Application of Television Media Technology in Radio Programs under Media Convergence (Postprint)

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Abstract

The promotion and application of science and technology have catalyzed new developmental trends in television media technology. For broadcast programs, the effective utilization of television media technology to foster innovation and development in television programming assumes critical significance. Accordingly, this paper conducts an analysis and investigation into the application of television media technology in broadcast programs within the context of media convergence, with the objective of providing valuable references for the integration of television media technology and broadcast programs.

Full Text

Preamble

Title: The Application of Television Media Technology in Radio Programs Under Media Convergence

Abstract: The promotion and application of science and technology have catalyzed new development trends in television media technology. For radio programs, the proper application of television media technology is crucial to driving program innovation and development. This paper analyzes and examines the application of television media technology in radio programs within the media convergence environment, aiming to provide insights for the integration of these technologies with radio programming.

Keywords: Television media technology; Media convergence; Radio programs

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1. Innovation in Television Program Formats Under the New Media Environment

With the development and innovation of new media, traditional media—including print media—are continuously evolving and integrating. New media leverages advanced information technology and digital platforms to create interactive and diversified media products. In this context, television program formats have also undergone innovation, prominently manifested in the diversification of content organization and the flexibility of broadcast forms.

On one hand, traditional media in the new media environment can utilize the internet and new media technologies to obtain richer information in the form of text, images, and video, which can then be processed through post-production to complete program resource preparation. Networked and digital platforms enable maximum transmission and sharing of resources, providing television programs with more convenient and effective information channels. Meanwhile, the organizational forms of television programs have been extended. For instance, radio programs are becoming increasingly people-friendly, incorporating many modern elements into program creation to make them formats beloved by audiences.

On the other hand, television program broadcasting in the new media environment is more flexible compared to traditional television. Television program production often requires high costs, but due to limitations in scheduling and timing, traditional television programs frequently only had "one life," thus burying their potential value. Now, audience groups can access television programs anytime and anywhere through various channels such as internet platforms, radio stations, and cable television, using multiple terminals including computers, mobile phones, tablets, and televisions. They can also selectively stream their preferred program types on demand, satisfying audience requirements for repeated viewing and program selection. Additionally, some media can insert advertisements during program broadcast intervals, integrating relevant resources and greatly enhancing the value of television programs. This enables traditional television programs to benefit from multiple revenue points, which in turn attracts more audience groups.

2. Application of TV Media Technology in Radio Programs Under Media Convergence

2.1 Interactive Methods

A key technological reason why traditional media can innovatively develop into new media is the "interaction" and "communication" that occurs between various media and between audiences and media. Traditional radio programs mostly

relied on letters, phone calls, and text messages to "listen" to audience opinions and suggestions, establishing interaction and connection with viewers. In the media convergence environment, radio programs can leverage powerful internet platforms to achieve more convenient, frequent, and deep interaction with audiences. Using various instant communication platforms such as QQ, WeChat, microblogs, mobile client applications, and video platforms, radio programs can achieve "connection" with audiences through multiple methods and terminals. These approaches have become the primary means of interaction in radio programming, increasingly favored and widely used by modern people. Consequently, radio program producers can efficiently obtain large amounts of feedback about programs and conduct targeted program production and adjustment.

2.2 Mobile Internet Technology

The internet has penetrated virtually every domain of socio-economic development, especially in people's daily lives where it has become an indispensable tool. Interaction between traditional media and audiences has gradually been replaced by mobile internet-based interaction, as no one can carry bulky televisions or computers everywhere to access programs. The fast-paced lifestyle of modern people makes them prefer using smart mobile devices for interaction and communication. The exchange and connection established between these "small screens" based on efficient internet technology have gradually formed a rich "cross-screen interaction network," with each audience member serving as a node on this network. Information about radio programs can also achieve multi-directional transmission on this dense network, breaking the limitations of traditional one-way broadcasting. For example, "shaking" on WeChat terminals, scanning QR codes displayed on screens during program broadcast, posting comments on official program microblogs, or writing reviews on broadcast program client applications have all become important ways for modern audiences to participate in program interaction. This represents communication between the "large screen" and "small screens," giving audiences a stronger sense of interaction and experience with radio programs.

2.3 Big Data Technology

In today's era of information explosion and rapid updates, big data technology increasingly demonstrates its outstanding advantages. Big data technology can collect, organize, filter, and analyze massive, raw, and complex datasets to ultimately extract valuable information for rational utilization. Examples include China's annual forecasts for Spring Festival travel peaks and human flow, or Taobao's push notifications for products customers might like—tasks that conventional software cannot accomplish in short timeframes. Big data technology exhibits powerful data acquisition and analysis capabilities, which are highly beneficial for innovative new media applications. Radio program production can leverage data extracted and processed by big data technology

to assist in analyzing audience interaction enthusiasm and preferences, thereby guiding program innovation. Combined with network technology, big data can also push programs to audiences based on their viewing categories and content preferences.

2.4 Virtual Implantation Technology

Virtual implantation technology has been increasingly applied to the simulation production of television scenes. The main technical approach involves first designing virtual 3D scenes using computers, then synthesizing these scenes during television program filming through digital signal transmission, ensuring that the virtual scenes change as the host moves. This creates a visual sense of realism for audiences, presenting scenes authentically. This process requires strong scene production technology and close coordination from camera crew. The higher the fusion degree between scenes and filmed footage, the stronger the visual impact and sense of presence for audiences. Virtual implantation technology allows people to truly experience scene authenticity and feel program retrospectives and simulations through virtual settings, thereby increasing audience engagement with programs.

Furthermore, managing and controlling various signal sources to achieve effective integration represents the core of this technology. The use of broadcast control technology in television program production has become widespread, most notably in traffic news programs where hosts dynamically control large broadcast screens through specific methods. Content on these screens can flexibly switch or present according to the host's themes, effectively enhancing broadcast vividness and enabling audiences to more intuitively and visually experience traffic scenes. This technology's application relies on computer terminal control equipment and excellent display technology. With new media development, broadcast screens have continuously improved in clarity and color, with more diverse and flexible window settings that greatly enrich program content. Multiple scenes can be dynamically presented to audiences, helping them efficiently obtain various types of information and facilitating close interaction with programs. Using management and control methods such as touch screens, remote controls, or projection, hosts can prominently present the main content of radio programs to audiences and skillfully interpret various content including text, images, and video. Smooth operation also provides visual satisfaction. Additionally, audience-program interaction information can be projected through multi-screen and cross-screen interaction methods, greatly enriching the immediacy of television programs.

3. Overall Framework for Media Convergence Technology Application in Radio Program Production

The development and innovation of mobile internet have clarified the overall framework for new media technology application in radio hosting program pro-

duction, which primarily comprises three closely connected and progressive layers: the data layer, application layer, and user layer.

The data layer, as its name suggests, focuses primarily on data integration and fusion. During actual program production, producers should first collect and organize large amounts of raw materials through internet searches, literature reviews, or interviews with relevant personnel to aggregate valuable data resources. Then, using "big data" and "cloud computing" technologies, these information materials can be further mined to form systematic, interactive data that increases attention from existing audiences and expands audience size. On this foundation, content can be selectively refined and filtered to provide strong data support for program viewership.

The application layer reprocesses and reorganizes the prepared data content from the first layer. Based on different needs of various audience groups, it presents content to viewers through multiple channels in a timely manner, ultimately achieving program content production and making it the core layer of the overall program production framework. The studio serves as the central hub of television programs, presenting data content on screens through various terminals via control and packaging, achieving multi-device fusion. This is also the soul of program production interaction, enabling cross-screen and screen-throwing interactive effects to be displayed to audiences and increase their attention.

The user layer presents television program content to audiences through terminals such as televisions, computers, and mobile phones. Radio programs can be simultaneously and repeatedly live-streamed or on-demand played on mobile video clients, network cloud television, and other platforms. Each terminal has different advantages and characteristics, allowing users to selectively choose their preferred viewing methods, gradually enhancing the reach and interactivity of broadcasting.

4. Conclusion

Media convergence provides a pathway for television program development and a channel for program innovation. Relevant personnel must properly apply television media technology, continuously develop television media technology, innovate radio programs, and make television programs increasingly popular and welcomed by people.

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