A Study on the Visual Presentation of Multimedia Technology in Television Arts Galas: Postprint

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Abstract

With the development of science and technology, the expressive forms of television arts galas have become increasingly diverse, with the visual presentation of programs offering a refreshing experience. This paper, taking multimedia technology as an example, first introduces commonly employed multimedia technologies in television arts galas, analyzes their characteristic advantages, summarizes their practical application effects, and outlines key considerations for their implementation, aiming to provide valuable reference for relevant work.

Full Text

Research on the Visual Presentation of Multimedia Technology in TV Art Galas

Abstract: With the development of science and technology, the forms of expression in television art galas have become increasingly diverse, offering audiences refreshing visual presentations. This paper examines multimedia technology as a case study, first introducing common multimedia technologies employed in television art galas, analyzing their characteristics and advantages, summarizing their practical application effects, and outlining key considerations for their implementation. It aims to provide valuable reference for relevant practitioners.

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The application of multimedia technology in television art galas represents an inevitable trend of our era, capable of satisfying the growing cultural demands of the masses. Drawing upon personal experience in directing and planning, this paper approaches the topic from a technical perspective, substantiating arguments with concrete examples to clarify the characteristics of multimedia technologies and facilitate their effective integration into television art galas.

1. Common Multimedia Technologies in TV Art Galas

Multimedia technology refers to the use of computers to edit, process, and manipulate media information, which encompasses not only traditional text and images but also animation, audio, and video.

1.1 LED Technology

Currently, LED technology is the most widely applied multimedia technology in domestic television art galas. Its core component is the LED screen, which consists of numerous LED video units connected in series via network cables to a controller, which in turn connects to a computer for direct control. Each LED video unit contains a chip that receives signals from the controller, while the controller itself houses two chips—one for transmitting signals to the LED units and another for receiving video signals from the computer—along with specialized playback software that manages the entire video playback process via computer control. LED screens effectively expand stage space, compensate for performance limitations, present richer content to audiences, and liberate viewer imagination. Overall, LED video units fall into three categories: color curtains, color bricks, and color crystals. The CCTV Spring Festival Gala achieved unprecedented success with its first use of color curtains, creating stunning stage effects and delivering an extraordinary audience experience. Compared to color curtains, color bricks offer waterproofing and impact resistance, enabling the creation of integrated imaging spaces, particularly for stage flooring. Color crystals are lighter and more flexible than color bricks, allowing them to be suspended above the stage and assembled into various configurations, with display refresh rates exceeding 700Hz to ensure image clarity. Nevertheless, LED screens remain merely a carrier for presenting program content; no amount of upgrading or modification should reverse this fundamental relationship or neglect the importance of the program itself. Therefore, when employing LED technology, it is essential to identify methods for seamlessly integrating imagery with performance according to the specific requirements of each gala.

1.2 Virtual Implant Technology

Virtual implant technology superimposes virtual elements onto real environments and displays them within the same frame. The process begins with sensors on cameras that calculate distances between the scene and equipment, then transmits the camera' s motion trajectory to an image processing center where

data and scenes are rendered and composited before the final signal is output. This technology enables seamless image integration, making programs more fluid and realistic. However, it has one significant drawback: live audience members cannot see the virtually implanted visual scenes; only television viewers can experience them.

In 2011, Hunan Satellite TV' s New Year' s Eve gala pioneered the use of virtual implant technology. Although it employed only simple neon lights and undulating cloud animations, the technique generated enthusiastic responses at the time. As the technology matured, Dragon TV, Zhejiang Satellite TV, and Jiangsu Satellite TV began applying it to various large-scale galas with excellent results. Simultaneously, virtual implant technology has increasingly focused on integration with program content and stage design, producing increasingly satisfactory combinations with reality [1].

1.3 Holographic Projection Technology

Holographic projection technology, which leverages the principles of light interference and diffraction to record and reproduce true three-dimensional images, represents a highly sophisticated technological achievement. It can present 360-degree stereoscopic imagery accessible to audiences from any viewing angle without compromising visual quality. Moreover, this technology produces vividly colored spatial imaging that can be appreciated by both television viewers and live audience members—a significant improvement over virtual implant technology. Most importantly, holographic projection enables performers to interact with generated illusions, creating visually compelling presentations that captivate audiences. In some respects, the technology resembles magic, capable of presenting different objects in rapid succession. In recent years, several galas have featured 隔空对唱 (remote duets), creating a sense of time-space traversal. These performances may involve singers dueting with other artists—for instance, Li Zongsheng and Lin Yilian performing "When Love Becomes a Thing of the Past," or Fei Yuqing dueting with Teresa Teng on "Wishing We Last Forever" —or artists performing with their younger selves, such as Liu Ruoying singing "Later" alongside her past self.

1.4 3D Restoration Technology

3D restoration technology is rarely employed in television art galas. Although capable of producing 3D stereoscopic images, it must rely on virtual implant technology, meaning the imagery is visible only to television audiences. This technology demands extremely high technical expertise that ordinary production teams cannot guarantee. Furthermore, creating three-dimensional animations of real people is exceptionally complex, particularly in capturing subtle details such as facial expressions and movement amplitude. During viewing, audiences inevitably compare 3D-restored human figures with live performers, making technical flaws readily apparent [2].

2. Application Effects of Multimedia Technology in TV Art Galas

Drawing from a decade of experience in orchestrating and producing the "Spring Melody" cross-border Spring Festival Gala, serving as television director for the Nanning regional competitions of "Super Boy," "Super Girl," and "Flowers in Bloom," and acting as chief planner for the "Nanning Children' s Spring Festival Gala,"this analysis uses the "Spring Melody"gala as a case study to share valuable insights and enhance understanding of multimedia technology' s application effects in television art galas. The "Spring Melody" cross-border Spring Festival Gala represents a key cultural exchange brand for Nanning, Guangxi. From 2007 to 2017, it was successfully held for ten consecutive editions, establishing both a transnational celebration platform for welcoming the New Year and an exchange mechanism for promoting outstanding Chinese culture abroad while introducing excellent foreign cultures domestically. The 2017 edition, themed "Ten Years," was jointly produced by Nanning Television with eight overseas and four domestic media partners, featuring over 320 performers including more than 150 international artists. Using stories of friendly exchanges between China and other countries along the "Belt and Road" as its narrative vehicle and connecting the entire gala through the format of "preparing a New Year' s Eve dinner together on-site," the program presented 29 performances across four chapters— "Gathering Emotion," "Gathering Righteousness," "Gathering Wholeness," and "Gathering Beauty" —showcasing a cultural fusion sentiment of "Chinese culture as the root, embracing the whole world" and delivering a visual feast with intellectual depth, artistic height, and emotional warmth to audiences at home and abroad. Despite objective limitations that prevented the use of holographic technology for stage design or 3D restoration for program shaping, the unremitting efforts of directors, screenwriters, and staff—combined with the improvisational skills of hosts and performers—still delivered a spectacular audio-visual feast. In particular, the application of multimedia technologies such as mirror reflection and CG animation, complemented by LED screens and color curtains, created a more lively and cheerful atmosphere. Performers' passionate presentations bridged the distance with audiences, while multimedia technology played a precisely calibrated supporting role rather than overshadowing the performances, weaving an invisible network that intimately connected audiences, performers, and the stage.

2.1 Creating Atmosphere

In traditional television art galas, the limited performance space often necessitated relying on actors' monologues or off-stage narration for temporal and spatial transitions in programs with substantial narrative or lyrical content, rarely achieving satisfactory results. Multimedia technology effectively resolves this issue by creating virtual spaces that enable seamless scene transitions. The combination of virtual and real elements produces vivid effects that not only 震撼观众心灵 (shock audiences) but also liberate their imagination, transforming

them from passive followers of plot development into active explorers engaged in reasonable associations. In this sense, multimedia technology elevates the audience' s role, enabling participation in performances and generating resonance with performers. For example, in the 2017 cross-border Spring Festival Gala' s tenth anniversary, the first chapter "Gathering Emotion" featured the program "Harmonious Auspiciousness" [Figure 1: see original paper], performed jointly by Chinese and Filipino children' s choirs expressing the unity of global Chinese communities and conveying familial affection, friendship, and universal love accumulated over the decade. This program demonstrated conspicuous multimedia application, with LED screens first presenting scenes of Sino-Philippine leader exchanges and meetings, followed by iconic landscapes and architectural landmarks from both countries. These highly realistic images, combining dynamic and static elements, effectively mobilized audience emotions. For instance, the presentation of famous scenic spots employed photo-layering stereoscopic display technology, creating an immersive experience for viewers.

2.2 Enriching Content

Although television art galas maintain relatively traditional performance forms, their enduring vitality and continuous renewal are inseparable from multimedia technology applications. The integration of traditional Chinese cultural elements with multimedia technology significantly enriches gala content while maintaining contemporary relevance [3]. The 2017 cross-border Spring Festival Gala' s tenth anniversary featured predominantly song and dance performances, including ethnic dances, instrumental music, acrobatics, opera, and martial arts demonstrations, interspersed with traditional New Year customs [Figure 2: see original paper] that were seamlessly fused with multimedia elements. Additionally, some programs incorporated Silk Road content to highlight the "Belt and Road"spirit, with LED screens displaying scenes of "deserts"and "Dunhuang"that prompted historical reflection while looking toward the future. In past galas, audiences rarely engaged in historical contemplation, primarily seeking sensory enjoyment without considering program connotations or meanings, leaving only superficial impressions without deeper investigation. Consequently, programs failed to leave lasting impressions after performances concluded. Through multimedia technology applications, program content becomes enriched, bridging the distance between audiences and performers, enabling viewers to discern program themes beneath surface-level presentation and connect them with real-life experiences. Multimedia technology also renders performances more vivid and expressive. In essence, achieving perfect fusion between multimedia technology and television art gala programs requires starting from content itself to uncover the program' s true essence, thereby elevating thematic expression.

2.3 Transforming Style

The application of multimedia technology diversifies television art gala styles and introduces novel forms that deliver refreshing experiences to audiences, par-

ticularly through the alternating interplay of virtual and real temporal-spatial dimensions that captivate viewers. To a certain extent, multimedia technology imbues television art programs with dynamic-static integration characteristics and poetic qualities that enchant audiences. The 2017 cross-border Spring Festival Gala' s tenth anniversary featured numerous programs showcasing exotic styles [Figure 3: see original paper] that contained substantial technological elements, creating more distinctive styles compared to traditional programs that could captivate audiences and leave lasting impressions [4]. In the contemporary era, audiences increasingly prioritize sensory enjoyment and gravitate toward novel and unique programs featuring vibrant colors, exaggerated movements, and lively atmospheres. Therefore, multimedia technology applications can enhance gala quality and create distinctive, refreshing styles. When audiences experience aesthetic fatigue, altering visual styles can rekindle interest, and multimedia technology enables flexible switching between different styles unrestricted by temporal or spatial limitations, allowing the fusion of northern China' s icy landscapes with southern riverine spring scenes—a manifestation of innovative spirit. Furthermore, China's extensive cultural heritage provides rich material for multimedia technology applications, establishing a solid foundation for style transformation in television art galas.

3. Considerations for Applying Multimedia Technology in TV Art Galas

Despite undeniable rapid advancements in multimedia technology that have enriched gala content, improper or excessive use may produce counterproductive effects. As public expectations for art galas continue declining and their survival space increasingly constricts, careful attention to multimedia technology application becomes imperative.

The first consideration involves avoiding over-reliance on multimedia technology. Many television art galas currently overuse multimedia technology during production, neglecting program content and quality, resulting in visual spectacles comparable to fireworks displays that prevent audiences from grasping program essentials. Such excessive application leaves viewers feeling confused and disoriented. For instance, some dance programs showcase ethnic customs through overly dazzling visuals that overwhelm audiences, while their representation of ethnic characteristics suffers from superficial emphasis on form over content transmission. Additionally, some audience members with lower educational backgrounds or limited exposure to relevant cultural knowledge may feel completely lost during viewing. Therefore, multimedia technology applications must remain within reasonable bounds; only moderate application can leverage technological advantages, as excessive ornamentation fails to provide substantive nourishment. The fundamental approach requires prioritizing program content as the main body while employing multimedia technology as a supporting tool to achieve perfect harmony.

The second consideration concerns the stringent equipment and system require-

ments of multimedia technology. Only video control systems with robust processing capabilities and reliable stability can fully exploit multimedia technology' s advantages; otherwise, image aesthetics suffer and visual harmony is compromised. Currently, many large-scale events and galas utilize LED screens while neglecting technical support and backup systems. Under such circumstances, any link failure can adversely affect the entire gala, particularly issues like image stuttering or audio distortion that severely impact audience experience and diminish program effectiveness. For television art galas featuring numerous programs, directors face arduous coordination and sequencing challenges requiring consideration of each program' s duration and order from a holistic perspective, demanding flawless multimedia technology operation to avoid disrupting overall gala planning and arrangement [5].

In conclusion, multimedia technology has transformed artistic expression methods and enriched artistic spiritual connotations. In this new era, television professionals—particularly directors—must transform traditional thinking patterns, embrace bold innovation, and keep pace with the times to organically integrate technology with art, thereby satisfying audience demands.

References

[1] Fu Jinwen. Exploring New Trends in Visual Presentation of Television Theme Galas—A Case Study of the 2014 "Southern Chinese Charity Ceremony" [J]. Southern Television Journal, 2015(4): 106-108.
[2] Liu Xin. "Happy Growth" —Visual Presentation of the 2016 Children' s Day Gala [J]. Modern Television Technology, 2016(6): 102-103.
[3] Wang Deyue. Research on Television Variety Gala Planning in the "Internet Plus" Era [D]. Harbin: Harbin Normal University, 2016.
[4] Zhao Dongyu. The Role of Fixed Shots in Mainstream Galas [J]. Television Guide, 2018(4): 210.
[5] Lu Shuangfeng. Reflections on Issues Television Art Gala Directors Should Address [J]. Radio & TV Journal, 2018(11): 45-46.

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