Colour Emotion & Harmony

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What is colour emotion?
What is colour emotion?

Warm
or
Cool
?
What is colour emotion?

Warm
or
Cool
?

[Yellow square]
What is colour emotion?

90% warm

60% warm

Warm
or
Cool
?

-
Warm - cool
Clean - dirty
Fresh - stale
Heavy - light
Hard - soft
Active - passive
......
Warm - cool
Clean - dirty
Fresh - stale
Heavy - light
Hard - soft
Active - passive

......
Active

5 4 3 2 1
a lot a little

Passive

1 2 3 4 5
a little a lot

Confirm

No. 1 - 1
Single-colour Emotion

**Warm-cool**

\[ WC = -0.5 + 0.02(C_{ab}^{*})^{1.07} \cos(h_{ab} - 50^\circ) \]

**Heavy-light**

\[ HL = -2.1 + 0.05(100 - L^*) \]

**Active-passive**

\[ AP = -1.1 + 0.03\left[ (C_{ab}^*)^2 + (L^*-50)^2 \right]^{\frac{1}{2}} \]
Colour-combination Emotion

90% warm

50% warm

70% warm

\[ E = \left( E_1 + E_2 \right) / 2 \]
Warm-cool
Heavy-light
Like-dislike

- Chinese
- French
- German
- Spanish
- Swedish

- British
- Chinese
- French
- German
- Spanish
- Swedish

Correlation coefficients:
r = 0.73
r = 0.66
r = 0.78
r = 0.65
r = 0.69
r = 0.66
r = 0.64
r = 0.79
r = 0.26
r = 0.76
r = 0.66
r = 0.66
r = 0.41
r = 0.06
r = 0.06
r = 0.14
r = 0.66
r = 0.58
What is colour harmony?
What is colour harmony?

These theories do provide designers with possibilities for generating potentially harmonious colour schemes.
What is colour harmony?
What is colour harmony?

Itten’s theory
What is colour harmony?
What is colour harmony?
What is colour harmony?

Munsell’s theory

[Diagram with color swatches]
What is colour harmony?

When two or more colours seen in neighbouring areas produce a **pleasing effect**, they are said to produce a colour harmony.

(Judd and Wyszecki, 1975)
A Colour Harmony Model

\[ CH = H_C + H_L + H_H \]

where

\[ H_C = 0.04 + 0.53 \tanh(0.8 - 0.045\Delta C) \]
\[ \Delta C = [(\Delta H_{ab})^2 + (\Delta C_{ab}/1.46)^2]^{\frac{1}{2}} \]

\[ H_L = H_{L_{sum}} + H_{\Delta L} \]
\[ H_{L_{sum}} = 0.28 + 0.54 \tanh(-3.88 + 0.029L_{sum}) \] in which \( L_{sum} = L_1^* + L_2^* \)
\[ H_{\Delta L} = 0.14 + 0.15 \tanh(-2 + 0.2\Delta L) \] in which \( \Delta L = |L_1^* - L_2^*| \)

\[ H_H = H_{S_{Y1}} + H_{S_{Y2}} \]
\[ H_{S_Y} = E_C (H_S + E_Y) \]
\[ E_C = 0.5 + 0.5\tanh(-2 + 0.5C_{ab}) \]
\[ H_S = -0.08 - 0.14 \sin(h_{ab} + 50^\circ) - 0.07 \sin(2h_{ab} + 90^\circ) \]
\[ E_Y = \left[ (0.22L^* - 12.8)/10 \right] \exp\left[ (90^\circ - h_{ab})/10 - \exp\left[ (90^\circ - h_{ab})/10 \right] \right] \]
A Colour Harmony Model

- Similar in chroma
  
  is more harmonious than

- Different in lightness
  
  is more harmonious than

- ‘Lighter’ is better than ‘darker’
  
  is more harmonious than
Thank you for your attention!

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http://colour-emotion.co.uk/