

Research on Non-linear Editing Production in Television Program Post-production in the New Era (Postprint)

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Abstract

With societal development, audiences have increasingly higher demands for television program quality. In recent years, non-linear editing technology has been widely applied in television program post-production; through relevant software and special effects, it renders program editing and production more convenient and straightforward while enhancing overall quality. Furthermore, this technology effectively reduces production costs and minimizes labor requirements. This paper briefly introduces methods for employing non-linear editing technology in television program post-production within the digital era, aiming to further elevate program production quality.

Full Text

Research on Non-linear Editing in Television Program Post-Production in the New Era

Abstract: With social development, audiences have placed higher demands on television program quality. In recent years, non-linear editing technology has been widely applied in television program post-production. Through relevant software and special effects, television program editing has become more convenient and simple, yielding better program quality. Simultaneously, this technology can effectively save editing costs and reduce manpower investment. This paper briefly introduces the methods of applying non-linear editing technology in television program post-production in the digital age, aiming to further improve television program production quality.

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In the 21st century, digital technology has rapidly developed and been widely applied, greatly promoting social progress. In the television field, digital technology has gradually replaced traditional analog technology and found extensive application. Among these developments, the application of non-linear editing technology in television program post-production has achieved the organic integration of television program production and digital technology. Through this technology, the quality of television program post-production has been greatly improved, enabling the perfect integration of numerous materials while shortening production time and making programs more vivid and engaging.

1. Overview of Non-linear Editing

Non-linear editing technology is a process that converts various analog materials through A/D (analog-to-digital) conversion, stores them on hard drives, and then uses computer software (such as After Effects, Premiere) to complete audio and video editing, injection, and synthesis of images and special effects, finally storing the compiled results on computer hard drives, tapes, video cassettes, and other recording devices [1]. A non-linear editing system includes computers, non-linear editing software, and various plug-ins. Its emergence has changed traditional material storage methods, transforming material selection from linear to non-linear. Throughout the non-linear editing process, computer software can greatly improve the audio-visual effects of television programs, and more importantly, enables temporal rearrangement of different materials, making video editing more flexible and free. Overall, non-linear editing offers the following advantages.

1.1 High-Quality Image Signals

Television program post-production non-linear editing technology represents an important branch of modern digital technology, improving both the convenience and quality of material processing. Material processing involves setting in and out points for materials during program production, selecting the best parts, removing unnecessary shots, and combining various materials. In traditional post-production, materials were often used multiple times, and material signals were easily interfered with, irreversibly reducing video quality and ultimately resulting in poor programs. Non-linear editing technology uses digital signals, and no matter how many times these materials are edited, the material quality suffers no degradation. Therefore, programs produced using non-linear editing exhibit superior quality.

1.2 Higher Editing Efficiency

In traditional television program post-production, editing materials generally required various equipment such as cameras and typewriters, and a considerable

amount of time was needed to complete material searches before using these devices. This approach not only wasted significant time but also suffered from low efficiency. Non-linear editing production uses computer software to complete material editing, making material search more accurate and rapid. Meanwhile, the built-in parallel storage method can organize searched materials, facilitating modification and trimming. During non-linear editing production, flexible and varied subtitle effects can be applied, simplifying traditional linear editing workflows. Consequently, television program video editing efficiency is substantially higher.

1.3 Perfect Integration of Audio and Video

Through the import of sound effect controllers and balanced audio, non-linear editing systems can modify sound files in a timely manner, thereby ensuring perfect synchronization between audio and video files and enhancing the video effects of television programs.

1.4 Cost Savings in Television Program Post-Production

Using non-linear editing technology can greatly save video editing costs because typically only computers, download devices, and relevant software are needed to complete the entire operation. Additionally, this technology has high openness and can support multiple software applications, effectively reducing editing costs.

2. Application of Non-linear Editing Technology in Television Program Post-Production

Currently, non-linear editing technology remains a relatively advanced and convenient technology in television program post-production. In addition to enabling arbitrary combination of video materials, it also facilitates later modifications. The specific applications are manifested in the following aspects.

2.1 Material Processing

First, during program recording, there are often instances of noise or silence that require overlaying with audio files to eliminate noise and ensure sound quality [2]. Additionally, during material processing, sound effects can be added as needed, such as natural sound effects and background sound effects, to create a better atmosphere and achieve ideal artistic effects. Second, technicians must handle the integration of sound effects and backgrounds, using various artistic processing methods to improve post-production efficiency. Finally, to achieve desired effects, relevant videos and images can be deleted or inserted, video sequences can be adjusted, or playback speed can be increased or decreased. For example, when editing fight scenes, technicians can appropriately increase playback speed to highlight the tense atmosphere on site while inserting exciting

music to create atmosphere. When editing historical theme materials, long shots, aerial shots, and slow-motion shots should be used to enhance the sense of history and vicissitude.

2.2 Shot Assembly

Shot assembly constitutes an important part of television program post-production. In non-linear editing systems, various shots can be randomly and rapidly called and assembled in different sequences, achieving frame-accurate editing of materials through timecode editing. Simultaneously, manual editing can be performed based on the frames before and after edit points to adjust material length. Staff must possess professional knowledge of shots and use montage techniques or special effects to assemble shots. Whether conducting video editing or using the above techniques, it must be ensured that the entire program does not violate the laws of development and meets public aesthetic requirements. Each piece of material serves as an assembly point, and effective combination of these assembly points can achieve the desired program effect. In actual compilation, staff should strictly follow chronological order to grasp all materials and complete plot editing of each shot according to logic, ensuring clear plot presentation and correct logic. It should be noted that exaggeration is allowed in television program production, but this does not mean violating life laws, as this would fail to meet public aesthetic requirements. Additionally, non-linear editing can complete the three steps of initial editing, semi-fine editing, and fine editing at once, making television program production more flexible and convenient.

2.3 Proper Use of Transition Shots

Material assembly is a crucial aspect of television program post-production editing. To ensure smooth shot transitions, transition shots should be properly applied. First, all editing during shot switching must strictly follow the principle of “combining motion and stillness, motion to motion, stillness to stillness” to ensure that the same person does not have different actions at the same time and place. Second, learn to comprehensively use transition shots with appropriate editing to make shot transitions smoother [3]. For example, when a program needs to describe the process of a small sapling gradually growing into a towering tree, it would require extensive tracking shots, which is extremely unrealistic. In this case, a fast shot of sunrise and sunset with alternating seasons can be inserted between the sapling and the mature tree to reflect the passage of time and make the development smoother and more reasonable.

2.4 Subtitle Production

Subtitles help the audience better understand what protagonists express in television programs. Subtitle production includes two types: hardware production and software production, mainly combining video images with subtitles to create different forms such as scrolling bottom lines and moving pictures. Generally,

software subtitle production takes longer, while hardware subtitle production takes less time. Software subtitles use special effects keying processing and thus take longer, while hardware subtitles facilitate real-time observation of subtitle and image overlay effects; both rely on support from high-end dual-channel video hardware in non-linear editing systems. After subtitle production, they can be broadcast directly or saved in subtitle documents for future use [4]. With the use of non-linear editing technology, subtitle styles, fonts, and special effects have become more colorful, greatly enhancing program interest and enriching television content.

2.5 Special Effects Production

Not every scene in television programs exists in reality. Through non-linear editing technology, two-dimensional and three-dimensional special effects can be obtained, such as falling, flying, background distortion, and other effects [5]. In addition to using shot special effects, non-linear editing systems can also complete image special effects. For example, when characters begin to recall, using non-linear editing technology to process these images into black and white can add a warm tone plus some heart-gripping commentary, quickly bringing the audience before the television into that specific historical period. The addition of special effects can increase picture vitality while also enhancing its appeal. Furthermore, this special effects function can be applied to subtitle processing, using two 2D DVEs to simultaneously process RGB and ALPHA frames to obtain better three-dimensional subtitle effects while improving subtitle processing efficiency and increasing subtitle types.

2.6 Proper Use of Synchronous Sound and Capture Input

Generally, during video production for film and performance programs, dubbing is completed in post-production. However, for some television programs, using synchronous sound can better enhance the appeal of program content and leave a deeper impression on the audience. Synchronous sound refers to the process in film and television drama shooting where actors record while filming, rather than completing dubbing in a recording studio during post-production. In non-linear editing systems, video capture mainly refers to the stage of converting graphic signals into data signals for data processing, and then completing the capture of these data signals. The captured signals become the materials for television program processing.

In summary, multimedia technology and computer technology have been widely applied in the digital age. With the rapid development of radio and television, non-linear editing technology has also been widely applied in television program production, especially in post-production, greatly improving program quality. Simultaneously, compared with traditional linear editing, non-linear editing technology offers advantages such as lower cost, better quality, and higher efficiency. It is believed that this technology will receive wider acceptance and recognition. Therefore, technicians should emphasize learning this

technology, apply it reasonably to television program post-production, create more perfect picture effects, and allow audiences to see higher-quality television programs.

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