

Color palette analysis on popular promotional images and their effectiveness

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Abstract :

This analysis reveals distinct color palette patterns across different poster genres, confirming that color usage in popular posters is not arbitrary but follows genre-specific conventions. The identification of prominent color groups within each genre Action and Adventure, Comedy, Drama and Romance, Family, Horror, Non-fiction and Unscripted, Sci-Fi & Fantasy, and Thriller and Suspense demonstrates a systematic approach to visual communication in poster design that aligns with audience expectations and emotional objectives. The results show an gradual change in colors as we move form various genera and movie types indicating the effect of different colors on the viewer's conscious

Key words : color's, color palette, posters analysis, color patterns, genera wise colors

1. Introduction :

Posters are fascinating and powerful they are used in various things, such as for visual communication and designed to convey a message quickly and memorably to a broad audience. Among the designer's primary tools - typography, imagery, and composition and color is arguably the most immediate and emotionally resonant (Elliot & Maier, 2014). The elaborated selection of a color palette is not merely an aesthetic choice but a critical decision that can significantly influence a viewer's perception, emotional response, cognitive thoughts and subsequent behavior. This analysis aims to analyze the colors used in different types of promotional images to rule out an common pattern of colors used across various genres. It will cover palette analysis of colors and their impact of on a viewer, this paper could be used to get an insight on the principles of poster design, and the moderating role of color.

2. Literature Review :

2.1 Color Psychology and Perception

Elliot and Maier (2014) developed the Color-in-Context theory, suggesting that color effects depend on the psychological context in which they are perceived. Their research demonstrates that colors carry different meanings across different contexts, influencing cognitive performance and behavior differently in achievement versus relational contexts.

Labrecque and Milne (2012) explored how color influences brand personality and purchasing intentions, finding that specific color dimensions (hue, saturation, and value) trigger distinct psychological responses. Their work establishes that warm colors generally evoke excitement and energy, while cool colors promote calmness and trust.

2.2 Emotional Response and Engagement

Gorn et al. (1997) conducted pioneering research on how color affects emotions and attitudes in advertising. They demonstrated that color's effects on feelings are partially automatic and can occur without conscious awareness, making color choice critical in poster design for emotional impact.

Singh (2006) revealed that people make subconscious judgments about products within 90 seconds of initial viewing, and up to 90% of that assessment is based on color alone. This finding underscores color's importance in poster effectiveness, where viewing time is often limited.

2.3 Movie and Entertainment Posters

Kaya and Epps (2004) studied color-emotion associations, finding that green evokes calmness and nature, red stimulates excitement and urgency, while black can convey sophistication or mystery. These findings have been widely applied in movie poster design to convey genre and mood.

Song et al. (2018) analyzed color patterns in successful movie posters, identifying that action films predominantly use orange-blue complementary schemes, while horror films employ dark, desaturated palettes with red accents for emotional impact.

3. Method :

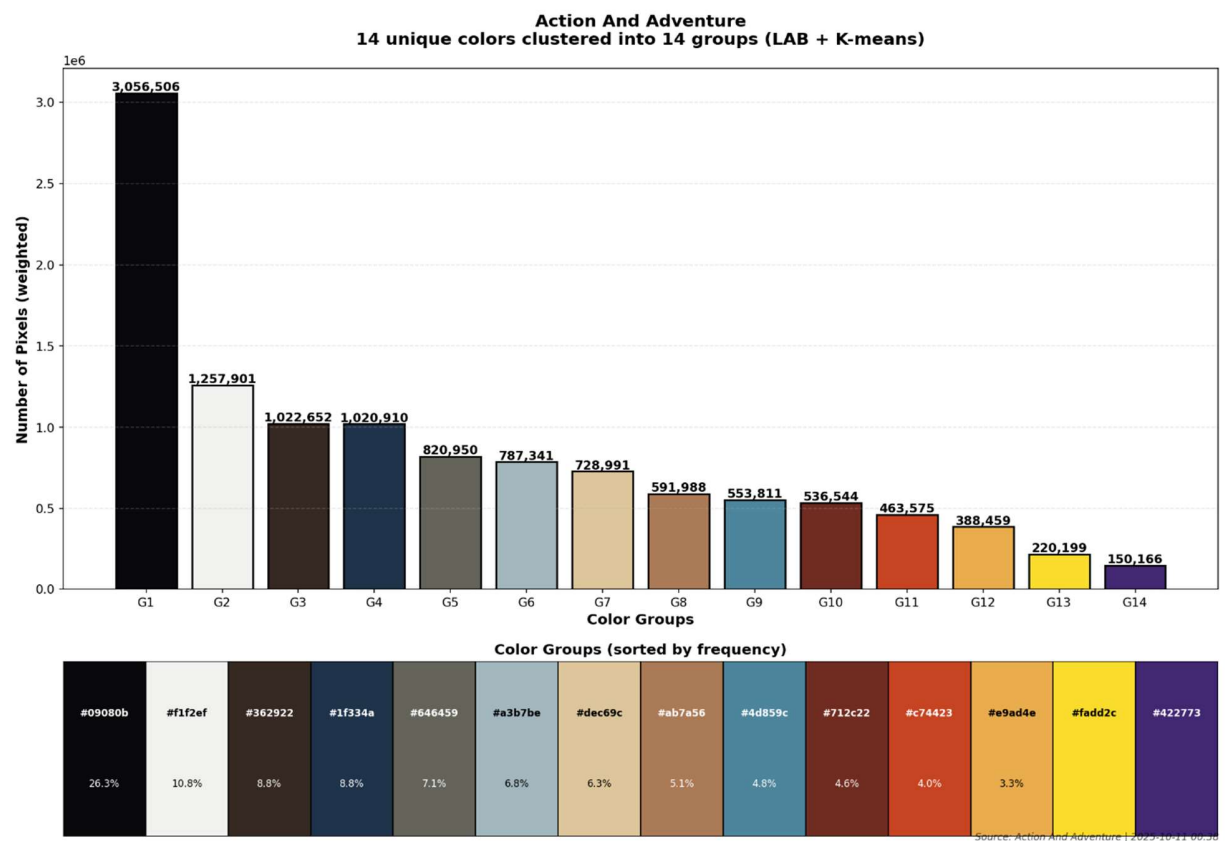
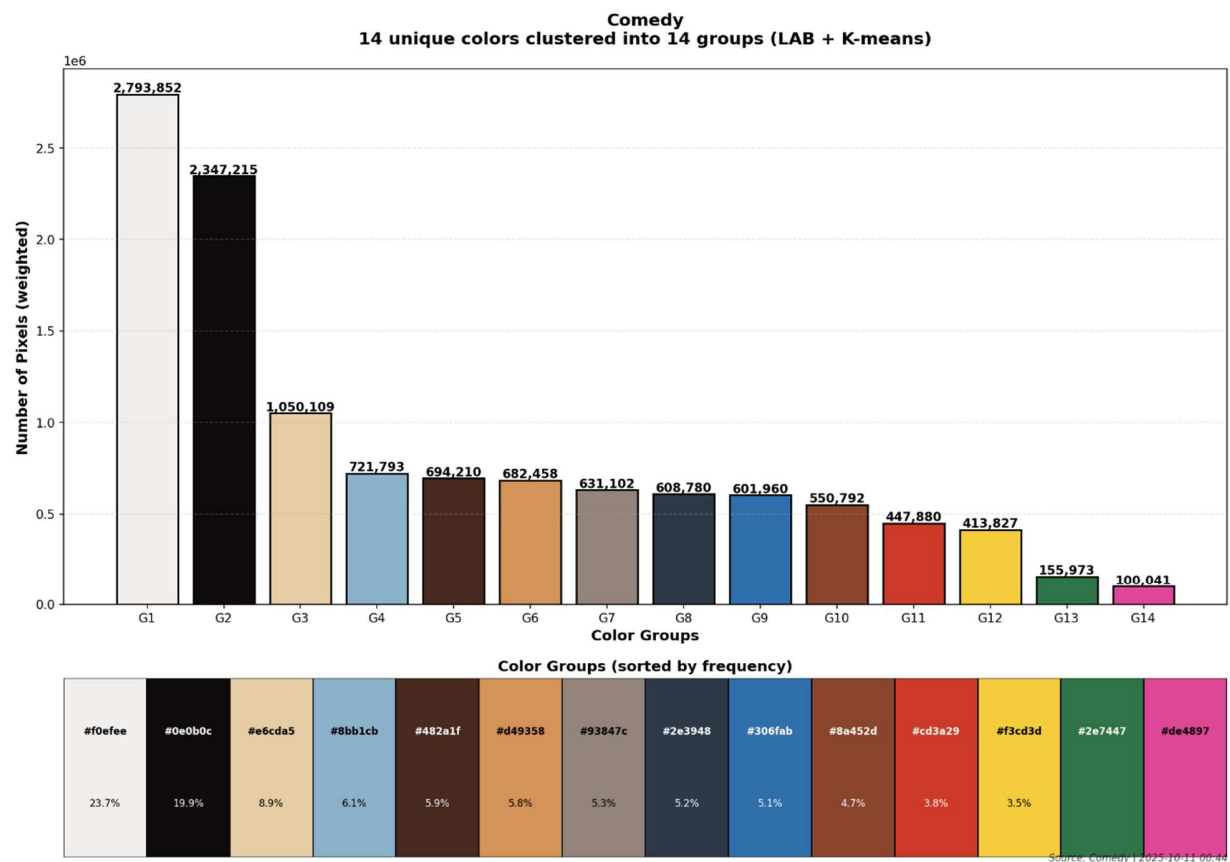
3.1 Data Collection

The most popular movie / tv show / anime posters have been taken from the movie database for the color palette analysis, ~ 60 posters from each genera. These movies have been selected with respect to their box office collection and the views in addition to this their IMDb rating have also been considered. In total there are 445 posters which have been divided into 8 main genera's which are : Action and adventure, Comedy, Drama and romance, Family, horror, Non-fiction And Unscripted, Sci-Fi & Fantasy, Thriller and Suspense

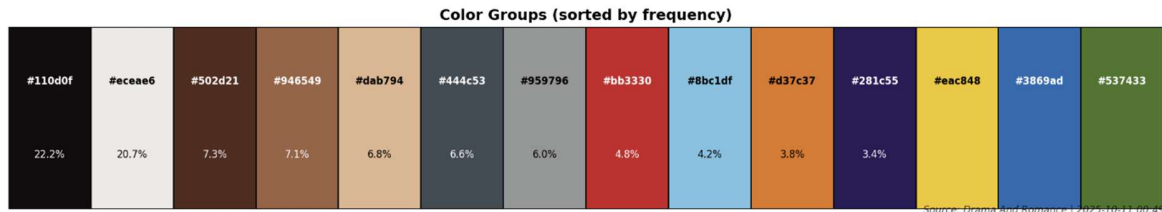
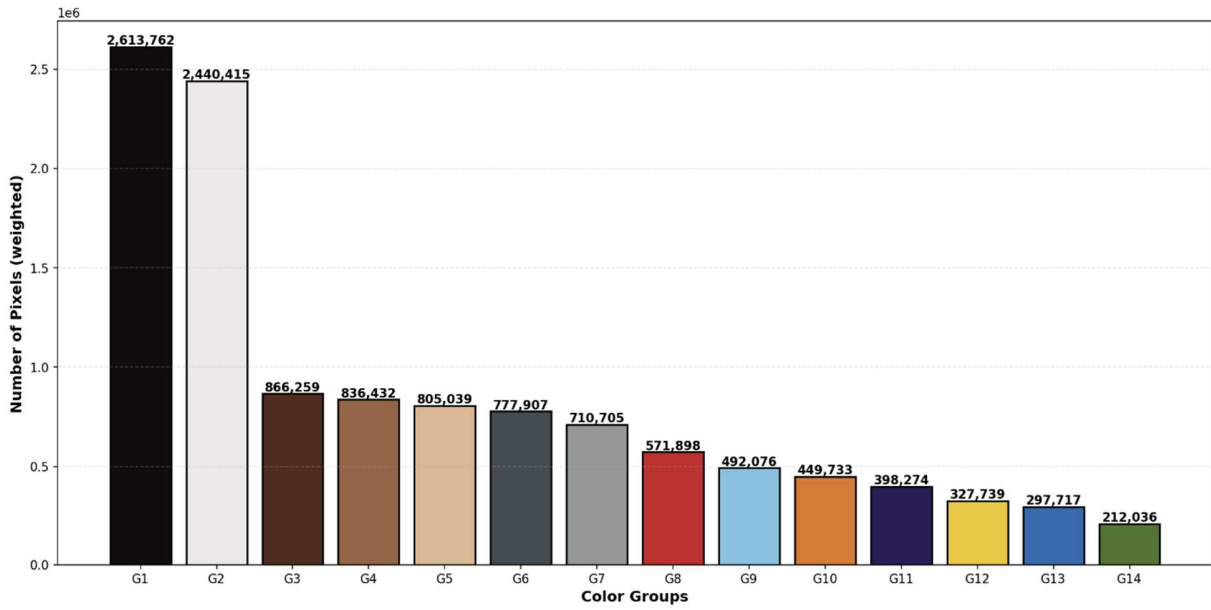
3.2 Analysis

From each image / poster a sample of 100,000 pixels had been taken which are clustered into 14 unique color groups, the characters of the colors are taken in accordance to their CIE LAB color value, the individual points have been clustered into 14 major groups by K-means Clustering with a max limit of 10,000,000 pixels per observation. The observed results are depicted with the help of a histogram, using number of pixels to rank the frequency of the similar colors (LAB colors) furthermore there is a table indicating the percentage abundance of the respective groups from the selected pixels / observation.

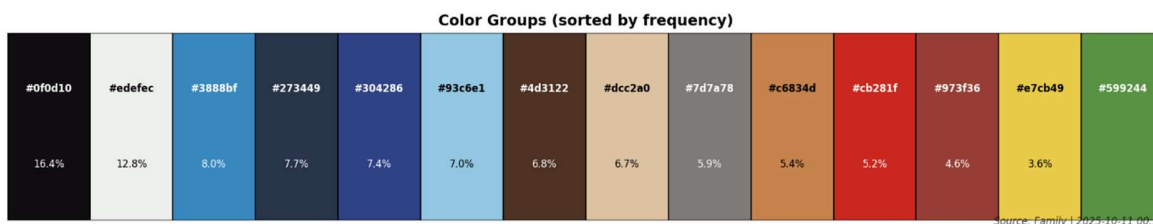
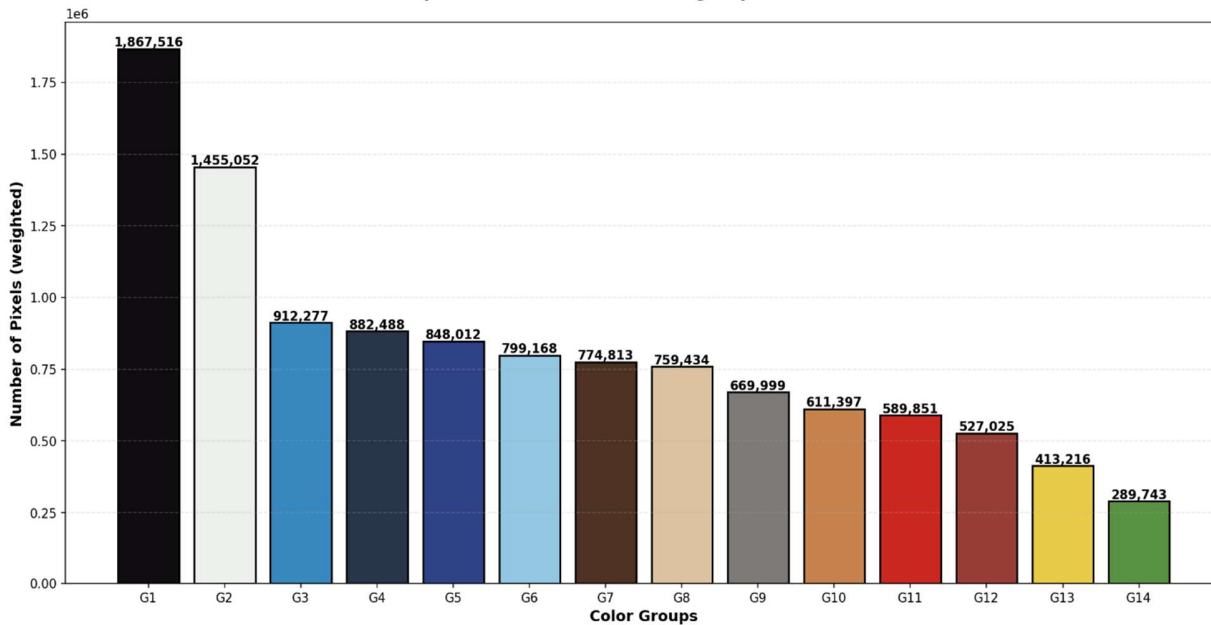
4. Results :

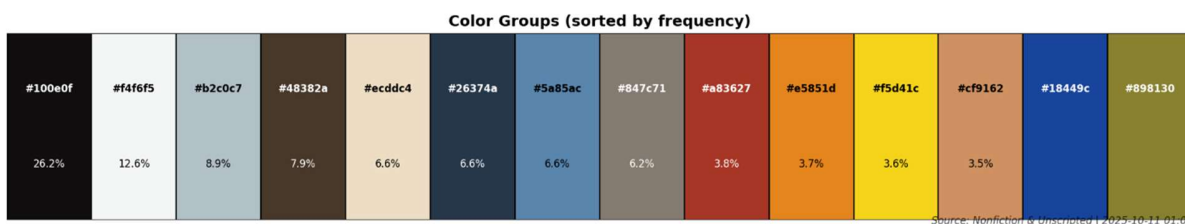
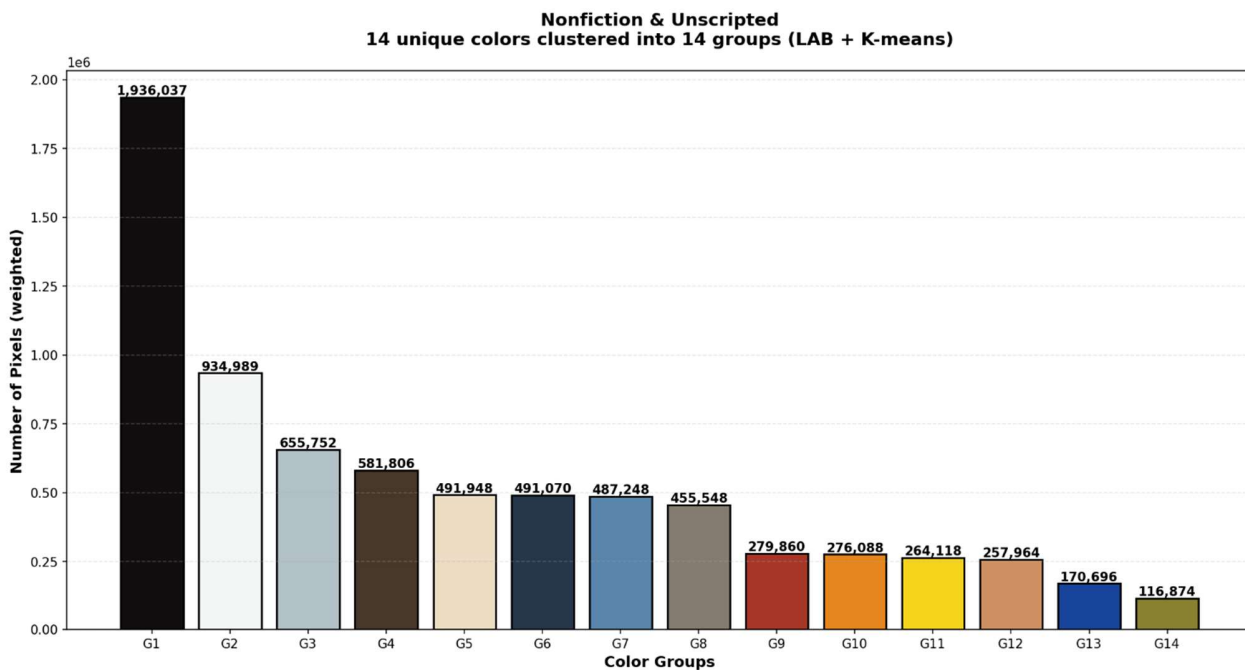
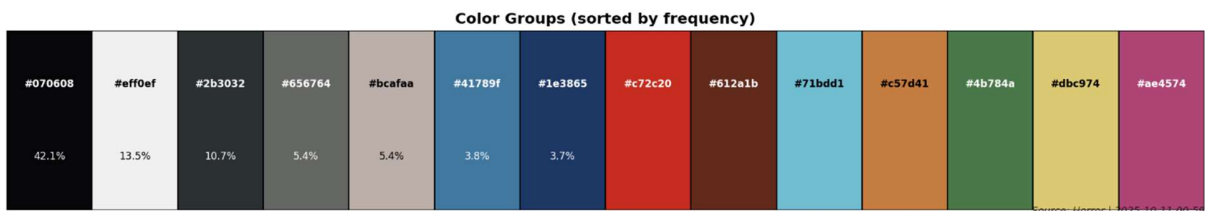
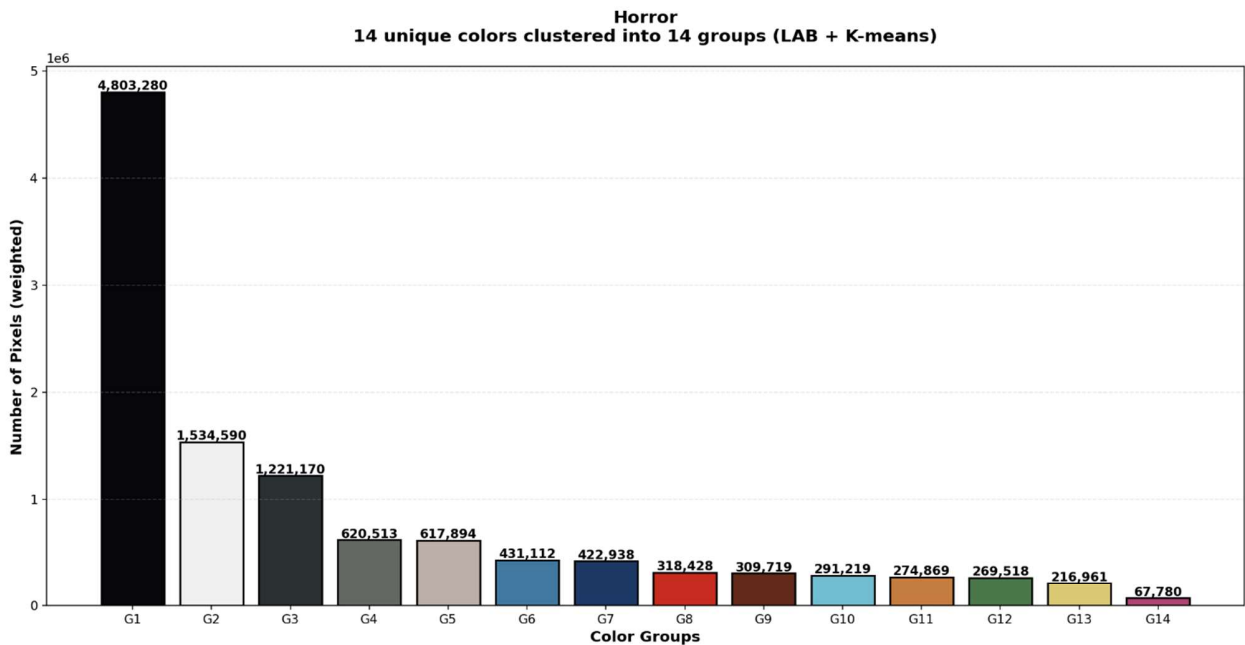


Drama And Romance
14 unique colors clustered into 14 groups (LAB + K-means)

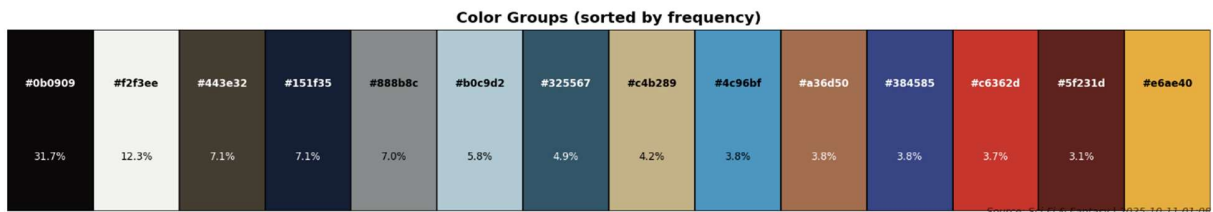
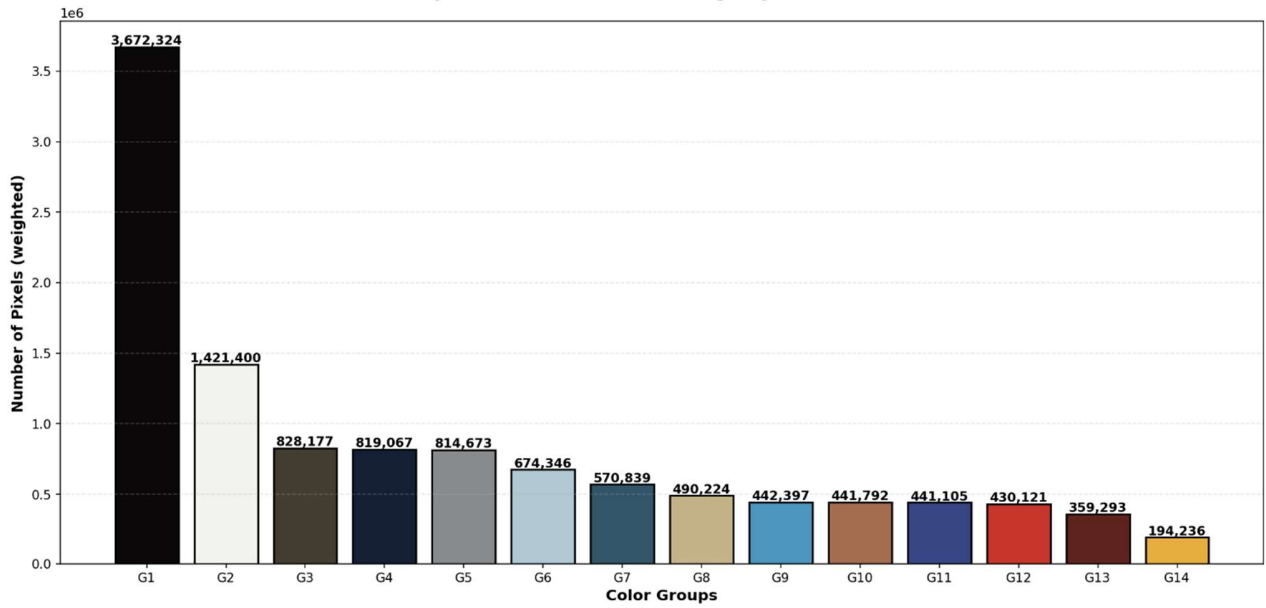


Family
14 unique colors clustered into 14 groups (LAB + K-means)

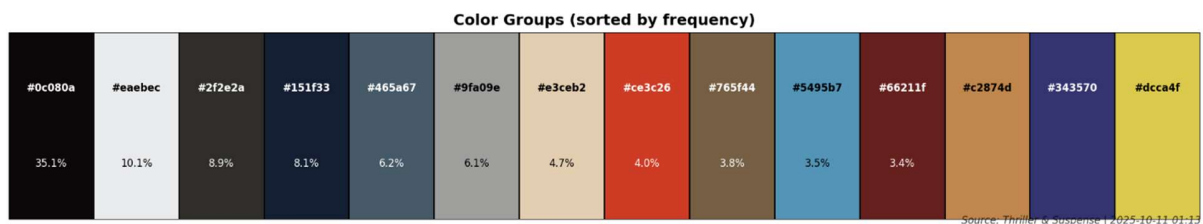
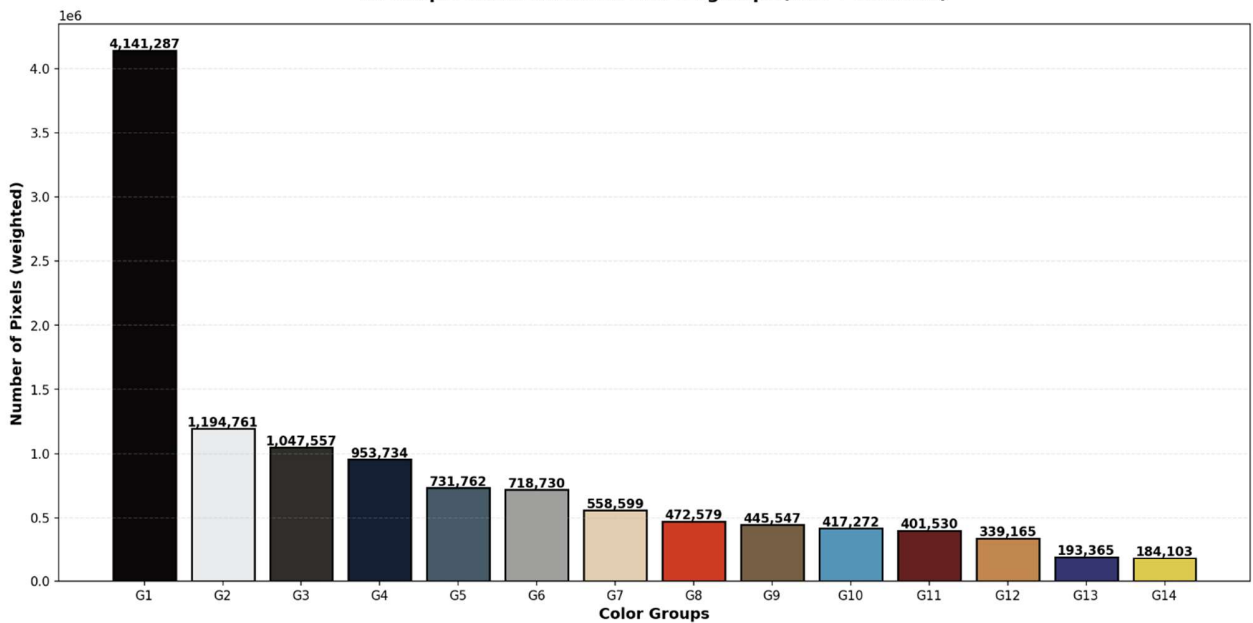




Sci-Fi & Fantasy
14 unique colors clustered into 14 groups (LAB + K-means)



Thriller & Suspense
14 unique colors clustered into 14 groups (LAB + K-means)



5. Discussion and Conclusion :

This study set out to investigate whether popular posters across distinct film genres employ specific and recurring color palettes. The qualitative analysis of posters from genres including Action, Comedy, Drama, Horror, and Sci-Fi has yielded a clear and affirmative answer: **prominent, genre-specific color groupings are not coincidental but are a fundamental component of a poster's visual language.** The findings reveal a sophisticated and consistent application of color strategy, where palettes function as a cognitive shortcut to communicate mood, theme, and audience expectation.

The key findings demonstrate a clear codification of color by genre. Action & Adventure and Sci-Fi & Fantasy posters were dominated by high-contrast, complementary palettes, most notably the now-ubiquitous "orange and teal," used to generate visual excitement and dynamism. Conversely, Drama and Romance posters favored more intimate, subdued palettes, often employing analogous or monochromatic schemes to foster a sense of introspection and focus on emotional narrative. Brighter, more optimistic genres like Comedy and Family were characterized by their use of highly saturated primary and secondary colors, creating an atmosphere of vibrancy and lightheartedness. Perhaps most starkly, the Horror and Thriller genres relied heavily on desaturation and tenebrism, using palettes devoid of life and punctuated by a single, visceral accent color—typically a startling red—to evoke immediate feelings of dread and danger.

These discovered patterns are not merely aesthetic trends; they are a direct and practical application of the theoretical principles discussed in the literature review. The power of these palettes to "indicate more" than just a pleasing image is profound.

- As the work of **Johannes Itten (1970)** on color harmony suggests, the use of complementary colors in Action posters is a deliberate choice to create maximum visual tension and energy, mirroring the high-stakes conflict inherent to the genre.
- The unsettling effect of the Horror palettes can be understood through **Josef Albers' (1963)** theory of color interaction. By surrounding a single, saturated color with a dark, desaturated background, designers amplify its psychological impact, making a splash of red feel more threatening and immediate.
- Furthermore, the psychological associations explored by researchers like **Elliot and Maier (2014)** are clearly being leveraged. The calming blues and greens found in some Non-fiction posters build a sense of trust and authority, while the energetic reds and yellows in Comedies tap into universal feelings of happiness and excitement. The palettes are, in essence, a pre-packaged emotional experience delivered to the viewer in a single glance.

References :

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