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Analysis of the Effect of Digital Color Grading Techniques on Aesthetic Perception and Emotional Response in a Short Rice Farming Video

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ABSTRACT

Digital color grading is a post-production technique used to adjust hue, saturation, luminance, and color temperature to enhance visual mood, aesthetic appeal, and emotional expression. In agricultural-themed videos, color adjustments significantly influence how audiences perceive naturalness, warmth, authenticity, and emotional closeness to rural environments. This study aims to examine the influence of three digital color grading techniques—warm tone, cool tone, and neutral tone—on viewers' aesthetic perception, emotional response, visual comfort, and thematic suitability when watching a two-minute video of rice-field activities. An experimental design was employed, involving 30 respondents who evaluated three graded versions using a 5-point Likert questionnaire. The analysis relied solely on descriptive statistics, including mean, standard deviation, and frequency distribution, to identify perceptual tendencies across tone variations. The findings indicate that warm tone tends to improve aesthetic judgment and emotional positivity, while neutral tone contributes to higher visual comfort due to its natural appearance. Cool tone, although perceived as calm and professional, shows lower emotional engagement in this context. These results align with previous Indonesian multimedia studies emphasizing the role of color tone in shaping viewer interpretation of documentary and thematic video content. This research contributes practical insights for multimedia practitioners, educators, and content creators working with agricultural visual materials. The outcomes may guide color grading decisions for rural documentaries, educational videos, or promotional media by highlighting how tone selection influences viewer perception.

INTRODUCTION

Digital color grading has become an essential phase in contemporary video production. Beyond technical correction, color grading is responsible for shaping narrative tone, emotional atmosphere, and the overall visual experience perceived by the audience. The growing integration of digital post-production tools such as DaVinci Resolve further strengthens this role, enabling precise control of hue, luminance, and contrast to achieve consistent aesthetic output (Wei, 2024). In agricultural-based visual media, color authenticity plays a key role in shaping how audiences interpret natural objects, suggesting that color grading techniques can directly influence perception and engagement (Sivaranjani et al., 2022).

Rice farming visuals commonly feature a palette of greens, yellows, and earthy tones. These colors are highly responsive to digital manipulation, making agricultural footage an ideal subject for color grading analysis. Recent Indonesian studies in visual communication and design psychology indicate that natural color compositions tend to evoke emotional warmth, familiarity, and comfort among local audiences (Ramadan Munthe et al., 2025; Wicaksana et al., 2024).

Previous studies indicate that tonal adjustments influence narrative mood, aesthetic appeal, and viewer comfort in video-based and documentary-style media. Research in television and film production further explains that visual tone decisions—including color choices—directly shape audience perception and emotional interpretation of scenes (Waliulu et al., 2024). International studies also highlight the role of tone mapping and color transformation in visual perception and image quality enhancement (Reinhard et al., 2023). Similar findings in Indonesian visual research emphasize that color selection plays a crucial role in shaping audience perception and emotional response across digital media formats (Wicaksana et al., 2024).

However, empirical studies specifically examining color grading effects on agricultural-focused video content remain limited, particularly within Indonesian multimedia research. Therefore, this study aims to investigate how variations in warm, cool, and neutral grading styles influence viewers' aesthetic perception, emotional response, visual comfort, and thematic suitability.

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LITERATURE REVIEW

Digital color grading is a post-production process that involves both corrective and creative adjustments to enhance the visual mood and stylistic expression of video content. This process includes the manipulation of color attributes such as hue, saturation, luminance, white balance, and color temperature to produce the desired aesthetic appearance (Hartanto , syafrizal A, 2025). DaVinci Resolve serves as a professional-grade platform for digital color grading, facilitating detailed adjustment of tonal curves, color temperature, and luminance to achieve consistent visual aesthetics (Wei, 2024).

In the Indonesian context, digital color grading has been widely applied in film production, documentaries, and online video content. Studies indicate that color grading enhances visual professionalism, narrative depth, and the overall visual quality of multimedia products (Rohman et al., 2024). Proper color tone management also guides audience attention and strengthens narrative messages within multimedia presentations, confirming color as an essential component in visual communication (Sindu et al., 2024).

Color plays a crucial role in shaping aesthetic perception. Visual harmony, contrast balance, and color consistency influence how viewers perceive beauty and visual appeal in digital media (Palmer et al., 2013). In agricultural and nature-based visuals, maintaining natural color representation increases authenticity and supports visual comfort (Palmer et al., 2013; Pamungkas et al., 2025).

From a psychological perspective, color is associated with emotional response. Warm colors such as yellow and orange evoke warmth, familiarity, and positive energy, whereas cool tones like blue and green create a sense of calmness, neutrality, or emotional distance (Elliot & Maier, 2014; Solehah et al., 2025). Emotional-media studies further show that color tone variations influence audience engagement, affective interpretation, and mood perception (Wang et al., 2023).

Research in natural media contexts highlights the importance of selecting appropriate color tones. Natural and balanced color representation enhances perceptual coherence, immersion, and long-term comfort during scene observation (Reinhard et al., 2023). Principles of visual perception also state that harmonious tone selection reduces visual fatigue in nature-based content (Yasa et al., 2024).

Although prior research has discussed color grading in general video and cinematography contexts, empirical studies focused specifically on agricultural short video perception remain limited. This research addresses that gap by examining how warm, cool, and neutral digital color grading influences aesthetic perception, emotional response, visual comfort, and thematic suitability in rice field–based video content.

METHOD

This study employed a simple experimental approach to examine the effect of digital color grading techniques on viewer perception. The research object was a two-minute short video with a rice farming theme, which was processed into three versions using different color grading styles, namely warm tone, cool tone, and neutral tone. All respondents evaluated each video version using the same questionnaire, enabling a direct comparison of perceptions across color grading conditions.

The base video was recorded in a rice field using a drone camera with Full HD (1080p) resolution under natural lighting conditions. Post-production was conducted using DaVinci Resolve. The warm tone version was produced by increasing color temperature and enhancing yellow–orange hues in the mid-tones. The cool tone version was created by reducing color temperature and emphasizing blue and green color channels. The neutral tone version applied minimal color correction to preserve natural color appearance. All versions were derived from the same footage to ensure that perceptual differences were solely influenced by color grading variations.

Figure 1. Warm tone with increased color temperature and enhanced yellow–orange mid-tones.

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Figure 2. Cool tone with reduced color temperature and emphasized blue–green hues.

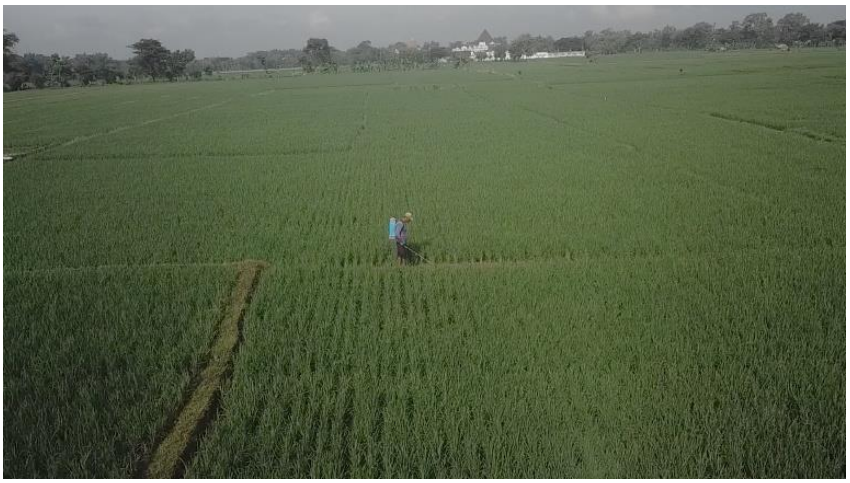

Figure 3. Neutral tone with minimal color correction preserving natural colors.

The participants consisted of 30 respondents aged 18–45 years representing general audiences. Data were collected using a five-point Likert-scale questionnaire measuring four variables: visual aesthetics, emotional response, visual comfort, and thematic suitability. The questionnaire indicators were adapted from established studies on visual aesthetics and visual perception (Elliot & Maier, 2014; Palmer et al., 2013). Data analysis was performed using descriptive statistics, including mean values, standard deviation, and frequency distribution, which are appropriate for exploratory perception-based studies with limited sample sizes (Calvo & Lang, 2004)

RESULT

The data collected from 30 respondents indicate consistent perception patterns across the evaluated variables and color grading conditions. Each respondent assessed all three video versions (warm, cool, neutral) using the same Likert-scale instrument described in the methodology section, allowing direct comparison of perceptual responses generated by each grading approach.

Descriptive statistics were used to summarize viewer responses, focusing on mean values to identify perceptual tendencies across four assessment variables: visual aesthetics (V1), emotional response (V2), visual comfort (V3), and thematic suitability (V4). The use of descriptive analysis aligns with the methodological framework previously described, which aims to explore perceptual differences without inferential comparison.

Table 1. Mean Scores of Viewer Perception for Warm Tone

Variable	Mean
Visual Aesthetics (V1)	4.53
Emotional Response (V2)	4.43
Visual Comfort (V3)	4.13
Thematic Suitability (V4)	4.73

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Warm tone demonstrated the highest performance among the three grading styles. Because the method applied higher color temperature and reinforced yellow–orange hues during post-production, viewers perceived the warm version as visually appealing (M=4.53) and emotionally engaging (M=4.43). This aligns with the theoretical expectation in the methodology that warm tones enhance positive emotional cues. The highest score in thematic suitability (M=4.73) suggests that the chosen grading matches agricultural visual characteristics.

Table 2. Mean Scores of Viewer Perception for Cool Tone

Variable	Mean
Visual Aesthetics (V1)	3.20
Emotional Response (V2)	3.17
Visual Comfort (V3)	3.47
Thematic Suitability (V4)	3.53

Cool tone, created by reducing color temperature and strengthening blue–green channels as described in the method section, received lower perception scores. Although the tone produced a calm and professional atmosphere, respondents rated it lower in aesthetics and emotional engagement. The mean values indicate that viewers perceived cool grading as less harmonious with rice-field visuals.

Table 3. Mean Scores of Viewer Perception for Neutral Tone

Variable	Mean
Visual Aesthetics (V1)	3.70
Emotional Response (V2)	3.63
Visual Comfort (V3)	4.37
Thematic Suitability (V4)	4.30

Neutral tone, which received minimal color manipulation during post-production, produced a balanced perceptual response. As predicted in the methodological design, natural color preservation resulted in high viewer comfort (M=4.37) and good thematic suitability (M=4.30), reinforcing assumptions that authenticity in color benefits agricultural visuals.

Overall, the results reveal clear perceptual differences among the three color grading techniques. Warm tone tends to enhance aesthetic quality, emotional response, and thematic relevance, whereas neutral tone provides the highest level of visual comfort. Cool tone, although visually calm, yields comparatively lower scores in aesthetic and emotional dimensions.

DISCUSSION

Warm tone consistently produced higher scores in aesthetic judgment and emotional response. This finding aligns with psychological color theory, which suggests that warm color palettes are associated with positive affect, emotional closeness, and familiarity (Elliot & Maier, 2014; Handayani et al., 2025). Warm tone also enhanced thematic suitability, likely because yellow–orange hues visually harmonize with rice-field environments that are commonly associated with sunlight, harvest, and natural warmth.

Neutral tone was rated highest for visual comfort, indicating that color representations close to natural appearance are perceived as more comfortable during viewing. This result supports visual aesthetics research suggesting that balanced and natural color representation enhances perceptual coherence and viewer comfort, particularly in nature-based visual content (Palmer et al., 2013; Reinhard et al., 2023).

In contrast, cool tone obtained lower scores in emotional response and aesthetic appeal. Although cool color palettes are often associated with professionalism and formality, they may appear less suitable in agricultural contexts that are visually dominated by warm and earthy colors. This mismatch between color tone and environmental context may reduce emotional engagement and perceived naturalness.

Overall, these findings confirm that digital color grading plays a meaningful role in shaping audience perception in agricultural video narratives, influencing not only aesthetic evaluation but also emotional response, visual comfort, and perceived thematic suitability.

CONCLUSION

Digital color grading significantly influences viewer perception in agricultural-themed videos. Warm tone enhances aesthetic appeal and emotional closeness; neutral tone improves comfort and naturalness; cool tone offers calmness but may decrease emotional engagement in rural contexts. These findings provide practical guidelines for multimedia creators to select tone styles based on communication goals.

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