The Virtualization of Social Reading and Publishing: Logic, Problems, and Post-Print Reflections

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

Abstract

【目的】By reflecting on the existing problems between reading and publishing, this paper proposes countermeasures and suggestions regarding editors' identity and capabilities, application of media technology, and supervision and management of virtual publishing.【方法】Based on the deepening socialization of digital reading and the trend of virtualization in the publishing industry, this article analyzes the demand-supply relationship between reading and publishing. 【结果】Knowledge serves as an intermediary connecting reading and publishing, and virtual publishing facilitates the reprocessing and dissemination of knowledge. 【结论】In the process of deepening socialization of reading demand, virtual publishing also demonstrates impacts on human cognitive mechanisms, fragmented production of knowledge, and copyright issues involved in knowledge production.

Full Text

Preamble

The Virtualization Development of Social Reading and Publishing: Logic, Problems, and Reflection

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Abstract:
[**Objective**] This paper proposes countermeasures and recommendations regarding editorial identity and capability, application of media technology, and supervision of virtual publishing by reflecting on existing problems between reading and publishing. [**Method**] Based on the deepening socialization of digital reading and the virtualization trend in publishing, the article analyzes the

demand-supply relationship between reading and publishing. [**Result**] Knowledge, as an intermediary, connects reading and publishing, while virtual publishing facilitates the reprocessing and dissemination of knowledge. [**Conclusion**] In the process of deepening socialization of reading demands, virtual publishing also demonstrates impacts on human cognitive mechanisms, fragmented knowledge production, and copyright issues involved in knowledge production.

Keywords: social reading; virtual publishing; media technology; copyright; publishing
Classification Code: G223.4
Document Code: A
Article ID: 1671-0134(2023)01-056-05
DOI: 10.19483/j.cnki.11-4653/n.2023.01.009
Citation Format: Yao Qian. The Virtualization Development of Social Reading and Publishing: Logic, Problems, and Reflection [J]. China Media Technology, 2023(01): 56-59, 78.

Human reading activities have existed since ancient times, and reading forms have continuously developed and transformed with the progress of human civilization. Although reading modalities have constantly changed with the evolution of media technology, knowledge dissemination, as the core of reading, has remained essentially unchanged. Reading has always been a means for humans to acquire information, with the ultimate goal of transforming symbols into personal experience through reading behavior, obtaining knowledge and information, and integrating information into one' s own knowledge system.

Corresponding to human reading activities are human publishing activities, whose origins can also be traced back to the formation of human society. The transformation of publishing is closely related to the development of media technology. Although publishing has undergone changes in meaning, its core remains the preservation and dissemination of human knowledge and information. Publishing activities directly influence human knowledge acquisition methods, with knowledge serving as an intermediary linking reading and publishing.

1. The Socialization Development of Reading

Social reading emerges against the backdrop of Web2.0 technology that emphasizes user interaction. As digital reading further integrates with social media, the purpose of reading has extended from merely acquiring knowledge to sharing, interacting, and socializing. Through continuous interactive socialization, reading behavior generates new viewpoints, information, and communication value. Social reading possesses distinct technical characteristics and communication modalities, enabling rapid knowledge dissemination and value appreciation.

1.1 Technical Characteristics of Social Reading

The most significant formal difference between social reading and traditional reading lies in the reading carrier, specifically reflecting how social reading

breaks through the constraints of paper books. Social reading is a reading modality produced by the continuous integration of digital reading with social media. Based on digitalization, it provides content services to readers through intelligent platform technology. Empowered by artificial intelligence and big data technology, it achieves information filtering, intelligent recommendation, and scene construction, meeting readers' personalized needs.

Web2.0 serves as the technical foundation for social reading and the platform basis for interactive functions in digital reading. Web2.0 is not a specific thing or technology but rather a framework that regulates website design and usage. Distinguished from Web1.0, which focused on content publishing and management, it has become a new internet paradigm that endows reading with interaction and sharing functions.

With breakthroughs in media technology and further demands for content and interaction, people have entered the Web3.0 era. Like Web2.0, Web3.0 represents a completely new mode of online interaction. If the essence of Web2.0 is interaction, then the essence of Web3.0 is personalized customization, achieving control over reading subjects and agenda-setting for reading behavior. Web3.0 connects aggregation and mining technologies. Media technologies such as blockchain, big data, and artificial intelligence can depict user profiles, analyze user preferences, and achieve precise information supply through Web3.0, effectively avoiding information redundancy, noise interference, and user information search fatigue.

1.2 Transformation of Knowledge Forms in Social Reading

In social reading, reading symbols transform from static to a combination of static and dynamic. Traditionally, reading referred to the acquisition and understanding of textual symbols, but social reading expands the boundaries of reading by incorporating non-textual symbols into the reading system. Non-textual symbol reading includes pictorial symbols, image symbols, auditory symbols (audiobooks, audio), olfactory symbols (scent books), etc. Social reading achieves contextualization, holography, and rich media in its shift toward non-textual symbols.

Social reading breaks free from the limitations of single reading subjects. Through continuous interaction and sharing, the number of subjects continuously increases, and subject identities present a state of diversified superposition, with readers being both consumers and producers/disseminators of content. The form of reading symbols shifts from singular to pluralistic, liberating human senses. Audiobook apps such as "Lazy Person' s Audiobook," "Oxygen Audiobook," and "Ximalaya" can sustain knowledge supply through auditory reading when people experience visual fatigue. Currently, many children' s educational reading products, aided by AR technology, not only encompass traditional audio and video but also integrate diversified digital resources such as 3D, achieving intelligent, three-dimensional AR reading that integrates

interactivity and documentary qualities, significantly enhancing audience interest and learning efficiency.

1.3 Transformation of Knowledge Production in Social Reading

The morphological transformation of social reading influences the formation of people' s reading interests and changes the formation, dissemination, and expression of knowledge. First, to create emotional resonance and enhance diffusion ripples through interaction and sharing in reading, content has shifted from elite discourse to grassroots discourse acceptable to the masses. Knowledge is no longer aloof but becomes more accessible to the public through "translation." For example, film and television analysis, commentary, and recommendation videos that successfully generate clicks on various platforms, through the "decoding" and "re-encoding" of knowledge, push originally profound and obscure original works to readers in an approachable manner, completing knowledge reprocessing, achieving knowledge socialization and cross-circle dissemination, and promoting multi-level knowledge flow.

Second, knowledge is no longer confined to books, and the content through which people acquire knowledge is no longer general, rigid, or stiff. In social reading, readers can achieve knowledge-based socialization through reading, with reading platforms becoming knowledge aggregation spaces. When users develop a desire for knowledge, they can select what they need through the platform. Platforms develop through UGC (User-Generated Content), and the acquisition of UGC content and viewpoints is often original, precise, and purposeful, achieving demand-oriented and precise knowledge supply.

2. The Virtualization Development of Publishing

Social reading accelerates knowledge production and flow, continuously stimulating users' knowledge demands through interactive socialization. The transformation of reading behavior on the demand side has led to changes in publishing activities on the supply side. Simply digitizing paper publications can no longer satisfy large-scale knowledge production. To accommodate the socialization development of reading, publishing, in its participation in human knowledge information production and supply activities, has been enveloped by media technology, giving rise to a virtualization development trend. Some scholars describe this process as human publishing evolving from hard publishing to soft publishing [1], and then from soft publishing to virtual publishing [2].

2.1 The Connotation Evolution of Virtual Publishing

It can be seen that the concept of virtual publishing is proposed based on changes in publishing carriers. The "virtual" in virtual publishing refers to the "virtualization"of carriers, and the ability of carriers to achieve "virtualization"development is based on the information publishing and communication methods of Web technology, disseminating knowledge information through network-like,

one-to-many propagation and achieving large-scale online copying and dissemination. In the Web1.0 era, information sharing laid the formal foundation for virtual publishing, which was defined as publishing enterprises breaking through tangible boundaries in organizational structure, integrating external resources, and "virtualizing" non-core functions to gain competitive advantages [3]. At this level, the object of virtualization was primarily the organizational form and structural functions of publishing enterprises.

In the Web2.0 era, marked by decentralization and open sharing, network virtualization editing and publishing emphasized "using the network as a foundation to edit and publish digital products online" [4]. During this period, users extensively participated in website content generation, editing and publishing became popularized, paper carriers disappeared, and digital products became the main object of virtualization. At this level, virtual publishing existed as a formal transformation of paper publishing.

Entering the Web3.0 era, intelligent technologies have been widely applied, and technologies such as AR, VR, and MR have realized the virtualization of reality. The connotation of virtual publishing has also expanded. "Besides the initial digital text, it now also includes pictures, images, voice information, etc.," indicating a symbolic turn in the definition of virtual publishing [5]. In this sense, "readers" become "users," publications become "products," and the process of "serving readers" becomes the process of "serving users" with virtual publications [6]. Virtual publishing symbols have moved from static to dynamic, and from one-way communication to social interaction. The evolution of virtual publishing' s connotation is due to, on the one hand, changes in media technology, and on the other hand, scholars breaking through the substantialist concept of media and viewing publishing as a kind of symbolic interaction.

2.2 Social Reading Boosting Virtual Publishing

In the Web3.0 era, social reading has become the primary way for digital citizens to obtain information and engage in social interaction daily. The rise of social reading has expanded people' s further demands for information acquisition speed and social interaction. Social reading' s enthusiasm for non-textual symbols has driven publishing to continuously move toward audio, short videos, and live streaming. To achieve a balance between knowledge information supply and demand, publishing has realized a qualitative transformation from traditional publishing to virtual publishing through the virtualization of symbols and carriers.

First, social reading emphasizes that people can use fragmented time instantly to complete socialization and knowledge acquisition, requiring reading carriers to break through temporal and spatial limitations and become readily accessible. Therefore, virtual publishing needs to achieve the mobility, accessibility, and immediacy of symbols and carriers. Second, social reading requires the construction of reading scenes through the integration of multiple symbols.

"Scene" originally referred to scenes in drama and film—specific actions occurring in particular time-space contexts, or concrete images formed by character relationships, representing a specific process of expressing plot through character actions, typically referring to behaviors and states in tangible physical situations [7]. In Meyrowitz' s view, scenes possess specific physical contexts, and as behavioral subjects, people exhibit different behaviors in different contexts—"media produce scenes, and scenes produce behavior."Conversely, through media technology, human behavior accelerates scene transformation, and social reading behavior continuously stimulates virtual publishing to generate new reading scenes. Virtual publishing, through Web3.0 technology focused on scene interaction and VR/AR devices, virtualizes physical scenes. Through the arrangement and design of reading scenes, interaction methods, and content information, it presents themes and knowledge in an immersive manner, allowing audiences to "touch" with multiple senses, engage in real-time interaction, and directly "imprint" content into their minds, effectively enhancing audience perception and understanding of works.

Second, in social reading, the massive production of knowledge, readers' large demands for information, and enthusiasm for videos and pictures have posed new requirements for transmission speed and data flow. 5G and 4K technologies have emerged in response to continuously increasing demands. Correspondingly, only virtualized carriers can satisfy the needs for massive information and real-time interaction. The publishing symbols and publications of virtual publishing exist virtually in the cloud. Through Web2.0 technology centered on sharing, virtual publishing publications can simultaneously exist on multiple devices such as PCs, mobile phones, and mobile multimedia, achieving centralized storage of data, documents, pictures, and audio-visual content, as well as real-time sharing of materials.

2.3 Extended Development of Virtual Publishing Based on Knowledge Socialization in the Intelligent Era

In the digital intelligent era, people' s social, knowledge, and entertainment needs can be quickly captured by big data, analyzed through algorithms, and given precise feedback. The rapid development of the information and knowledge economy has promoted the transformation from an information society to a knowledge society. In a knowledge-centered society, the construction of interpersonal relationships is also undergoing transformation, with knowledge-based socialization that builds connections through knowledge becoming the main form of social interaction for people in the future.

Virtual publishing relies on network platforms, using big data and artificial intelligence technology to categorize diverse, complex, and scattered knowledge through tagging. Online bloggers, acting as editors, reprocess knowledge, which is then pushed and distributed based on user tags using big data and AI technology, with the goal of obtaining forwards, comments, and likes. In the distribution process, virtual publishing classifies users into communities, creating

high-quality vertical content communities. Based on user interests, it provides freely selectable knowledge content, forming dynamic social fields that promote user interaction and feedback. Through continuous interactive maintenance among users within these social fields, virtual publishing achieves precise promotion and circle-based distribution of publications, with value realization manifested in the knowledge payment segment. Knowledge payment is a means of obtaining high-quality information services and a communication model that generates revenue through knowledge sharing. Some internet celebrities, big Vs, and KOLs can leverage personal IP effects and their own user stickiness to attract fan interaction and achieve knowledge payment goals. However, user demands for vertical and segmented knowledge cannot be maintained solely through socialization and traffic. Facing users' core needs, virtual publishing of knowledge must develop toward specialization and systematization.

3. Knowledge Communication Dilemmas in Virtual Publishing

Although "bottom-up," "decentralized," and "flattened" virtual publishing can achieve large-scale copying and dissemination of knowledge, the demand orientation of people' s social reading, while promoting large-scale replication and dissemination, also limits its deeper development.

3.1 Different Publishing Forms of Knowledge Affect Human Cognitive Mechanisms

Relevant research in cognitive neuroscience and cognitive psychology has shown that people universally employ a "heuristic-analytic" dual-system model of information processing in inference, decision-making, and cognition [8]. According to this theory, human brain operation can be divided into two different cognitive processes. Heuristic processing is characterized by speed, autonomy, and low cognitive load, representing an intuitive processing susceptible to emotions, situations, stereotypes, and other factors. Analytic processing, by contrast, is a slow, exclusive, rational, high-load processing based on rule operation. Since heuristic processing is fast but crude, analytic processing is needed to override it in many situations requiring careful thinking for people to make rational and correct judgments. Indeed, regarding the influence of different publishing forms on human cognition, the dual-system theory of information processing provides a valuable analytical perspective.

In the new media environment, the impact of virtual publishing on people is precisely based on the heuristic processing of audience cognition. Short videos and live streaming in virtual publishing stimulate users' senses through audio-visual symbols, directly skipping the analytic processing stage and triggering heuristic processing, dissolving the "override" of heuristic processing by analytic processing. Through scene establishment that immerses readers, interaction with scenes produces a "time-space integrated" reading experience. However,

it is worth noting that the experience scenes bring to readers is direct, immediate, and sensory, with the mechanism of action being that situations trigger users' autonomous, rapid, intuitive processing to generate reading feelings. Analytic processing consumes substantial cognitive costs when operating. When humans think, the brain is extremely stingy in allocating and using cognitive resources. Audiences, as "cognitive misers," always try to process less information, with the human brain defaulting to low-energy heuristic processing [9]. Although the non-textual symbol bias of virtual publishing broadens knowledge publishing channels formally, from the perspective of knowledge processing, it further strengthens human "heuristic processing." Virtual publishing differs essentially from traditional publishing. Different publishing forms determine different knowledge forms, and the cognitive processes mobilized by audiences when processing different knowledge forms vary significantly. Prolonged "heuristic processing" leads individuals to rely more on knowledge acquisition behaviors through dynamic symbols, gradually abandoning "analytic processing," thereby causing cognitive degradation.

3.2 Non-linear Reading Leads to Knowledge Fragmentation in Virtual Publishing

In social reading, readers'superficial reading behaviors make interesting and brief content more likely to receive attention and be forwarded. Driven by reading behavior, virtual publishing develops toward entertainment and simplification to compete for readers' attention, with carriers such as GIFs, short texts, and short videos more easily obtaining click-through rates. Virtual publishing hovers between information explosion and information superficiality. On one hand, it needs to realize traffic monetization; on the other hand, it needs to conduct knowledge diffusion. Therefore, in the virtual publishing process, editors can only fragment and entertain originally serious and systematic knowledge content, creating an illusion of "full time utilization" and "knowledge acquisition" through continuous precise "feeding" to readers, while the actual knowledge obtained is disorganized. Some so-called "knowledge content" is merely high-density splicing of fragmented knowledge or subjective "tampering" by editors. The immediacy and arbitrariness of publishing weaken gatekeeping standards. The knowledge content produced by virtual publishing is, on one hand, not conducive to audiences constructing comprehensive knowledge systems, and on the other hand, easily mixed with unverified information.

3.3 Copyright Issues in Virtual Publishing

The knowledge production mechanism of virtual publishing has bid farewell to the elite knowledge production model of traditional book publishing. Simplified publishing processes and rapid dissemination make works extremely easy to obtain, with electronic book resources being reprocessed by online distributors for traffic attraction [10]. The grassroots, easy-to-use, low-threshold, and mobile publishing characteristics of virtual publishing make knowledge production

increasingly popularized, allowing the public to realize knowledge creation, copying, and dissemination anytime through platforms. The popularized knowledge production model makes the knowledge value in virtual publishing incomparable to traditional publishing. Unclear value judgments lead to original works not being protected, thereby blurring the boundaries of infringement, making knowledge infringement incidents frequent.

Furthermore, virtual publishing has also realized the diversification of knowledge production subjects. On one hand, numerous subjects can conduct "knowledge reproduction" of the same knowledge; on the other hand, certain knowledge can be "re-presented" after being processed through multi-subject additive editing. In this process, platforms, as behind-the-scenes managers and service providers, participate in knowledge production and processing, making it difficult to clearly delineate which level copyright belongs to. Some platforms stipulate in agreements that authors transfer various rights of their works (including but not limited to reproduction rights, adaptation rights, derivative production, performance, and demonstration, etc.) to the platform, while the platform also opens these rights to other users on the platform [11].

Notably, driven by commercial interests, media technology has not formed a protective umbrella for knowledge content but has instead become a booster for knowledge infringement. First, current technical capabilities remain at the stage of text recognition, image recognition, and facial recognition, unable to effectively identify "disguised" infringement acts. A considerable portion of short video infringement is only regulated through fan reporting. Additionally, big data and algorithms continuously create "recommendations" and "hot searches" through platforms, and many users deliberately create infringement acts to "ride the 热度." This makes knowledge content that can generate traffic more vulnerable to infringement. The focus of infringement is the violation of original authors' copyright. Knowledge production involves numerous types of works and complex copyright subjects, making infringement determination difficult [12]. For platforms, they are only considered infringing if they fail to fulfill deletion obligations after being notified of infringement. The blurred value boundaries and concealed infringement acts in virtual publishing make most users more willing to become "reprocessors" of knowledge, which undoubtedly infringes upon the subjective initiative of knowledge creation and is not conducive to the development of original knowledge creation.

4. Conclusion and Reflection

The root of problems in virtual publishing, such as pan-entertainment and fragmentation, lies in the trends of user reading demands. The emotion-driven communication mode of social reading makes content that is infectious and likely to cause emotional resonance more easily disseminated. If virtual publishing blindly caters to the demands of social reading, it will become a cradle for emotional venting and vulgar tastes. Therefore, while adapting to reading demands, virtual publishing must maintain certain principles, which presents

new requirements for the concept of "editor" and editorial capabilities.

4.1 New Requirements for Editorial Identity and Capability in Virtual Publishing

The low threshold of virtual publishing enables everyone to become editors of short videos, pictures, and articles, and the concept of "editor" has been generalized, completely different from the serious and authoritative editorial staff of the traditional publishing era. In the digital age, society as a whole needs to improve digital literacy, viewing every user as a potential "editor," and the basic capabilities and awareness that editors possess should also develop toward socialization. On the other hand, editors' personal capabilities need to improve along with publishing development. In virtual publishing, besides textual symbols, editors need to process and logically arrange numerous non-textual symbols such as audio, video, AR, VR, and interactive texts.

4.2 Driving Virtual Publishing Toward In-Depth Development Through Media Technology

Technology is the backbone of virtual publishing. Virtual publishing can realize a series of activities including editing, production, publishing, distribution, and marketing through platforms. In this process, Web3.0 will enhance the connections between semantic metadata obtained by platforms, enabling them to utilize all available information and achieve personalized customization for users, pushing user experience to higher levels. Virtual publishing needs to break away from publishing technologism, which requires strengthening editorial recommendation mechanisms beyond algorithmic recommendations. Relying on manual review to evaluate published content, potentially high-quality but underexposed content or content that aligns with platform-promoted values can be recommended to more users, thereby increasing exposure opportunities for high-quality content on the basis of algorithmic recommendations.

4.3 Strengthening Supervision and Management of Virtual Publishing Product Infringement

Multi-party collaborative efforts are needed to intensify supervision and management of infringement in virtual publishing products, from legal construction to platform review, from technical supervision to industry self-discipline—none can be omitted. The Civil Code stipulates online infringement liability, establishing the "safe harbor principle" and "red flag principle" to regulate the behaviors of online users, network platform service providers, and rights holders, balancing the interests of all parties to some extent but failing to effectively curb the frequent plagiarism chaos in the short video industry. The newly revised Copyright Law of the People' s Republic of China clearly states that users' so-called secondary creation through clipping and adaptation, uploaded to network platforms for dissemination and profit, infringes upon the copyright holder's rights of

modification, integrity, reproduction, adaptation, compilation, and information network dissemination.

Besides legal provisions, platforms must assume primary responsibility. "Open sharing" is by no means a license for plagiarism. Platforms must implement real-name user registration, raise publishing thresholds, strengthen review, respect and protect creators' legitimate rights and interests, and show zero tolerance for infringement acts. Knowledge processors must enhance self-discipline.

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