

On the Current State and Trends of AR Publishing: Postprint

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Abstract

AR is the abbreviation for Augmented Reality, also known as enhanced reality. This technology has experienced rapid development against the backdrop of continuous advancement in information technology and computer technology. Based on this, this paper analyzes the current status of AR publishing and examines its development trends in several aspects: the joint development through integration of AR and VR technologies, the collection and analysis of user big data through AR publishing operations, the penetration and transformation of publishing market structures, and the promotion of development in related industries, thereby providing a reference for AR publishing research.

Full Text

Current Status and Future Trends of AR Publishing

Abstract: Augmented Reality (AR) has experienced rapid development alongside advances in information technology and computer science. This paper analyzes the current status of AR publishing and examines its development trends, including the integration of AR with Virtual Reality (VR) technology, user big data collection and analysis through AR publishing, transformation of the publishing market structure, and the driving of related industrial development, providing a reference for AR publishing research.

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1. Current Status of AR Publishing

1.1 Development Advantages

AR publishing technology currently demonstrates three primary characteristics. First, regarding user experience, any technology requires excellent user experience to achieve development and promotion. AR technology applied in the publishing industry can effectively enhance users' perceptual experiences during use. Compared to previous paper-screen combination methods, AR technology is more advanced and convenient. Existing paper-screen combination technologies primarily rely on QR codes, where users scan codes with their phones to extract digital information. This approach creates barriers to product design and packaging information flow, preventing design optimization. AR technology addresses this shortcoming by enabling content scanning and recognition directly through mobile terminals, facilitating access to music, video, and other information.

Second, AR publishing products are not created using monotonous elements but rather combine planar and 3D technologies to achieve perfect fusion. For instance, in children's books, beyond textual descriptions, scanning with a phone can present three-dimensional story content. In AR publications about galaxy cognition, readers can understand galaxies through both textual descriptions and 3D visualization technologies.

Third, AR technology's 3D imaging capabilities can create immersive reading experiences. In Sony's *Harry Potter Magic Book*, readers can use motion control systems to display scenes, allowing them to directly see magical effects and creating an engaging reading environment [1].

1.2 Challenges Facing AR Publishing

Although AR publishing has begun technological development, it has not achieved large-scale coverage due to several significant obstacles. The three most prominent issues involve cost, content, and industry standards.

From a cost perspective, AR publishing expenses extend beyond traditional paper and ink to include various digital information costs. A typical AR book may cost between 50,000 and 200,000 RMB to produce, with costs increasing as content expands. The inability to effectively reduce costs hinders AR publishing development and makes large-scale popularization difficult.

Regarding content, not all publications are suitable for AR transformation. Current AR publishing products remain limited to a few categories, while the overall publishing landscape encompasses numerous domains. This content limitation has created a bottleneck for AR publishing development. AR technology requires content support for promotion, and these constraints have impeded its growth.

The lack of industry standards also obstructs production processes, and these

production limitations subsequently hinder standard formulation, creating a vicious cycle. The various challenges currently facing AR publishing reflect its underdeveloped state but must be examined dialectically when considering its prospects.

2. Development Trends of AR Publishing

2.1 Integration of AR and VR Technologies

VR technology differs from AR technology but shares certain similarities. Unlike AR's augmented reality, VR creates a virtual reality—a simulated environment formed through computer technology that immerses users through various three-dimensional dynamic technologies. Integrating these two technologies during AR publishing can transform current development patterns and promote industry growth. This combination merges virtual scenarios and objects with our real lives, creating new lifestyle concepts and approaches.

In VR technology, auxiliary tools such as VR glasses effectively help users immerse themselves in designed scenarios and satisfy needs that cannot be fulfilled in reality. VR games have already established an industrial foundation, upon which AR digital publishing can build for a powerful alliance. Compared to the sensory stimulation of standalone AR publishing, VR offers deeper immersion and stronger interactivity. Therefore, combining VR and AR can effectively enhance AR publishing development and represents a major future trend.

2.2 User Big Data Collection and Analysis

AR publishing is trending toward big data collection and analysis. With computer technology development and comprehensive internet coverage, data information permeates everywhere the internet reaches. Collecting and analyzing this user data enables publishers to adjust their business strategies. For example, in traditional book publishing, publishers could not communicate directly with users; products were distributed through bookstores and online shops, creating barriers to understanding market demand. AR publishing now enables publishers to directly understand product usage time, preferences, and specific feedback through network connectivity, reducing intermediary interference and facilitating real-time, accurate industry direction adjustments.

In the big data era, user preferences have become crucial factors influencing business development. Only by producing content that users love can economic benefits be ensured and the overall industry develop toward broader markets [2]. Enhanced communication between users and publishers allows users to express their demands more deeply, and after feedback adoption, users can enjoy better experiences in new products. Consequently, user big data collection and analysis through AR publishing has become an inevitable trend in industry development [3].

2.3 Transformation of Publishing Market Structure

AR publishing will also influence market composition. During AR publishing development, the connotation of the publishing industry continues to enrich and evolve. Publishing encompasses not only books, newspapers, and magazines but also online games. VR technology-based game development has achieved considerable success and maintains broad development prospects, all stemming from VR's ability to satisfy user imagination through virtual reality experiences—a demand that AR technology can also fulfill to some extent. A recent successful AR game case is Nintendo's *Pokemon GO*, which combines mobile terminals with AR technology, enabling users to merge the real and virtual worlds and sparking renewed popularity in AR gaming. AR publishing is developing toward richer industrial connotations beyond games.

2.4 Driving Development of Related Industries

The inevitable trend of AR publishing development also drives progress in related industries. Industries related to AR publishing include multimedia, 3D modeling, sensors, and various mobile terminal hardware sectors—all essential components of AR publishing. AR technology advancement will inevitably drive continuous technological progress in these related industries. Without various hardware and software facilities, AR publishing and reading cannot be realized. Therefore, related industries serve as technical support for AR publishing development while also being influenced by its rise, creating mutual promotion. AR technology development forms a complete industrial chain, driving collective progress of industrial clusters and representing an inevitable trend that brings new growth points for overall socioeconomic and technological advancement [5].

Whether in book products, game products, or other related products, AR publishing demands high-quality technical standards. Only through continuous improvement can AR publishing maintain its vitality and become a new characteristic of the intersection between computer and publishing industries in the new era.

In conclusion, various internet enterprises and publishing-related organizations have recognized AR publishing's important position and are researching it using existing scientific methods and development environments. However, AR publishing's future development remains accompanied by uncertainties. Therefore, mastering the industry's specific conditions and improving it according to market demand are essential for promoting AR publishing's long-term development.

References: [1] Zhao Bing, Sun Xuesong. Current Status and Development Trends of Translation Publishing in China[J]. Publishing Reference, 2015(15): 46-47.

[2] Zhang Yulin. Current Status and Future Trends of Digital Publishing for Children's Books[J]. Publishing Research, 2013(10): 14-18.

- [3] Wang Jing. Discussion on Current Status and Development Trends of Open Access Publishing for Chinese Physics Journals[J]. News Dissemination, 2013(03): 230.
- [4] Li Xinxiang. Research on Evolution of National Reading Behavior and Countermeasures in China's Digital Era[D]. Wuhan University, 2013.
- [5] Wang Bing. Research on Investment Transformation of Book Publishing Enterprises under Industrial Chain Evolution[D]. Central South University, 2013.

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