Application Strategies of New Media Technologies in Television News Programs in the Context of Media Convergence: Postprint

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Abstract

With the continuous development and popularization of information technology, China has entered a completely new information era. The advancement of new media technologies has exerted tremendous impact on traditional media technologies, and competition among various media has become increasingly intense against the backdrop of the information age. Compared with online media technologies, the development of television news programs faces certain constraints. Influenced by their inherent novelty-seeking mentality, traditional media technology can no longer meet the current demands of China' s general public for new media technologies. Consequently, within the context of modern media convergence, the innovation and development of traditional media technologies such as television news have become a crucial pathway for enhancing their competitive advantages, as well as core initiatives for promoting survival and development within their respective fields. This paper primarily analyzes the difficulties in applying new media to broadcast news within the media convergence context, with a focus on exploring effective pathways for broadcast news to utilize new media within this framework.

Full Text

Research on Application Strategies of New Media Technology in TV News Programs under the Background of Media Convergence

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Abstract: The continuous development and popularization of information technology have ushered China into a new information era. The advancement of

emerging media technologies has profoundly impacted traditional media, intensifying competition among various outlets. Compared with online media, television news program development faces notable constraints. Driven by curiosity-seeking behavior, the public increasingly pursues emerging media technologies that traditional media cannot satisfy. Consequently, under the context of modern media convergence, innovating and developing traditional media technologies such as television news has become crucial for enhancing competitive advantages and ensuring survival and development. This paper analyzes the difficulties of applying new media to broadcast news under media convergence, focusing on exploring effective application pathways.

Keywords: new media technology; information technology; application difficulties; clip technology; video cloud

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The emergence of online communication platforms such as WeChat, Weibo, and Douyin has fundamentally transformed public lifestyles and expanded information access channels. As new media technologies become increasingly applied and popularized, audiences can develop closer connections with television news programs through these platforms. Real-time interaction with program producers via dedicated public accounts on social media platforms further engages audience groups interested in television news.

1. Brief Description of New Media Technology

New media technology is an emerging technology derived from the development of network information technology in recent years. Through continuous development and improvement, it has gradually become one of the network technologies widely adopted by the general public. Specifically, this technology primarily relies on internet information technology, employing novel information dissemination media and methods to provide diverse information acquisition platforms for the public. Unlike various traditional information dissemination media in previous development stages, new media technology can deliver television news programs to audiences through smartphones, tablets, and other intelligent mobile terminals. On the other hand, traditional television news media can systematically organize and analyze the series of data information and relevant news materials generated during the development of new media technology, transforming these data resources into valuable news materials for application in news production and promotion processes.

2. Difficulties in Applying New Media to Broadcast News under Media Convergence

2.1 Technology Adaptation Period Issues

With the continuous progress and innovation of information technology in China, information dissemination methods have undergone tremendous transformation. The promotion and popularization of emerging media technologies have enriched the channels through which the public receives information, directly impacting the audience base of traditional television news media. The general public no longer relies solely on traditional media such as newspapers, radio, and television to obtain news information; instead, they have turned to emerging media technologies like the internet and mobile phones, with WeChat, forums, Weibo, and short videos becoming mainstream channels for new media dissemination. Furthermore, as emerging media technologies develop, news consumption patterns are rapidly evolving toward brevity, flatness, and speed. Although these new forms of news dissemination cannot fully demonstrate the essence of traditional television news programs, they still attract significant public attention. Under these circumstances, traditional media technology should fully incorporate current social development characteristics to identify convergence points between television news programs and emerging media, thereby ensuring rapid adaptation to the media dissemination environment of media convergence.

2.2 Operational Speed Lag Issues

Compared with emerging media technologies, traditional television news operation models and speeds are relatively backward, while the information technologies and post-operation forms employed by emerging media are considerably more advanced. These advanced technologies not only fully meet the development demands of the new information era but also possess substantial untapped potential and broad prospects. Consequently, from this perspective, traditional television news media technology has fallen into a relatively weak position. This is primarily because traditional scheduled news media have operated in China for an extended period, developing a relatively complete operational system through continuous reform and optimization. However, their practical development has gradually entered a bottleneck stage, making it difficult to identify new breakthroughs. Therefore, from a developmental standpoint, traditional television news media forms have gradually approached their threshold in operation and development, failing to meet the technological development demands of the new information era.

The quality of news media assets and their practical application effects are decisively influenced by data quality, which directly constrains the actual development and utilization rate of media resource assets. Currently, numerous defects still exist in the development of television news programs in China, such as the issue of low information quality during digital transmission processes. The primary reason for this phenomenon is that many television stations lack

systematic, standardized, and unified standards for digital information transmission quality when producing and broadcasting news programs. Consequently, during secondary processing of news content, problems frequently arise regarding the overall quality of television news programs. Based on this situation, television institutions in different regions need to establish professional television program production teams when conducting clip work. Under the perspective of media convergence, they should employ new media technology to create an advanced talent cultivation model and a new development paradigm for the television news production industry.

3. Application Strategies of New Media Technology in TV News Programs under Media Convergence

3.1 Application of Clip Technology (Xcut) in TV News Programs

The clip system was originally developed by Sobey Digital Technology Co., Ltd. as an integrated information-based and three-dimensional television news broadcasting network system that encompasses news sharing, news production, news broadcasting, small media asset management, and network management. During application, this system can implement all operational functions related to television station news business, handle the production of most television news programs, enable automatic recording and self-acquisition of content materials, and facilitate resource sharing across the entire station, thereby substantially improving the overall production level and broadcasting efficiency of television news programs. Clip work constitutes one of the important foundations of media asset management. As the information source for media asset search and utilization, the accuracy of clip data and the simplicity of related operational procedures are essential foundations and systematic guarantees for ensuring effective media asset management mechanisms.

During the current development of television news, new media television news materials and program content are primarily purchased as finished products from news providers. After secondary adjustment and processing by new media operators according to their broadcasting characteristics, complete new media programs are ultimately provided to the general audience. Based on this, new media television news program production can also be regarded as secondary processing of traditional television news programs. During this reprocessing and production, there is no need for detailed conception and production of specific broadcasting content or creation of complex special effects and animations for television news program content. Typically, reprocessing only requires corresponding cutting and splicing of television news content, along with complete removal of explicit or implicit advertisements contained in the original television news programs. If television programs are too long, they simply need to be cut into different news segments to enhance the overall popularity of the television news. Throughout the system application process, the entire television program production workflow of "clipping → main station media asset library (storage)

→ branch station media asset libraries (return transmission and storage) → content publishing" can be realized, enabling comprehensive integration and sharing of television news resources.

On the other hand, during the application of clip technology, relevant technical personnel must control the overall quality of clip data. As an important link in television station media asset management, clip data quality has a decisive impact on the entire television station' s media asset management.

3.2 Application of Video Cloud Computing Technology in TV News Programs

The concept of "cloud" was first proposed by Google in 2006. Following its introduction, numerous technology companies worldwide have successively introduced their own "cloud plans" tailored to their development, including Amazon, Yahoo, and Intel. Cloud computing is derived from technologies such as distributed computing, parallel processing, and grid computing. As a new commercial computing model, it has been widely applied across various industries. During its development, no unified definition of this technology currently exists among different sectors, with various manufacturers committed to developing cloud computing services that align with their enterprise characteristics and current development status. This technology is extensively utilized in public production and daily life, such as in various search engines developed by different companies. Therefore, "cloud computing" is, in a sense, also a service with self-maintenance functions—a virtual computing resource capable of self-management. During application, cloud computing can comprehensively integrate all computing resources and apply them in software, enabling automatic management functions and substantially reducing costs for consumers. Moreover, the technology currently employs large clusters of relatively low-cost servers, with large-scale nodes for television news successively constructed in multiple regions across China. These clusters share tasks across different stages from television news production to broadcasting, effectively solving work previously requiring expensive large-scale equipment at relatively low construction costs and comprehensively reducing the overall costs generated during television news program creation.

3.2.1 Application of Massive Data Distributed Storage Technology in TV News Programs Cloud computing systems require support from large numbers of servers during operation and provide services for massive numbers of users. Therefore, cloud computing systems must employ distributed storage methods for data storage and use redundant storage methods to ensure data stability and security. The Google File System is a typical scalable distributed file system that can access large-scale, numerous, and distributed file systems during operation. The entire system was designed with the operational objective of processing large-scale data, combined with Google' s practical application design for the system. Applying this technology in television news program

production can map the metadata used in the storage file system of the main server to targeted locations, comprehensively expanding the radiation area of television news programs in new media.

3.2.2 Application of Massive Data Management Technology in TV News Programs BT is a large-scale distributed database that differs significantly from the databases used in television news program production. During application, it can treat all data as specific objects for processing, forming all data into a massive table and storing these large-scale structured data within the table. Currently, multiple projects conducted by Google employ BT for data storage, including web search and Google Finance. Based on this foundation, applying this distributed database in television news creation and dissemination can effectively compensate for the current development status of regional television stations or network television stations. This technology can achieve complete digital management of television news content and construct a systematic television news resource pool from user methods across various information dissemination terminals, ultimately forming "cloud video." During practical application and operation of cloud computing, the most efficient and highly feasible approach is to create a relatively closed television news cloud video pool based on the current Guangshi Network, enabling data volume to provide corresponding news materials for different regions across China. During management of these data, relevant administrators should establish a relatively strict data permission management mechanism based on the actual development status of television stations. When personnel related to television news programs apply this database, they can download relevant television news data according to database procedures, ultimately achieving adjustment and editing of television news content. After editing, they must report to relevant departments. Once the relevant departments approve the television news content, the complete television news program is uploaded to the shared video pool, allowing the broad audience of the "cloud terminal" to watch the video online immediately.

3.3 Forward-Looking Research on New Media Application in TV News

The continuous development of new media technology has brought significant development opportunities to traditional television media. Since the advent of new media technology, traditional television news has required comprehensive reform in its production and dissemination processes to meet the actual needs of current-era television news dissemination forms and production concepts. Moreover, new media communication technology has successfully transformed the general social audience from passive receivers to active searchers. Reflecting on television news programs from the perspective of media convergence reveals that different information communication methods based on new media technology tend to employ codes. Only through organic integration of traditional television news media with new media technology—drawing upon each other' s strengths —can television news achieve substantial development and truly fulfill its public

opinion guidance function. On the other hand, during continuous development, traditional media can reorganize and analyze its own data resources with the support of new media technology. By utilizing media difference issues existing between different data, they can share data resources in television news information creation and dissemination while maintaining individual characteristics for each piece of news information. This approach transforms different television news programs from previous competitive states to cooperative states, comprehensively expanding their radiation range among the general social population while securing relatively ideal economic benefits for television stations. Furthermore, television news must still adhere to its dominant position within the industry during creation and dissemination, maintaining bottom lines during content editing processes.

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