The Practice of Animation in Medical Editing and Publishing Under the Deep Integration and Development of Publishing: Postprint

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Abstract

【Objective】 Under the deep integration and development of publishing, medical publishing work is undergoing transformation in content and form, which has also brought new challenges to content creators.

【Methods】 This article reflects on the practical experience of medical editors with animation in publishing work, summarizes the basic principles of animation production, analyzes existing problems in the work, and distills experience from practical work.

【Results】 By improving the quality of medical animation creation, it aims to provide reference for the integrated transformation of medical publishing and facilitate the integrated development of medical publishing.

【Conclusion】 Thus promoting integrated medical publishing and continuing to play a role in supporting the Healthy China strategy.

Full Text

Preamble

Animation Practice in Medical Editing and Publishing Under Deep Integration Development

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Abstract

[**Objective**] Under deep integration development, medical publishing is undergoing transformation in content and format, presenting new challenges for content creators.
[**Method**] This article reflects on practical experience with animation in medical editing work, summarizes basic principles of animation production, analyzes existing problems, and distills lessons from practice.
[**Result**] By improving the quality of medical animation creation, this study aims to provide reference for the integrated transformation of medical publishing and support its deep integration development.
[**Conclusion**] This work will continue to contribute to advancing integrated medical publishing and supporting the Healthy China strategy.

Keywords: integrated publishing; editing and publishing; artistic design; medicine; animation technology

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In recent years, with the continuous development of digital technology, traditional medical publishing enterprises have been transforming toward integrated publishing. Through continuous innovation, they have integrated multimedia elements such as video and animation with traditional medical content to facilitate learning and understanding among students and the general public. Medicine is an ancient and rigorous science, with branches characterized by abstraction and microcosmic perspectives—many phenomena involve the internal human body or cellular micro-world invisible to the naked eye or camera. Such concepts are difficult to explain through text alone, simple images, or video commentary. Animation can provide vivid and realistic models that intuitively simulate and demonstrate complex medical concepts or pathological processes. With its authenticity, accuracy, and intuitiveness, animation creates an immersive experience that solves communication challenges in medicine and plays an important role in medical education and popular science dissemination, making the development of medical animation historically inevitable.

Through years of experience in medical animation editing and publishing, the authors explore methods for high-quality integrated publishing development, discussing basic principles, existing problems, and practical experiences to provide insights for medical animation publishing professionals.

1. Basic Principles of Animation Production

Medical animation types include PPT animation, Flash animation, MG animation, and 3D animation. Although types vary, they share common principles that should be considered before production.

1.1 Type Selection Principles

Animation selection must balance content timeliness with production difficulty and timeline. Different animation types require varying production time: PPT animation is relatively quick, while 3D animation is more time-consuming. After editorial planning and script finalization, production and review typically require several hours to several working days, creating inherent lag in medical animation publishing. Some medical popular science content must remain timely and relevant to current topics. If animation production is too complex to broadcast promptly when public interest is high, its impact diminishes significantly once the moment passes. In such cases, content should take precedence over form. The priority is selecting animation types with shorter production cycles that can be created and released quickly while still providing effective visual representation.

1.2 Regularity Principles

Medical knowledge representation in animation must follow medical scientific logic to facilitate audience orientation and reflection. For example, color conventions in medical animation typically use red for arteries, blue for veins, yellow for nerves, and green for lymphatic structures. Although these structures are not exactly these colors in the human body, these conventions are industry-recognized standards. Animation creation should not violate these established norms arbitrarily, as doing so could mislead viewers.

1.3 Accuracy Principles

"Thoughts without content are empty, intuitions without concepts are blind." Medical animation content must be based on existing scientific evidence, with every animation supported by relevant academic concepts. The designed content must accurately and synchronously express the intended academic viewpoint. Since medical animation can be published simultaneously with integrated textbooks and electronic journals and disseminated through various online channels with wide reach and rapid speed, any accuracy issues could seriously mislead the public and medical professionals, resulting in adverse consequences.

2. Existing Problems in Practice

As a new form arising from medical publishing integration, animation presents significant transformations at both content and technical levels, posing new challenges for medical editors.

2.1 Scarcity of Composite Talent

Currently, medical animation creation in publishing organizations follows two main pathways. The first is external collaboration with companies specializing in medical content, though high production costs create a significant burden.

The second is internal production by hiring professional animators, but limited staffing and human resources constrain the volume of animation that can be produced. Both pathways face the problem of scarce talent who understand both medicine and animation production. Medical animation production involves medical fundamentals, domestic and international literature, artistic design, and animation principles—spanning multiple knowledge dimensions. Most professional designers lack medical knowledge or struggle to accurately grasp specialized medical content, making it difficult to capture key points during creation. For instance, inadequate understanding of human anatomy often leads to models that require multiple revisions or complete rework. Consequently, medical editors typically lead animation production, collaborating with designers. However, editors' limited understanding of animation principles and presentation boundaries increases communication costs, creating a sense of "different professions being worlds apart" in cross-disciplinary collaboration.

2.2 Imperfect Production Processes

Animation design requires finalized copy from content teams. Current workflows typically involve medical experts presenting knowledge to medical editors, who then convey publishing requirements to designers. Designers create initial samples based on their understanding, which are then circulated among editors and experts for feedback and revision. Due to limitations in each party' s expertise, this process often results in low communication efficiency and extended publishing timelines.

2.3 Need for Integrated Planning-Marketing Mechanisms

In digital publishing marketing, medical animation is characterized by rapid launch and rapid decline. Typically, animation popularity rises with publication promotion but drops afterward, quickly fading from memory. Some animations embedded in electronic journals, websites, or mobile clients become difficult to retrieve after initial viewing, resulting in low content reuse rates and ephemeral impact.

3. Practical Experience

Through continuous learning and exploration, the authors have developed the following approaches to address these challenges.

3.1 Comprehensive Talent Development

Medical animation is a product of symbiotic integration between medical theory and animation technology. Editors serve as bridges between medical experts and technical staff—catalysts transforming theoretical knowledge into intuitive models and lubricants facilitating communication between experts and designers. Therefore, cultivating composite talent is crucial in integrated publishing.

As medical editors, we must understand the advantages and limitations of each animation form before transforming academic viewpoints into animation. For example, MG animation suits character movements and simple expressions but struggles with three-dimensional content; 3D animation excels at displaying spatial relationships but is cumbersome for character actions and expressions. Understanding these characteristics reveals creative limitations and explains why predetermined animation forms may not yield ideal results. Editors should continuously learn and accumulate fundamental technical knowledge, enabling team members to understand technical features, communicate effectively, leverage strengths, and improve work quality collectively. Involving enthusiastic young physicians in the team leverages their medical expertise for more accurate academic transformation.

Designers must use animation technology to simulate realistic scenes and "film" internal human structures. Before projects begin, they should understand basic medical knowledge—names, locations, and movement patterns of muscles and bones—to facilitate fundamental communication and prepare professional medical atlases as reference tools. Since medicine comprises various specialties, creating different animations requires mastering different specialized knowledge. After learning basic medicine, technical personnel should participate in projects across multiple specialties to accumulate experience according to disciplinary characteristics.

3.2 Streamlined Processes and Efficient Communication

Teams should invite relevant medical experts, medical editors, and animation designers to participate in planning meetings from project initiation, preferably through offline 集中 discussions when possible to facilitate thorough communication. Preparations should be comprehensive: experts provide academic backing, editors plan project content, and designers prepare technical proposals or sketch samples. During meetings, experts offer academic support, editors guide presentation methods, and designers control technical boundaries. All parties should jointly determine the overall framework and discuss details thoroughly to ensure unified creative vision and consistent understanding of content specifics. This avoids the inefficient "I describe, you draw; I describe, you revise" workflow. All team members should participate in creation, leveraging their respective strengths for efficient communication and collaborative design. Additionally, strengthening exchanges with industry enterprises and establishing cooperative mechanisms with excellent production companies, studios, and publishing units can increase communication channels and mutual learning.

3.3 Integrated Planning-Marketing Innovation

3.3.1 Brand Creation and IP Development Brands represent recognition and authority, especially in health communication, where they symbolize authority and quality, making information more persuasive and credible. Creating proprietary brand IPs—original cartoon characters—can reduce distance

with audiences, increase acceptance, and encourage active sharing. For example, creating an instructor character with a distinctive voice and memorable name to present all published animations. Although this approach requires greater time and production investment, it creates representative and soulful works. IP images should be used long-term without frequent changes, requiring long-term planning from project initiation. Before publication, careful design and preparation for series publishing are necessary. After publication and release, market accumulation and word-of-mouth over time can create premium IPs that audiences remember and sustain long-term.

3.3.2 Multi-Channel Promotion and IP Operation As of December 2022, China' s internet user base reached 1.067 billion, with internet penetration at 75.6%. Within such a vast user base, content can easily be submerged yet also ride trending waves. Medical animations can be extracted from publications to solve retrieval difficulties while undergoing IP transformation and replanning promotion strategies. Building an online matrix by selecting relevant animations based on current hot topics and promoting them on platforms like Weibo, WeChat, Douyin, Bilibili, and Xiaohongshu can accumulate popularity and gradually expand influence. Collaborating with health science sections of mainstream portals and forming content supplier models can integrate animation content into systematic, intellectual property-based resource libraries open to public browsing. Health popular science animations targeting the general public have substantial demand and won' t become outdated quickly, allowing long-term deployment across platforms. Diversified products can be developed through IP redevelopment, using IP images to design cartoon graphics for posters, picture books, and comics for offline distribution, creating an online-offline publishing communication matrix. These IP image disseminations can simultaneously increase publishing house publication sales.

4. Thoughts and Recommendations

Medical animation in integrated publishing has not yet formed mature publishing processes. Relevant enterprises and practitioners continue exploring development methods suitable for their contexts. The authors summarize the following recommendations from practice:

1. During creation, focus on initial detail discussion and script polishing rather than rushing to see production effects. Start production only after careful consideration. High-quality scripts enable smooth animation production, reduce rework, and indirectly save costs.
2. Before designing content, identify target audience segments and understand their needs to guide content planning. Without this work, animation content falls into blind dissemination.
3. People more easily accept information in relaxed, pleasant states. Animation design should adopt lighthearted, humorous styles to better capture

audience attention.

4. Medical animation expression must be sincere and content authentic, avoiding internet traffic-grabbing tactics. While some view medical animation as merely eye-catching for rapid popular science dissemination, greater caution is necessary: the better the dissemination effect and greater the influence, the more difficult correction becomes.

5. Maintain animation quality control. Lowering design standards resulting in distorted visuals, stiff movements, or rough models can raise scientific skepticism and affect overall credibility.

6. Medical animation creation requires collective effort. Establish a fixed, full-time excellent composite editorial team and provide adequate creative space. Accumulation is a long-term training and practice process; comprehensive professional literacy and capability development require gradual, persistent cultivation.

7. Team members should regularly view recommended works to accumulate ideas. Cooperation with excellent production companies should only supplement internal creation—the animation production brain must originate from the publishing team itself.

8. Viewing works aims to broaden thinking and integrate innovation; avoid trapping one' s ideas within others' works.

Integrated publishing continues evolving through transformation, with updating content models, iterative product forms, and rising reader demands presenting new difficulties and challenges. Marshall McLuhan believed that "each new technology creates an environment." New technologies in integrated publishing are part of content and another form of content representation. These technological additions may bring new changes and opportunities to the publishing industry. As medical publishing professionals, we must continuously learn new knowledge and technologies during integrated publishing, master the advantages and boundaries of relevant technologies for displaying different medical content, and explore ways to use new technologies to improve professional publishing content, optimize processes, and enhance quality. This will add new momentum to promoting high-quality medical publishing development and building a strong publishing nation.

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