Live Visualization of Radio Programs in the Converged Media Environment (Postprint)

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Abstract

In the information age, new media forms such as internet radio and social live streaming have emerged incessantly, posing significant challenges to traditional radio programs. To capture public attention, traditional radio programs must accelerate their transformation and explore integration strategies between self-media and traditional media. Currently, radio stations have been actively experimenting with visualized live streaming models, achieving favorable outcomes. Based on this, this paper elaborates on the advantages and disadvantages of visualized live streaming for radio programs within the converged media environment. Starting from the characteristics of traditional broadcasting, it argues that visualized live streaming for radio programs should be moderate. Finally, it proposes effective strategies for the visualized live streaming of radio programs, aiming to promote the better development of traditional broadcasting.

Full Text

Preamble

Research on Live Visualization of Radio Programs in Converged Media Environments

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Abstract: In the information age, new media forms such as online radio and social live streaming have emerged incessantly, posing significant challenges to traditional radio programs. To capture public attention, traditional radio must accelerate its transformation and explore integration strategies between self-media and traditional media. Currently, numerous radio stations have experimented with visual live broadcasting models with positive results. Accordingly, this paper elaborates on the advantages and disadvantages of live visualization for radio programs in converged media environments, argues that visualized live broadcasting should be moderate based on the inherent characteristics of

traditional radio, and finally proposes effective strategies for implementing live visualization to promote the better development of traditional radio.

Keywords: converged media; information age; radio programs; live visualization; advantages and disadvantages
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1. Exploration of Live Visualization for Radio Programs in Converged Media Environments

1.1 Advantages of Traditional Radio Programs

First, traditional radio employs professionally trained hosts, journalists, and editorial teams. Coupled with strict program review processes and rigorous, standardized production, content consistently maintains correct public opinion guidance, making radio programs more listenable and authoritative. Second, listening to radio programs is not constrained by time or location, offering greater convenience than television—particularly valuable as modern life accelerates. Audiences can receive current information while commuting, exercising, or doing household chores. Third, compared to television' s complex signal transmission, radio production and transmission processes are relatively simple, with lower costs and stronger timeliness, enabling audiences to learn about world events immediately. This advantage has led most radio stations to establish emergency broadcasting systems for timely dissemination of breaking news.

1.2 Advantages of Live Visualization in Converged Media Environments

First, traditional radio mode limits audiences to hearing the host' s voice, resulting in relatively monotonous expression. Visualized live broadcasting, however, allows audiences to see hosts'expressions, gestures, and working environments directly, creating more vivid program formats. For instance, during sports events or auto shows, audiences can receive information more three-dimensionally and intuitively through the host' s commentary combined with exciting visuals, achieving a dual audio-visual enjoyment. Consequently, visualized live broadcasting delivers superior communication effects compared to single-language description. Second, network technology development has facilitated integration between radio and live streaming programs. In visualized live broadcasting, audiences can listen while interacting with program teams through dedicated

platforms. The production team can promptly answer questions, understand audience preferences, and adjust program content accordingly, enhancing both participation and program diversity while increasing listenership. Third, visualized live programs can rapidly collect viewership data, using big data analytics to understand audience preferences, identify peak and low listening periods, and enable timely adjustments to broadcast timing, content, and format. Fourth, traditional radio is technically limited to local coverage, whereas the internet knows no such boundaries. Visualized live programs can reach any location with network access. In summary, visualized live programs integrate the strengths of traditional radio and live streaming, demystifying traditional radio and representing a product that meets audience demands and contemporary development.

1.3 Disadvantages of Live Visualization in Converged Media Environments

First, video signal instability. While network technology innovation has expanded traditional radio' s coverage, mobile device limitations and data transmission bandwidth constraints in remote areas (such as urban-rural fringe zones) without comprehensive network coverage cause problems like choppy live streaming and unclear picture quality. Audiences experiencing intermittent video feeds may abandon radio programs for other formats, negatively impacting listenership. Second, poor live lighting technology. Traditional radio studios require only moderate brightness, whereas live programs demand higher lighting standards. As radio' s transformation remains experimental, live technology and equipment are still imperfect, and staff professional competence remains insufficient for proficient operation of live equipment and network technology, resulting in suboptimal direct effects. For example, some radio stations poorly control light-shadow contrast and camera angles, causing problems like shiny foreheads, half-lit faces, or poor clothing texture on hosts, compromising overall program quality and damaging host image. Third, host-related issues. As the saying goes, "different trades are separated by mountains." Traditional radio hosts lack camera presence in live programs, either reading scripts casually as in conventional radio, failing to maintain eye contact with audiences, or displaying poor facial expressions—all diminishing viewing experience, reducing audience impression, causing program abandonment, and affecting ratings. Fourth, program copyright infringement. Compared to traditional radio, new media information spreads faster and more widely, which promotes traditional radio development but also enables high-listenership, influential live programs to be pirated or imitated by other stations, infringing copyright and affecting listenership.

2. Moderation in Radio Program Live Visualization

As Canadian communication theorist Marshall McLuhan stated: "No medium has independent meaning and existence; any medium can only realize its meaning through interaction with other media." Therefore, in converged media en-

vironments facing new media technology impacts, traditional radio must adapt measures to local conditions, follow communication laws and program production requirements, and adhere to moderation principles in live visualization exploration rather than wholesale adoption of live program production models.

2.1 Radio as a Medium of Imagination

For audiences, print media like magazines and newspapers emphasize textual expression of thoughts and emotions, while television—especially TV series—focuses on direct presentation of characters' emotions. Radio integrates thoughts and feelings through traditional media forms, with its greatest advantage being the imaginative space it provides audiences. Unlike television' s audio-visual combination, traditional radio transmits emotions, thoughts, and information through sound alone, allowing audiences to self-associate based on the host' s voice and imagine scenes while listening. This infinite imagination constitutes radio' s unique charm, particularly evident in story-based programs. For example, Chengdu Traffic Radio's midnight program *Midnight Final Train* broadcasts suspense stories during the midnight slot, attracting taxi drivers, students, and insomniacs. Through the host' s vivid narration, audiences mentally construct story characters and scenes—precisely radio' s appeal. Television adaptation of such suspense stories would create entirely different scenarios. Therefore, in converged media environments, traditional radio can appropriately experiment with live broadcasting as a new communication format, but not all programs suit live broadcast. Selection is essential: programs like galas and exhibitions may adopt visualized live broadcasting, while others should retain traditional radio formats.

2.2 Radio as a "Thought" Medium

Compared to audio-visual media like television, traditional radio programs possess greater depth, capable of presenting deeper meanings "between the lines" to provoke thoughtful reflection—a function television and new media cannot replicate. Since radio employs only sound, it better enables audiences to concentrate on information reception and comprehension, making it more suitable for conveying perspectives on news events, attitudes, and analytical angles. In converged media environments, audiences generally passively accept video information, with rapid scene changes leaving no time for contemplation, potentially even diminishing comprehension abilities over time. Radio can function as audio reading material, leveraging its strengths to create popular columns, produce favored content, focus on public opinion concerns, disseminate positive energy, promote mainstream values, and appropriately utilize live formats to become an intelligent communication platform for the new era.

2.3 Radio as a Targeted Medium

Traditional radio programs embody the collective wisdom of production teams, particularly news columns produced through three-tier review systems that pos-

sess stronger public opinion guidance, authority, and relevance. However, in converged media environments, numerous live streaming apps have emerged with low entry barriers—requiring only a smartphone and account—lacking industry regulation or compliance, easily exploiting loopholes and causing frequent incidents of pornographic, gambling, or drug-related content. By the same token, if traditional radio programs fail to observe industry norms and establish 完善的栏目制作及直播播出制度 (complete column production and live broadcasting systems), they will fall into passive positions. For example, in case-reconstruction segments of legal programs, crime scene footage generally undergoes mosaic processing to both satisfy audience curiosity visually and dilute horrific atmosphere. Chengdu Radio and Television Station' s *998 Legal Lecture Hall* excels in this approach by using simple line drawings for case reconstruction, providing better viewing experiences. Additionally, most radio programs are pre-recorded; having cameras on the studio 24/7 would create numerous empty shots and waste resources. In other words, radio programs should selectively adopt live broadcasting. Interactive livelihood programs like talk shows, education, travel, legal affairs, and real estate suit live formats, while current affairs news and literary appreciation that provoke deeper reflection better suit traditional radio formats to maintain audience listening focus.

3.1 Carefully Design Radio Program Content

In converged media environments with richer information dissemination formats and more choices, radio programs experimenting with visualized live broadcasting represent an inevitable trend. Compared to traditional radio, live formats engage both eyes and ears, expanding program content while allowing audiences to see vivid images and interact with hosts through comment sections—greatly enhancing entertainment and attracting audience attention for excellent audio-visual effects. Therefore, radio stations must carefully select and design program content to highlight column personalization. Based on characteristics of different age groups, programs should address topics audiences care about, creating vivid content that bridges distances. For example, during the 2016 Two Sessions, China National Radio launched the special program *Direct Access to Beijing-Shanghai-Guangzhou*, focusing on hot livelihood topics in China' s three most influential first-tier cities, addressing public concerns and seeking solutions—generating strong responses among young audiences. Simultaneously, the China Voice column group first attempted installing 360-degree rotating cameras at venues, creating an immersive experience surpassing traditional television live broadcasting and instantly bridging the distance with audiences, providing an operational template for local radio stations. Another example is Chengdu Radio Station' s 2017 program *Rongcheng Golden Autumn* targeting retirees, which used WeChat public accounts for live broadcasting at square dance competitions and senior universities, showcasing elderly vitality and winning popularity among senior audiences. When adopting visualized live broadcasting, stations must fully consider elderly audience characteristics and understand their demands to enable their participation in new media commu-

nication. Therefore, while carefully selecting content, stations must consider seniors' schedules and reasonably set live times and frequency. Moreover, radio programs attempting visualized live broadcasting must ensure content authenticity and timely dissemination to highlight authority and timeliness.

3.2 Improve Video Playback Technology to Support Live Broadcasting

Signal transmission stability directly affects live program quality. Therefore, when experimenting with visualized live broadcasting, radio stations should first improve video playback technology and increase network speed to meet live requirements. With rapid 5G technology development, information transmission speeds continue improving. However, different network signals coexisting in the same space can interfere, affecting broadcast video signals and causing instability. Thus, radio stations must actively communicate with telecommunications departments to increase bandwidth, improve network speed, and preferably secure dedicated transmission lines to ensure smooth program signals. Simultaneously, studio configurations should be upgraded: LED large screens should be selected to prevent flickering during filming; LED soft lighting should be installed for better host appearance, preferably portable fixtures with adjustable angles and heights to improve live effects. Additionally, hosts must actively transform through enhanced learning and training, improve their image, select appropriate makeup and clothing, develop camera presence, extend their vocal advantages to visuals, build radio brands, and become the station' s traffic drivers.

3.3 Create a Good Network Environment

First, network technology development and new media industry growth have expanded public information channels but also created mixed content quality, inevitably including violent, pornographic, and vulgar material. Therefore, to provide healthy information environments, technical measures should be implemented to filter harmful information and purify cyberspace, creating clean and positive information dissemination environments. Second, government functional departments like the National Radio and Television Administration must establish and improve legal mechanisms for purifying screens and audio, creating green network environments through legislation. Third, regarding copyright infringement, virtual property protection systems should be established to strengthen audio, video, and text copyright protection, with resolute punishment for unauthorized broadcast program disseminators. Fourth, radio stations must strengthen broadcast environment management, establish multi-tiered strict control management systems, maintain correct public opinion guidance, establish accountability mechanisms, and strengthen network self-inspection and cleanup systems.

3.4 Highlight Radio' s Service Function and Innovate Live Content

In converged media environments, visualized live broadcasting experimentation represents a viable path for radio program development. To truly leverage visualized live broadcasting advantages, stations should: First, innovate content to ensure richness, vividness, and imagery, imposing higher requirements on radio personnel. To improve staff professionalism and create audience-favored programs, radio stations should conduct various training activities to comprehensively enhance employee competence, stimulate innovative thinking, and innovate live models based on audience preferences to establish brand advantages, using network technology to compensate for traditional radio limitations and achieve better integration between broadcasting and new media. Second, radio stations should establish evaluation and reward systems, regularly or irregularly selecting outstanding hosts, columns, and webcasts with material incentives to fully motivate radio hosts, editors, and reporters while stimulating creative enthusiasm. Third, reform live formats, increase program creativity, provide quality content to fully attract audiences, and shape strong live broadcast brand images. For example, traffic mobility is a universal public concern. To better serve public travel, radio stations can collaborate with traffic management bureaus to transmit real-time traffic surveillance footage to broadcast studios, with hosts promptly broadcasting road congestion through video live streams. Simultaneously, radio stations can establish WeChat public accounts to attract public subscriptions, enabling audiences to query traffic information and plan routes accordingly, thereby effectively improving audience loyalty to the station.

In conclusion, with the arrival of the information age and new media technology development, visualized live broadcasting represents an inevitable trend for radio program development. However, in experimenting with visualized live broadcasting, radio programs must consistently adhere to moderation principles, integrate both formats to learn from each other' s strengths, innovate live content and formats based on program characteristics, improve listenership, and seek appropriate development paths according to their own advantages.

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