# An Exhaustive Review of the Relationship Between Paint Selection and Emotional Response

### **I. Introduction: The Foundational Role of Color in Human Experience**

The human experience of the built environment is profoundly shaped by its visual elements, with color emerging as a dominant and deeply influential factor. Color is not merely a decorative element applied to a surface; it is a powerful psychological and physiological stimulus with the capacity to alter mood, influence behavior, and shape an individual’s perception of their surroundings. This is a concept that has been widely accepted, with color described as "the easiest material to change the characteristic of the environment" and a "dominantly visible" tool for giving character to a space.1 Whether experienced consciously or subconsciously, the hues that surround us trigger neurological responses that can affect everything from heart rate to hormone levels.2

This report serves as an exhaustive literature review of the relationship between paint color selection and emotional response, intended as a foundational framework for scholarly research. The scope of this analysis is comprehensive, integrating a diverse body of research to construct a nuanced understanding of this complex topic. It synthesizes findings from peer-reviewed academic studies in psychology and environmental design 1, market-driven reports from leading paint and coatings companies 6, and expert analyses on the contextual, cultural, and demographic factors that modulate a color's emotional impact.2 By moving from theoretical underpinnings to practical applications and critical comparisons, this document aims to provide a robust, multi-faceted analysis suitable for a thesis or similar academic work.

### **II. Theoretical Underpinnings of Color Psychology**

The influence of color on human emotion is not a purely subjective phenomenon but is rooted in measurable physiological and neurological processes, a key point that forms the basis of modern color psychology. These processes are then further mediated by the specific attributes of a color and whether its emotional associations are biologically innate or culturally learned.

#### **2.1 The Physiological and Neurological Effects of Color**

Empirical evidence consistently demonstrates that a person's emotional response to color is accompanied by tangible biological reactions. Research confirms that warm colors, particularly red, are arousing and stimulating. Red has been shown to increase heart rate, blood pressure, and adrenaline levels.2 It is associated with high-arousal emotions, both positive and negative.3 Conversely, cool colors have a calming effect. Blue can reduce both a person's blood pressure and the number of heartbeats per minute 2, while green can also help lower blood pressure and heart rate.14 This physiological effect is a critical, quantifiable aspect of a color's impact, providing a scientific foundation for its use in creating specific emotional atmospheres.

#### **2.2 The Debate: Innate vs. Learned Associations**

A central debate in the field concerns whether emotional responses to color are hardwired in human biology or are acquired through social and cultural conditioning. Proponents of the innate theory suggest that color preferences may be evolutionary. For instance, the widespread preference for blue and green may stem from a historical association with beneficial environments, such as a clear sky, clean water, and lush vegetation.17 This perspective posits that certain color-emotion associations are universal and automatic.17

However, a substantial body of research supports the view that emotional responses are deeply personal and culturally learned.13 The meaning of a color can be shaped by specific childhood memories, cultural conventions, and even marketing messages.5 A qualitative study by Clarke and Costall demonstrated that participants' associations, such as red with love or black with death, were often tied to cultural factors like Valentine's Day marketing or funeral attire.5 A study on children noted that race and culture are potential sources of color-emotion links.19 This suggests that while a color's physiological impact may be universal, the emotional meaning assigned to that response is highly contextual and subject to cultural and personal interpretation.

#### **2.3 Color Attributes Beyond Hue**

The emotional response to color is not solely determined by its hue (e.g., red, blue, green). Research indicates that brightness (lightness) and chroma (saturation) are equally significant factors that modulate a color's affective impact. Studies consistently find that brightness and chroma play a more significant role than hue in affecting color-emotion associations.19

A person’s emotional reaction to a color can be precisely fine-tuned by adjusting its saturation and brightness. Highly saturated (chromatic) colors are found to elicit greater feelings of arousal and excitement.19 Conversely, less saturated or muted colors, such as a soft sky blue or a warm golden hue, provide the same psychological benefits without being jarring or overpowering.2 Similarly, brightness has a profound effect on emotional perception. Bright colors, including whites and light grays, are generally considered more pleasant and less arousing than darker colors.19 Lighter hues of yellow, for example, can create a "peaceful feeling," while darker hues may feel more traditional.14 This demonstrates that the selection of paint is not about choosing a single color in isolation but about choosing a specific, emotionally-calibrated shade, a critical distinction for creating a desired atmosphere.

| Color Attribute | Definition | Affective Impact & Effect |
| --- | --- | --- |
| **Hue** | The pure color, determined by its wavelength (e.g., Red, Blue, Green). | **Warm Hues:** Associated with high-arousal emotions, energy, passion, and excitement (Red, Orange, Yellow). **Cool Hues:** Associated with low-arousal emotions, calmness, serenity, and focus (Blue, Green, Purple). |
| **Saturation** | The intensity or purity of the color. | **High Saturation:** Elicits greater feelings of arousal, energy, and excitement. Can be overstimulating if overused. |
|  |  | **Low Saturation:** Can provide a sense of subtlety, sophistication, and a more livable, less overpowering emotional effect. |
| **Brightness** | The lightness or darkness of the color. | **High Brightness (Lightness):** Elicits positive emotions, feeling pleasant, airy, and spacious. |
|  |  | **Low Brightness (Darkness):** Can create a more dramatic, serious, or somber atmosphere. |

### **III. A Systematic Analysis of Color-Emotion Relationships**

The emotional associations of specific hues can be systematically organized into palettes, each serving a distinct psychological purpose. However, it is important to recognize that a single color can carry multiple, and at times contradictory, meanings depending on its context and application.

#### **3.1 The Warm Palette: Energy, Stimulation, and Passion**

Warm colors—including reds, oranges, and yellows—are known for their ability to energize and stimulate.2

* **Red:** This is a powerful, high-arousal color that commands attention.13 It is widely associated with passion, energy, and love.5 It can also symbolize strength and power.2 In practical applications, red is used in dining rooms to stimulate appetite and conversation 2 and in workout rooms or playrooms to create a lively, energetic atmosphere.6 However, the same stimulating effect can also be associated with danger and urgency.13 The contradictory nature of this color is evident in its use: a red-painted school poster can enhance attention 20, but a study found that seeing red before a test can increase anxiety and hurt performance.18 This reveals that a color's emotional effect is not intrinsic to the hue but is a function of the context and the psychological state it is meant to support.
* **Orange:** Orange is a friendly, welcoming, and creative color that radiates warmth and rejuvenation.6 It shares the stimulating qualities of red but with fewer negative undertones, making it an inviting and approachable hue.14 It is ideal for spaces of activity and interaction, such as family rooms, creative spaces, or workout areas.2
* **Yellow:** The color of sunshine and optimism, yellow is universally associated with happiness, cheerfulness, and communication.2 It is also linked to intellect and logic 6 and is recommended for boosting creativity and focus in offices or for use in kitchens to encourage positivity and mental clarity.2 However, bright yellow can be overstimulating and, for some, is associated with "weakness".7 A study on the emotional connotations of color showed a wide range of "happy" feelings associated with yellow, from "bouncy happy" to "a relaxed type of happy," demonstrating the subtle power of different shades.5

#### **3.2 The Cool Palette: Calm, Focus, and Serenity**

Cool colors—including blues, greens, and purples—are known for their ability to create a sense of tranquility, relaxation, and balance.2

* **Blue:** Blue is the most universally popular color, possibly due to its association with the sky and sea.10 It is widely linked to calmness, serenity, trust, and stability.13 The physiological calming effect of blue is scientifically proven, with studies showing it can lower blood pressure and heart rate.2 This makes it an ideal choice for bedrooms, study areas, and bathrooms where relaxation is desired.2 Blue is also considered the most effective color for promoting sleep.13
* **Green:** Green symbolizes nature, balance, growth, and renewal.2 Its psychological effects include promoting harmony and peace while reducing stress and anxiety.11 Green is also associated with luck in Western cultures and new beginnings in Eastern cultures.10 In functional environments, it is used in healthcare to promote healing 16 and in offices and schools to reduce eye strain, improve focus, and enhance creative problem-solving.11 A study found that green can increase creativity in the workplace by up to 15% and productivity by 6%.14
* **Purple:** Purple is a color of creativity, imagination, and spirituality, often associated with luxury and elegance.2 Lighter shades, such as lavender, are known to induce calmness and relaxation, making them suitable for bedrooms.2

#### **3.3 The Neutral Palette: Sophistication, Stability, and Subtlety**

Neutral colors—such as white, black, gray, and brown—serve as versatile backdrops that establish a sense of stability and sophistication.2

* **White:** White symbolizes purity, cleanliness, and openness.2 It is a complete reflection of light, making a space appear bigger and brighter.14 While it offers a "blank canvas" for personal expression and complements any style, it can also feel sterile or uninviting without the balance of other elements.11 The power of white lies in its ability to provide a harmonious foundation for other colors to stand out.9
* **Black and Gray:** Black represents strength, mystery, and elegance 2, though too much can feel oppressive and somber.13 Gray conveys sophistication, balance, and a soothing, versatile quality.2 The subtle emotional power of neutrals is evident in consumer behavior. While a majority of Americans agree that more vibrant colors should be used in the home, social media mentions related to home design are dominated by white and black.7 This suggests that while vibrant colors are appealing in theory, homeowners and designers often gravitate towards the timeless luxury and security offered by a neutral palette.8

| Color Family | Specific Hue | Primary Emotional Associations | Best-Fit Environments |
| --- | --- | --- | --- |
| **Warm** | Red | Passion, Power, Energy, Excitement, Appetite | Dining Rooms, Gyms, Accent Walls, Social Spaces |
|  | Orange | Warmth, Enthusiasm, Creativity, Social Engagement | Family Rooms, Creative Spaces, Workout Areas |
|  | Yellow | Happiness, Optimism, Communication, Mental Clarity | Kitchens, Dining Rooms, Foyers, Home Offices |
| **Cool** | Blue | Tranquility, Trust, Peace, Calmness, Focus | Bedrooms, Offices, Bathrooms, Relaxation Areas |
|  | Green | Balance, Harmony, Renewal, Nature, Reduced Stress | Living Rooms, Home Offices, Wellness Spaces |
|  | Purple | Luxury, Imagination, Creativity, Spirituality | Bedrooms, Creative Studios, Powder Rooms |
| **Neutral** | White | Purity, Cleanliness, Simplicity, Openness | Small Spaces, Bathrooms, Kitchens, Versatile Backdrops |
|  | Black | Strength, Mystery, Elegance, Sophistication | Accent Walls, Furniture, High-Contrast Spaces |
|  | Gray | Balance, Sophistication, Stability, Modernity | Home Offices, Living Rooms, Versatile Backdrops |

### **IV. The Multi-Layered Influence of Context and Environment**

The emotional impact of a color is not a static property but is dynamically shaped by the specific environment in which it is used. This is particularly evident in both residential and specialized environments, where color is strategically chosen to support a desired function.

#### **4.1 Room-Specific Applications**

The strategic selection of color for a specific room’s function is a cornerstone of interior design. For instance, bedrooms are designed to be sanctuaries of rest and are therefore best suited for soft blues and greens, which promote relaxation and tranquility.2 In contrast, kitchens and dining spaces are areas of activity and socialization, making them ideal for warm colors like red and yellow that stimulate appetite and communication.2 Offices and workspaces require colors that enhance focus and creativity; here, blues and greens are often used to reduce stress and improve cognitive performance, while yellow can also be used to spark creativity.2 Bathrooms, intended for cleanliness and calm, often feature pale blues and soft whites to create a tranquil atmosphere.6

#### **4.2 Specialized Environmental Case Studies**

Beyond residential use, the application of color psychology in specialized environments, such as healthcare and educational settings, is driven by measurable, functional outcomes. In hospitals, color is used not just for aesthetics but to actively promote healing and well-being. Soft, cool tones like blues and greens can reduce patient anxiety, stabilize blood pressure, and create a welcoming and comfortable environment.15 In pediatric areas, vibrant yellows and oranges are used to create a positive, stimulating atmosphere that can distract and uplift young patients.16

Similarly, in educational environments, color is a tool for influencing student performance and mood. A study found that classrooms painted in cool tones like blue and green lowered stress hormones in students, while warm colors like red and orange can energize and stimulate, but also risk causing anxiety if overused.20 This is a clear example of prioritizing function over aesthetics, where the choice of a color is directly tied to a desired outcome, such as improved focus or reduced stress. In the workplace, green has been shown to increase creativity and productivity 14, and blue environments have been found to increase accuracy in detail-oriented tasks.11

#### **4.3 Vibrant vs. Muted Shades: The Importance of Intensity**

A color’s emotional effect is profoundly influenced by its intensity. Vibrant, highly saturated colors can energize a space but also have the potential to be overpowering, jarring, or even overstimulating.2 In contrast, muted or pastel versions of the same color can provide the intended psychological benefits without the risk of overstimulation. For example, a homeowner might choose a warm golden hue instead of a bright yellow to maintain sophistication and tranquility.2 This trend is not accidental; it reflects a broader shift in design towards creating more grounded, subtle, and livable palettes. The approachability of these softer shades is a key element of modern design, as homeowners seek colors that offer timeless luxury and comfort rather than fleeting, high-impact trends.8

### **V. Cultural, Social, and Demographic Modulators**

The emotional response to color is not a uniform or universal phenomenon. It is subject to profound modulation by a person's cultural background, generational cohort, and individual life experience.

#### **5.1 Cross-Cultural Color Symbolism**

The emotional meaning of a color can vary dramatically across different societies. What is a positive association in one culture may be a negative one in another, leading to what has been described as a cultural "Stroop effect," where the subliminal association of a color conflicts with its intended meaning.22 For example, red, which is associated with intimacy and romance in Western cultures, is a symbol of good luck, prosperity, and joy in China.10 In contrast, in South Africa, red is linked to mourning and loss.10 Similarly, while white signifies purity, goodness, and perfection in the West, it is the color of death and mourning in many Asian cultures.10 The design of urban spaces and buildings must account for these differences to ensure the colors chosen align with local traditions and do not accidentally convey an unintended message.23

| Color | Western Culture Associations | Eastern/Asian Culture Associations | Other Cultural Associations |
| --- | --- | --- | --- |
| **Blue** | Tranquility, Trust, Peace, Sadness | Dignity, Respect, Promotes Thought | Native American: Sadness, Defeat 10 |
| **Green** | Prosperity, Relaxation, Luck | New Beginnings, Hope, Regeneration | Islamic Culture: Paradise, Renewal 23 |
| **Red** | Passion, Love, Romance, Danger | Good Luck, Joy, Vitality, Prosperity | South Africa: Mourning and Loss 10 |
| **Pink** | Feminine, Softness, Innocence | Nurturing, Fertility (across many cultures) |  |
| **Purple** | Royalty, Luxury, Spirituality, Honor | Privilege, Regal Status, Mourning | Brazil/Thailand: Mourning 10 |
| **White** | Purity, Goodness, Cleanliness, Simplicity | Death, Mourning, Loss | Ancient Japanese Religion: Preference for white in religious ceremonies 19 |
| **Black** | Somber, Mysterious, Elegance, Power | Wealth, Good Health |  |

#### **5.2 Generational and Gender Preferences**

Research from major paint companies demonstrates that color preferences change as people move through the life cycle, reflecting the collective psychological needs of different demographic cohorts.12 For example, the Mature Market (over 65) prefers functional and cheerful colors like buttery yellows and clear blues, while Baby Boomers seek self-expression through soothing colors that provide a spiritual sanctuary, such as sky blue azures and cleansing blues.12 In contrast, Generation X, having grown up in a global economy, is more accepting of a diverse, global palette that includes violet, exotic greens, and Asian reds.12 These trends show that paint companies are actively responding to the "mood of the moment" 24 by selecting "Colors of the Year" that align with the evolving desires of their target market, a trend confirmed by the cyclic patterns observed in paint trend analysis.24

The evidence also points to differences in color perceptions between genders. A study by Sherwin-Williams found that men are more than twice as likely as women to associate yellow with "weakness".7 This highlights that a color's perceived meaning is not only a function of context but also of the demographic characteristics of the individual viewing it.

#### **5.3 The Power of Personal Memory and Association**

Perhaps the most significant modulator of a color's emotional impact is a person's individual life experience. While general associations exist, personal memory and learned associations can override them.25 The "memory color effect" suggests that the color of an object is not perceived independently of its typical color as stored in memory.26 This means that a person’s preference or aversion to a certain hue is often rooted in a specific, formative experience. For instance, an individual may dislike yellow because of a negative memory associated with the color, while another may love it because it evokes a positive childhood memory, such as a sunny day at the beach or a moment of shared happiness in a brightly colored room.5 This demonstrates that the selection of paint color is an intensely personal decision and that the most effective choices are those that resonate with the individual’s unique emotional history.

### **VI. Academic Research vs. Paint Industry Insights: A Critical Comparison**

A critical analysis of the relationship between color and emotion requires an understanding of the divergent objectives and methodologies of academic and industry research. While both fields contribute to a shared knowledge base, their ultimate goals are distinct, creating a complex, yet complementary, relationship.

#### **6.1 Divergent Objectives and Methodologies**

Academic research is typically "discovery focused" and motivated by "intellectual curiosity".27 Its primary goal is to advance the field of knowledge, with outcomes often measured by the publication of peer-reviewed papers.27 The methodology is highly rigorous, relying on controlled lab experiments that measure physiological responses 19 or using psychological tests like semantic differential scales to quantify emotional associations.28 These projects often span several years and are limited by computational and time resources.22

In contrast, industry research is "primarily to identify what problem needs to be solved" for an organization or product.27 The ultimate goal is profit, with success measured by tangible outcomes such as sales targets or product release deadlines.29 The methodology is more pragmatic, relying on large-scale consumer surveys and social media data analysis to understand broad consumer sentiment and preferences.7 Projects have much tighter timelines, often ranging from weeks to months, and the deliverables are concise reports with actionable insights.27

#### **6.2 The "Color of the Year" Phenomenon as a Market-Driven Narrative**

The selection and marketing of a "Color of the Year" by major paint companies exemplify the commercial application of color psychology. These choices are not random; they are the result of "extensive research by designers and trend experts" 24 who aim to capture the "mood of the moment" 24 and reflect the shifting psychological needs of consumers. For example, Behr’s selection of "Hidden Gem" as its 2026 Color of the Year was a direct response to a consumer desire for a color that creates a sense of peace and impacts confidence.8 Similarly, Dulux's selections over the years, from the "positivity" of a delicate tone in 2024 to the "up-lifting yellow" of 2025, have each been based on expert analysis of global trends.30 This phenomenon demonstrates how the paint industry translates abstract emotional concepts into marketable products and cohesive color palettes that help consumers feel "trendy, fresh and cohesive".24

#### **6.3 Synthesis and Convergence**

Despite their differing goals and methodologies, academic and industry research converge on a shared foundational understanding of color's emotional properties. Industry reports frequently incorporate findings that align with academic research, such as the physiological effects of warm and cool colors.2 This suggests a mutually beneficial relationship: academic research provides the foundational theories, and industry research serves as a large-scale, real-world application of those theories. This creates a powerful framework for analysis.

A key principle that synthesizes the findings from both domains is the concept of "appropriateness." Research suggests that the relationship between a brand and its color hinges on the perceived appropriateness of the color for the product or service.31 This principle extends directly to paint selection. The most successful and emotionally effective paint choices are not those that conform to a stereotypical association but those that are "appropriate" for the intended function of the space and the specific emotional narrative the user wishes to create.31 The appropriateness of a color is a multi-layered concept determined by its hue, saturation, and brightness; the specific context of its application; and the cultural and personal background of the occupant.

### **VII. Conclusion: A Synthesis for Thesis Development**

The relationship between paint color selection and emotional response is a nuanced and complex field of study, transcending simplistic charts of color associations. This report has demonstrated that this relationship is a multi-layered system in which a color's emotional impact is not static but is profoundly modulated by its physical attributes, the context of its application, and the cultural and personal history of the individual.

The primary findings indicate that the physiological and psychological effects of color are interconnected, with warm colors generally stimulating and cool colors calming. However, the emotional meaning of these effects is not universal. It is shaped by a variety of factors, including the color's brightness and saturation, which can be used to precisely fine-tune its emotional intensity. Furthermore, the purpose of a space is a primary determinant of an appropriate color choice, with the strategic application of color in professional environments driven by functional outcomes, such as reduced stress in hospitals or enhanced focus in offices. Finally, the role of cultural symbolism, generational preferences, and individual memory cannot be overstated, as these factors can lead to a personal emotional response that supersedes broader societal norms.

For a thesis or further academic inquiry, this review identifies several crucial research gaps. The field would benefit from more studies that bridge the divide between academic and industry research, particularly those that incorporate robust physiological assessments in real-world settings.1 There is also a need for more research that moves beyond a limited range of prominent colors and instead explores the effects of specific color combinations and a broader spectrum of shades.1 A thesis that explores the efficacy of different color palettes in creating long-term well-being, or one that directly compares the emotional impact of a single color across different cultural groups, would make a significant contribution to the field. By moving past a superficial understanding of color psychology, a researcher can delve into the fascinating and practical complexities of how paint shapes human emotion and experience.

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