary system perspective, these regional textbooks each built their own operation videos. The root cause was the lack of systematic inventory and planning at the disciplinary level. In recent years, the House has fully recognized this issue, systematically inventorying existing resources while strengthening top-level design capabilities of digital planning editors, requiring systematic consideration from disciplinary dimensions and even cross-disciplinary dimensions based on individual knowledge points, and exploring the development of corresponding value-added content planning standards.

Regarding how to improve content quality in value-added content development, the author believes that besides digital editors conducting planning, experts' subjective initiative should be fully leveraged. Currently, although experts are encouraged to utilize their strengths in value-added content development, numerous publishing requirements restrict their initiative. The correct approach should involve planning editors fully utilizing the publishing house's excellent teams of editors, technicians, and production staff to anticipate experts' needs—not using publishing requirements to constrain experts but transforming those restrictive requirements into implementable conditions that mobilize experts' enthusiasm. For example, in PPT production, publishing requirements demand aesthetically pleasing layouts and clear image copyrights. However, experts' usual PPT image sources may be diverse, and they may not excel at layout design. To comply with publishing requirements, experts might eventually submit text-only PPTs without images. Therefore, editors should not only inform experts about aesthetic requirements and copyright issues but also discuss in advance which images might be used and their ownership, helping experts solve image problems while utilizing art editors to draw images and design PPT layouts. This solves experts' PPT production difficulties at the publishing house level, mobilizing their enthusiasm and ultimately improving PPT publishing quality.

3.3 Clear Knowledge Graphs Are Essential for Building Complete Resource Systems

To effectively integrate resources with textbooks, the traditional chapter-section-article structure must be broken, and knowledge networks must be built according to thematic knowledge threads. Medicine is a systematic discipline spanning from prevention to treatment, involving basic sciences, clinical theory, clinical skills, humanities, and other complex domains. Moreover, required knowledge for medical students is not isolated but interconnected. Consequently, integrated teaching models are increasingly advocated in medical education. Integrated teaching refers to a model that starts from the whole person, organically integrating the most advanced theoretical knowledge from various medical fields with the most effective practical experience from clinical specialties to advance

teaching. This integrated teaching model imposes high demands on resource integration, requiring the breaking of disciplinary boundaries to associate corresponding resources based on human body, disease, and other ontologies, forming a deep resource system. The House' s previous approach built value-added content around individual knowledge points, a model no longer suitable for integrated teaching. Although the House attempted to connect basic and clinical disciplinary knowledge through AR models during the second round of organ-system integrated textbook development, this remains imperfect. Against this backdrop, constructing medical knowledge graphs becomes particularly urgent and important. Currently, the House is building resource knowledge graphs to serve textbook value-added content development and thereby facilitate medical education reform.

In summary, although the House' s involvement in integrated textbook development has not been long, it has made substantial progress in value-added content development, exploring multiple development paths: accurately grasping user needs through deep engagement in teaching frontlines, ensuring resource quality from the source by establishing standards, integrating value-added content resources using the latest technological achievements, and establishing the publishing house' s leading position in integrated publishing by leveraging editorial initiative. The House has accumulated rich practical experience, especially after the COVID-19 outbreak, which triggered rapid evolution in university teaching models and made online-offline blended teaching the new normal, further driving transformation in medical textbook publishing. It is believed that the future is promising, and the House' s value-added content development will certainly make greater contributions to advancing medical education development.

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

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