

Research on the Application of New Media Technology in TV Variety Shows from the Perspective of Media Convergence: Postprint

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Abstract

[Purpose] In the context of media convergence, TV variety shows must adapt promptly, actively embrace new media technologies, and vigorously pursue innovation. **[Method]** This article, from the perspective of variety show editing and production, integrates the characteristics and advantages of new media technologies, and proposes a series of strategies for the specific application of new media technologies in TV variety show production, tailored to the actual development conditions of TV variety shows in China. **[Result]** The application of new media technologies in TV variety shows can enhance audience participation, improve program ratings, and increase the added value of programs. **[Conclusion]** In the context of media convergence, the technological innovation and development of TV variety shows constitute the key to enhancing their core competitiveness and achieving sustainable development.

Full Text

Preamble

ChinaXiv Collaborative Journal: Research on the Application of New Media Technology in TV Variety Shows Under the Perspective of Media Convergence

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Abstract:

[Objective] Under the perspective of media convergence, TV variety shows must adapt to the times, actively embrace new media technology, and pursue innovation. **[Methods]** From the perspective of variety show editing and production, combined with the characteristics and advantages of new media technology, and addressing the actual development of TV variety shows in China,

this paper proposes a series of strategies for the specific application of new media technology in TV variety show production. **[Results]** The application of new media technology in TV variety shows can enhance audience participation, improve program ratings, and increase added value. **[Conclusion]** Under the perspective of media convergence, technological innovation and development in TV variety shows are key to enhancing their core competitiveness and achieving sustainable development.

Keywords: media convergence; new media technology; TV variety shows; editing and production; innovation

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The concept of media convergence was first proposed in 1989, reflecting the development trend of multi-purpose integration across various media forms [1]. Fundamentally, media convergence represents a new communication technology—the combination of two or more existing technologies. This new communication technology possesses multiple technical characteristics while maintaining its own uniqueness. Evidently, the combined functions of new communication technology and new media integration exceed the sum of their original parts, posing significant challenges to traditional media such as radio and television while simultaneously creating unprecedented opportunities for industry innovation. In this environment, new media has entered the public consciousness. Broadly speaking, new media encompasses network, mobile, and digital television platforms, defined in contrast to traditional media like newspapers, radio, and television [2]. Based on computer, communication, and digital broadcasting technologies, new media utilizes the internet, wireless communication, digital broadcasting, and satellite technologies, with computers, televisions, mobile phones, and video/music players as terminals. It enables personalized, interactive, and segmented communication models, with some emerging media capable of achieving precise, point-to-point dissemination [3]. As an inevitable trend in media market development, new media is founded on digital information technology and carried by the internet. Surveying current TV variety shows, new media technology has gradually permeated every aspect of programming, allowing audiences to genuinely experience its appeal. This technology has profoundly impacted the television industry. On one hand, the inherent characteristics of new media have compelled operators to adopt new business models. The emergence of new technologies requires operators to maintain good communication with technical support institutions while managing relationships with audiences

and program suppliers. On the other hand, new media provides audiences with new program formats and the right to choose content autonomously, eliminating the pervasive advertising characteristic of traditional television. Researchers believe that new technologies like digital television have not created new products or services but have improved communication quality and expanded content choices. This diversification and autonomy in content selection have transformed traditionally passive viewers into active participants, particularly in TV variety shows where audiences can better appreciate the fresh atmosphere brought by new media technology. In today's new media era, forms such as mobile television, IPTV, portal websites, blogs, and mobile TV continue to emerge. The internet era has not only changed information transmission formats but also subverted the dominant position of traditional media in information exchange. Consequently, innovating TV variety shows and strengthening communication, feedback, and interaction with audiences has become necessary. As media professionals in this new era, we must keenly grasp these changes, employ new media technology, continuously innovate program formats, enrich content, and make variety shows more watchable and influential [4].

1.1 Characteristics of New Media Technology

New media technology represents a digital media technology that has emerged with the development of network technology and improved scientific levels, fundamentally different from traditional media. Based on network and computer technology, it primarily features text, video, audio, and animation content [5]. The fundamental characteristics of new media technology are as follows: First, **ubiquity**. The primary support for new media technology is universal internet access—information can be sent and received anywhere with an internet connection, unlike traditional media such as print or television, which have limited carriers. Second, **rich information resources**. New media provides audiences with vast amounts of information, including video, audio, text, and images, creating an extremely rich information environment. Third, **strong interactivity**. Traditional television media is unidirectional with minimal and outdated audience interaction, typically limited to letters or phone calls after broadcast. In contrast, new media technology enables powerful interaction, allowing audiences to provide suggestions before programs air and offer feedback during broadcast, facilitating easier two-way communication. Fourth, **enhanced audience choice**. Traditional media's unidirectional nature forces audiences to simply “watch” or “not watch” with very limited options. New media technology grants audiences the power to choose specific programs to watch or skip, and to pause, play, fast-forward, or skip content during viewing [6].

1.2 Advantages of New Media Technology

First, **enhanced audience participation and improved program quality**. New media technology enables better audience engagement in TV variety shows. Some programs facilitate real-time interaction with viewers through

WeChat, Weibo, and other platforms during broadcast. Live streaming with “real-time bullet comments” helps production teams better understand audience sentiment. For “record-while-broadcasting” variety shows and dramas, audience feedback can even determine the direction of subsequent filming and content adjustments. In this sense, audiences become both “creators” and “participants” in programs. This collective participation not only boosts audience enthusiasm but also significantly improves program quality.

Second, **boosted ratings for TV variety shows**. New media technology has fundamentally changed the “broadcast-and-done” model. Integration with various apps enables live streaming, replay, pause, and other functions, allowing audiences to repeatedly watch favorite programs in short periods, substantially increasing ratings and attention.

Third, **enhanced value-added functions**. Given China’s current media development landscape, television media influences the lifestyles and consumption patterns of certain populations. Integrating new media technology can effectively increase the added value of TV variety shows [7].

2. Current Development Status of China’s TV Variety Shows Under Media Convergence

Media convergence must begin with media technology transformation, which promotes the emergence of new media and creates a new media environment through integration with traditional media. With the development of 4G and 5G technologies, networks and social media can publish information anytime and anywhere. Leveraging big data advantages to analyze user preferences enables personalized content delivery. Compared with online media, traditional media exhibits certain differences and deficiencies in real-time capability and interactivity. Although media convergence represents the general trend, current network platforms remain in the early stages of development with many imperfections. This manifests in two primary aspects: First, some traditional media have established new media platforms but have not perfected their content. Second, some have built complete platforms, but their content and functions remain imperfect—superficially attractive but essentially empty. This is a common challenge with any emerging development that must be addressed, as content remains paramount. Hunan Satellite TV’s Mango TV, as an internet platform, initially faced the dilemma of having “nothing to broadcast,” with very limited early content. The platform lacked independently created excellent works and relied entirely on satellite channel advertising, essentially becoming an extension of Hunan Satellite TV broadcasting identical programs. Television remained the sole media source, and the new media platform merely offered old wine in new bottles—this type of integration cannot create a truly new media platform. Genuine media integration and transformation should drive deep fusion between traditional and new media rather than simply relying on new media channels, achieving diversified communication resources and using multiple channels to promote content diversification and enrichment.

The limitations of media technology manifest not only in website construction but also in program content presentation. Due to these limitations, TV variety shows lack the interactivity and sense of participation audiences expect and cannot satisfy fragmented changes in audience reading needs. While traditional television continuously integrates with networks to meet evolving audience demands, early stage integration primarily remained television-centric and did not significantly impact content production. The COVID-19 pandemic greatly accelerated the development of domestic variety shows. Due to external constraints, traditional recording methods could no longer meet production needs, forcing program teams to consider how to use new media technology to break traditional thinking patterns and achieve deeper integration between big and small screens.

During the pandemic, many variety shows were suspended, including *Happy Camp*. The production team responded immediately by launching a new program, *Hi! What Are You Doing?*, conducted entirely without directors, with hosts He Jiong, Li Weijia, and Du Haitao recording from their own homes, presenting their daily lives and video calls with friends. The program adopted short video Vlog formats, combining long and short videos to enrich audience entertainment and convey pandemic prevention knowledge, accompanying viewers through the pandemic in an entertaining manner. The “cloud” approach also broke traditional barriers, strengthening emotional bonds between programs and audiences. However, because the technology remains immature, this “cloud” format serves only as an emergency measure unsuitable for long-term use. Technical breakthroughs are necessary to ensure program quality, representing a new trend for future variety show development [8].

3. Applications of New Media Technology in TV Variety Shows Under Media Convergence

3.1 Application in Pre-Production Preparation to Meet Audience Needs

Pre-production preparation plays a decisive role in TV variety show production and is crucial for creating high-quality programs. This preparation includes topic selection and material gathering. As Chinese audiences increasingly demand higher-quality variety shows with more diverse formats, their choices have multiplied. Producers must ensure their programs cater to popular tastes, closely connecting topic selection with social hot issues. This is essential. Simultaneously, topic selection must favor audience-preferred subjects—a systematic project requiring skillful use of various new media technologies. When selecting topics, producers can actively communicate with audiences beforehand through popular mainstream platforms like WeChat official accounts, Douyin (TikTok), Weibo, and Xiaohongshu, accurately profiling target audiences. Offline questionnaires can also collect audiences’ most pressing concerns to help select appropriate content that better satisfies audience needs, thereby attracting more

viewers and improving ratings.

After topic selection, producers must prepare relevant materials according to the chosen theme. TV variety shows require extensive material collection during early stages, consuming substantial human, material, and financial resources. However, applying new media technology can significantly reduce difficulties, accelerate material collection speed, and greatly improve production efficiency and quality. For example, using short video apps like Douyin to collect relevant video materials or real-time information sharing apps like Weibo to gather current affairs and hot topic materials.

3.2 Application in Production to Strengthen Audience Interaction

In TV variety show production, program directing is a critical link closely related to program quality. To ensure quality, directing must be prioritized. Whether better results can be achieved in post-production is a major audience concern that can significantly impact program quality. Currently, new media technology can be applied in TV variety shows through image editing, text editing, animation editing, and other aspects. Rational use of existing materials can enrich program content while better satisfying audience information reception needs. For example, popular reality shows like Zhejiang Satellite TV's *Ace vs Ace* have long recording cycles and extensive content, making production heavily dependent on editing large amounts of footage. Without careful editing, presented content becomes dull and fails to capture audience attention. Therefore, applying new media technology not only preserves the essence of traditional TV variety show recording but also retains original content while enhancing audience appeal through subtitles, animations, and other elements. After editing and splicing, program content becomes more creative, and adding subtitles and animations can strengthen audience-program interaction, emotionally satisfying audiences, creating resonance, attracting viewers, and enhancing program influence.

3.3 Application in Stage Design to Create Audience Resonance

The stage is a crucial component of variety shows, with most program processes occurring on stage. Stage design and performance are important production elements. Traditional variety show stages have moved beyond static scenery plus sound and lighting effects, using stage scheduling and multi-angle camera switching to enhance visual effects. With VR, AR, MR, XR, holographic and other technologies, variety shows are no longer limited to specific scenes, breaking temporal and spatial constraints to construct breathtaking immersive experiences combining reality and virtuality. For example, *Chinese Poetry Conference* uses XR+AR technology to create a “three-dimensional space” co-created by hosts and guests, delivering unique visual experiences. *China in Classics* employs new media technologies like “circular screen projection,” “AR,” and “real-time tracking” to reconstruct multiple dimensions including “historical” space, narrative structure, perspective, discourse, and expression, building cross-temporal

dialogues between modern and ancient people. Through “network” technology, it achieves historical representation, allowing audiences to more intuitively experience historical events, allusions, and figures. Applying new media technology to variety show stage construction creates virtual stages distinct from real ones, combining lighting and sound effects to give audiences an immersive feeling.

3.4 Application in Character Presentation to Create Authentic Atmosphere

Characters are the most attractive element of entertainment shows. With continuous development and application of new media technology, variety shows have more options for character development. Technologies like holographic projection, 3D modeling, and augmented reality enable characters to communicate across time and space. New media technology can realize cross-temporal and cross-spatial character presence. For instance, the 2021 Spring Festival Gala used interactive camera control technology, XR production systems, object-following spatial positioning technology, and AI motion capture technology, along with 3D models and remote transplantation, to enable artists from different regions to perform together on the Gala stage, achieving real-virtual interaction. Jay Chou’s performance with Italian singers Andrea Bocelli and Matteo Bocelli also broke temporal and spatial limitations, brilliantly presented at the Spring Festival Gala. *Everlasting Classics* uses 3D holographic projection technology to recreate Teresa Teng’s performance of “Wishing We Last Forever,” transcending temporal and spatial boundaries to present more shocking and unforgettable visual experiences. New media technology has injected new vitality into virtual images, promoting the emergence of virtual idols and hosts. Voice conversion technology development and application have advanced virtual characters. Anhui TV’s *Golden Age* Season 4 introduced a “mechanical simulation” host, Mr. Golden, in 2013. The 2015 Spring Festival Gala featured the virtual host Yangyang. With continuous development of internet, cloud computing, big data, IoT, and AI technologies, virtual characters have gradually entered an intelligent transformation period. At the 2019 CCTV Network Spring Festival Gala, the virtual host Xiaoxiaosa appeared, realistically portraying host Sa Beining’s image. Supported by AI technology, virtual hosts can acquire more knowledge. *Everlasting Classics* uses AR technology with virtual singer Luo Tianyi to combine songs with traditional opera, creating a near-authentic performance atmosphere [9].

3.5 Application in Segment Design to Enhance Audience Experience

Segment design plays a vital role in overall variety show performance. New media technology enriches segment design, providing more options. Shows like *Keep Running* and *Go Fighting* adopt virtual story frameworks combined with traditional real-time recording, designing conflicts with dramatic linear structural characteristics. New media technology makes variety shows more watchable and technologically sophisticated, allowing audiences to experience the ten-

sion and excitement of outdoor activities immersively. *Up, Youngsters!* features a “Splendid Moment” segment that uses new media technology to display performers’ extremely wonderful moments in 360-degree full view, revitalizing variety shows and enhancing audience memory under new media technology support.

New media technology makes variety show segment design more attractive. For example, *The Sound* uses FOTRIC cloud thermal imaging technology to convert contestants’ body temperature data into virtual images, displaying naked-eye 3D technology to give audiences a “being there” and “sound immersion” experience. The *Me+* program uses multiple program interfaces, allowing audiences to experience story plots from the protagonist’ s perspective. Technologies like multi-interfaces, tree-structured plot trees, and AR enhance audience interaction capabilities, transforming viewers from traditional audiences into narrators. With new media technology development, customizable and programmable variety shows will increasingly appear on television screens, promoting variety show design standards. In the media convergence environment, developments in 5G communication, digital, virtual reality, network, and audio-visual technologies have created more possibilities for variety show creation. Virtual-real interactive variety shows provide audiences with “immersive” visual experiences. It is evident that excellent variety shows will certainly utilize new technologies for innovation. In the variety show production process, new technology application remains in the exploration and development stage. Variety show producers must continuously learn new media technology, finding a balance between technology and artistic expression to promote innovative variety show development.

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

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