From Munsell Color System
To A New Color Psychology System

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Contents of this presentation

Young Researcher’s Aim

Munsell Color System

1. Hue & Tone System

2. Color Image Scale

Young Researcher’s Aim

Shigenobu KOBAYASHI (1925-2010)
- Researcher of Color Image -

Unique!

Psycho-ologist
Electrical engineer
Artist

2005 • 80 years old
Photo by Nobuko Kiuchi
In his youth: passion for art

courtesy of Shigeharu Kobayashi
In his youth: interest in color psychology

1954
Master’s thesis “Color discrimination”
Waseda University, dpt. of psychology

courtesy of Shigeharu Kobayashi

1964
“A Guide to improve your sense of beauty - wide application in daily life – ”
Kodansha
Social Background of Japan in the 1960’s and 70’s

GDP in Japan from after the war

(units of ¥1000)
Reception of Munsell System in Japan

1927 Sanzo Wada founded Japan Standard Color Association

1948 Color Science Association
(predecessor of Color Science Association of Japan 1970)

1951 Standard of Colors (1062 colors by Japan Color Research Inst.)

1959 The Book of Color Standards (JIS Z 8721)

1963 Munsell Renotation Color Book (Japan Color Research Inst.)
courtesy of JCRI

1966 Basic Color Chart - 5000 colors of 40 hues conforming to JIS-(NCD)
Aim of Kobayashi 1

Color is an excellent salesman!

CASE / SYSTEM / PATTERN

At AIC 1981 Berlin

At AIC 1985 Monaco

photo by S.Kobayashi

photo by K.Iwamatsu
Production of 5000 color chips and Analysis of color names

Segment of Hue 5R

Distribution of color names in 5R → Classification of 12 Tones

Ref: "The ISCC-NBS Method of Designating Color and Dictionary of Color Names"


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From Munsell System to Hue & Tone System

Tone chart of Hue YR:12 Tones

- White
- Light Gray
- Medium Gray
- Dark Gray
- Black

- Very Pale
- Pale
- Light Grayish
- Light
- Grayish
- Dull
- Dark Grayish
- Dark

- Bright
- Strong
- Deep

Value

High

Low

Low ↔ Chroma ↔ High
Hue & Tone System: 130 colors

A pragmatic color order system with the least number of colors

Design Tone 130

photo by A.Sugiyama
Hue & Tone System: 1093 colors

For marketing and product planning

43 hues, 25 tones, 1093 colors

6R, 1Y, 6PB
Hue & Tone System: Two-dimensional analysis

Pattern recognition

Statistical processing

Release from numerical notation (H V/C)
Aim of Kobayashi toward the psychological research 1971-

Market research:
Hue analysis of knit fashion colors in 1971
(comparison of Tokyo and Osaka)
Aim of Kobayashi toward the psychological research 1971-

Evaluation factor analysis
Table 14: Association chart of images associated with “good”

Image of the 4 factors that determine color combinations

Color combination | Name | Male/Female | Age
--- | --- | --- | ---
Dark | | | |
Safe | | | |
Soft | | | |
Easy to remember | | | |
Weak | | | |
Cold | | | |
Refined | | | |
Modern | | | |
Expensive-looking | | | |
Lonely | | | |
Friendly | | | |
Elegant | | | |
Feminine | | | |
Unfamiliar | | | |
Dynamic | | | |
Big | | | |
Hated | | | |
Trustworthy | | | |
Wild | | | |
Slow | | | |
Young | | | |
Good | | | |
From Hue & Tone System to Image Scale

1961
Psychological researches

- Single color image measurement
- Extraction of main image (Factor Analysis)
- Association between colors and words
- Color combinations image measurement
- Color projection method

1975
Completion of basic Image Scales

- Single colors
- Words
- Color combinations

1982
Patent approval
In Japan

Starting to Develop

Hue & Tone System

16/40
Color Image Scale: Single Color Space

Axis 1: Warm-Cool – Determines hue
Axis 2: Soft-Hard – Determines value
Axis 3: Clear-Grayish – Determines chroma
Color Image Scale: Psychological Method

Words (adjectives)

Tri-color combinations

Single colors

compatibility
Color Image Scale: Tri-Color Image Scale

The 1st scale in 1974

Familiarity

Modern sense

Dynamism

Credibility
Color Image Scale: Tri-Color Image Scale

1976-1980

1987-present

1995-present

With only 80 colors

With 130 colors Freely & Flexibly

With 130 colors Digital

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Word Image Scale
Color Image Scale: Clear/Grayish Axis

Single colors, Two-colors, Three-colors and Five-colors Combinations
PC Analysis by Color Image Scale

Database Image Research

Image Scale analysis

Basic image analysis (using analysis aids)
Color Image Scale: Basic Idea

Colors

SOFT

HARD

WARM

COOL

Words

SOFT

HARD

WARM

COOL

People/items/environments

SOFT

HARD

WARM

COOL
Image of Basic Design Elements

Colors

Patterns

Cool

Soft

Light

Warm

Cool

Hard

Dark

Medium

Complex Organic/Representative

Repetition

Simple/Inorganic/geometric

Dense

Hard

Sparse

Soft

Warm

Cool
Image of Basic Design Elements

Materials

- Natural/rough
- Medium
- Artificial/smooth/lustrous
- Hard/heavy
- Hard

- Light/Soft
- Soft

Shapes

- Complex/Curved lines
- Medium
- Simple/Straight lines
- Sturdy
- Hard

- Delicate
- Soft

- Cool
- Warm
Application of Color Image Scale

Patterns
Ref. Season Image Color
Application of Color Image Scale

Chairs
Ref. Season Image Color
Application of Color Image Scale

Home appliances 2011

Ref. Season Image Color

Home appliances 2018
Application of Color Image Scale

Scent
Ref. Season Image Color

Pretty
vanilla (sweet)
peach (pretty)
caramel (mild)

Pretty
peach (pretty)
vanilla (sweet)
caramel (mild)

Warm Elegant
caramel (mild)
cashew (mild & sweet)

Cool Romantic Casual
cool (natural)
sesame (natural)
incense (quiet & tranquil)

Cool Romantic Casual
cool (natural)
sesame (natural)
incense (quiet & tranquil)

Cool
honey (mild & quiet)

Cool
honey (mild & quiet)

Cool
honey (mild & quiet)

Cool
honey (mild & quiet)

Natural
lily (supple)
daphne (womanly)
rose (lovely)

Soft Casual
dried bonito (simple & appealing)
cocoa (comfortable & laid-back)

Soft Casual
dried bonito (simple & appealing)
cocoa (comfortable & laid-back)

Elegant
incense (quiet & tranquil)
red wine (diligent)

Elegant
close (diligent)
red wine (diligent)

Elegant
close (diligent)
red wine (diligent)

Elegant
close (diligent)
red wine (diligent)

Elegant
close (diligent)
red wine (diligent)

Classic
closed (diligent)
red wine (diligent)

Classic
closed (diligent)
red wine (diligent)

Classic
closed (diligent)
red wine (diligent)

Classic
closed (diligent)
red wine (diligent)

Modern
whiskey (adult)

Modern
whiskey (adult)

Modern
whiskey (adult)

Modern
whiskey (adult)

Dandy
coffee (bitter)

Dandy
coffee (bitter)

Dandy
coffee (bitter)

Modern
whiskey (adult)
# Concept Study: Wafu (Japanese Style)

<table>
<thead>
<tr>
<th></th>
<th>(1) Natural</th>
<th>(2) Delicate</th>
<th>(3) Mellow</th>
<th>(4) Sober</th>
<th>(5) Traditional</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Gentle</td>
<td>Elegant</td>
<td>Emotional</td>
<td>Sober</td>
<td>Traditional</td>
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<td>Friendly</td>
<td>Rich</td>
<td>Smooth</td>
<td>Plain</td>
<td>Dignified</td>
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<td></td>
<td>Serene</td>
<td>Fine</td>
<td>Graceful</td>
<td>Dry</td>
<td>Conservative</td>
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<tr>
<td></td>
<td>Unembellished</td>
<td>Mellow</td>
<td>Mellow</td>
<td>Elaborate</td>
<td>Classic</td>
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<td></td>
<td>Simple</td>
<td>Modest</td>
<td>Sober</td>
<td>Refined</td>
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<td></td>
<td>Calm</td>
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</tbody>
</table>

- Natural
- Soft and elegant
- Elegant
- Chic, suave
- Classic
Concept Study: Wafu (Japanese Style)

Wafu
Ref. Season Image Color

(1) Natural
(2) Delicate
(3) Mellow
(4) Sober
(5) Traditional
Application of Color Image Scale

Secular change of Era trend analysis

August 2016 – January 2017

1. Focus on spread of advanced technology

2. Focus on use of advanced technology

3. Focus on health and environment

4. Focus on relaxation and fun

5. Focus on tradition and authenticity

6. Focus on individuality and power

Ref. Season Image Color 72

August 2017 – January 2018

1. Focus on use of advanced technology

2. Focus on cuteness and enjoyment

3. Focus on health and environment

4. Focus on relaxation and connection

5. Focus on tradition and the classic

6. Focus on individuality and power

Ref. Season Image Color 74
Study of Taste and Lifestyle in 2017

1. Laid-back, simple style: 29.8% (131/440)

2. Feminine, natural style: 25.5% (112/440)

3. Elegant, orthodox style: 19.5% (86/440)

4. Dressy, elegant style: 15.7% (69/440)

5. Individualist, casual style: 9.5% (42/440)
Online Content Marketing

**Analysis**
- Hue & Tone analysis
- Image Scale analysis

**Data creation**
- Data of colors used
- Preference data
- Image words
- Color combination data

**Database creation**
- Marketing data
- Sales
- Regions

Into preference information database
- Target
- Preferred colors
- Lifestyle
- Materials
- Sizes
- Designs

35/40
Aim of Kobayashi

Keywords of Founder

Ecological
Psychological
Historical
Economical

at Tokyo University's Botanical Garden
1996 photo by K. Iwamatsu
What we introduced today

Young Researcher’s Aim

Munsell Color System

1. Hue & Tone System

2. Color Image Scale

References

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Note

Every figure with no citation is either self-made or free.
Thank you.