Kansei-based Color Design for City Mapping

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Outline of Presentation

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- ❀ Definition of Kansei-based Map
- ❀ Color Palette for Kansei-based Map
- ❀ Color Design for Kansei-based Map
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Introduction

- Analog paper printed maps have a lot of limitations, while digital electro maps are richer in visualization
- Digital maps should be provided "On Demand" of user's "Kansei" or "sensibility"
- The Color Palette for Kansei-based Map has been developed by those authors to realize "non-scientific" into physical color space

Why is Kansei-based Map needed?

- Conventional color design is from the age of analog map with a lot of limitations for visualization
- User's request is diverse in the age of IT since computer assisted visualization method is powerful in meeting those user's requests
- "Kansei" word is more easy to be accepted by most users rather than scientific parameters

Definition of Kansei-based Map

- Kansei (sensibility): to sennse, memorize, think of and create human feeling such as beauty, comfort, satisfaction etc.
- Kansei word is expressed in adjective; romantic, mild, casual, restful, dynamic etc.
- Kansei-based map is a map which reflects human feeling given by Kansei word

Development of Color Palette

- Background: too hard to select best combination of colors from 256(R)x256(G)x256(B)=16.6M colors
- How: special know how based on psychological test for selected Kansei words
- Color Palette: 20 colors each for selected 20 Kansei words for mapping

Selected Kansei Words (A)

- A Type: All color Type: 20 colors
  (5R,10R,5YR,10YR,5Y,10Y,5GY,10GY,5G,10G,
  5BG,10BG,5B,10B,5PB,10PB,5P,10P,5RP,10RP)

- A1: Sober   A5: Pastel Color
- A2: Simple   A6: Elegant
- A3: Naïve   A7: Showy
- A4: Romantic   A8: Dynamic

Selected Kansei Words (B)

- B Type: Similar Color Type

- B1: Mild (R,YR)   B7: Calm (G,BG,B,PB)
- B2: Cute (R,YR)   B8: Clean (BG,B,PB)
- B3: Withered (R,YR,Y)   B9: Cool (BG,B,PB)
- B4: Restful (YR,Y,GY)   B10: Refined (P,RP)
- B5: Light (BG,B,PB)   B11: Dreamy (RP,R,YR)
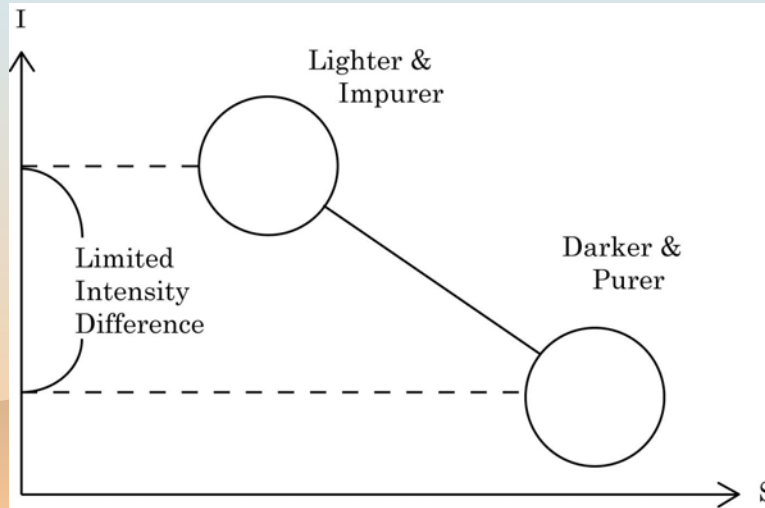- B6: Young (GY,G,BG)   B12: Gorgeous (RP,R,YR)

Requirements for Color of Maps

- There should not be too much contrast because of letters to be read (maximum difference of intensity within 20 percent)
- The color tone should not be too dark because most users want to write something in the map

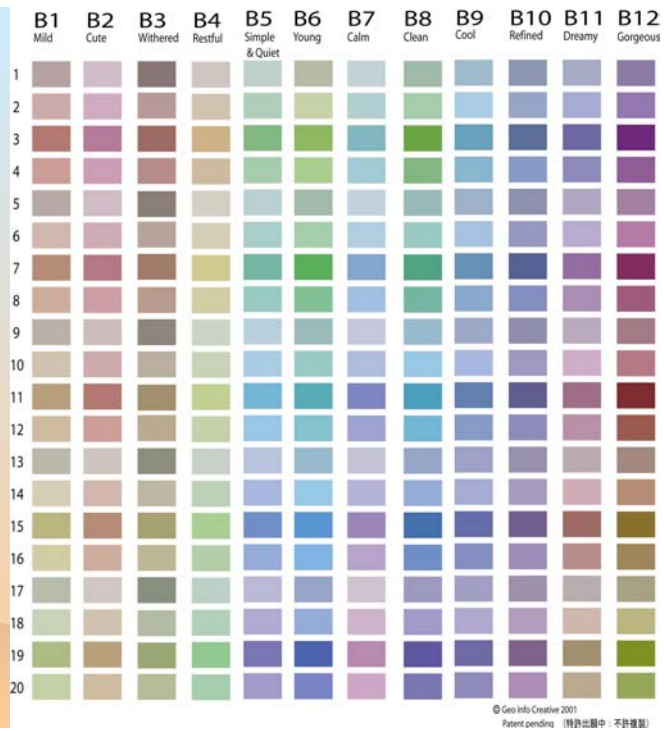# Relation between Intensity (I) and Saturation (S)

I

High

A-4 Romantic

A-5 Pastel Color

A-6 Elegant

A-3 Naive

A-7 Showy

A-2 Simple

A-8 Dynamic

A-1 Sober

Low

Low   High   S
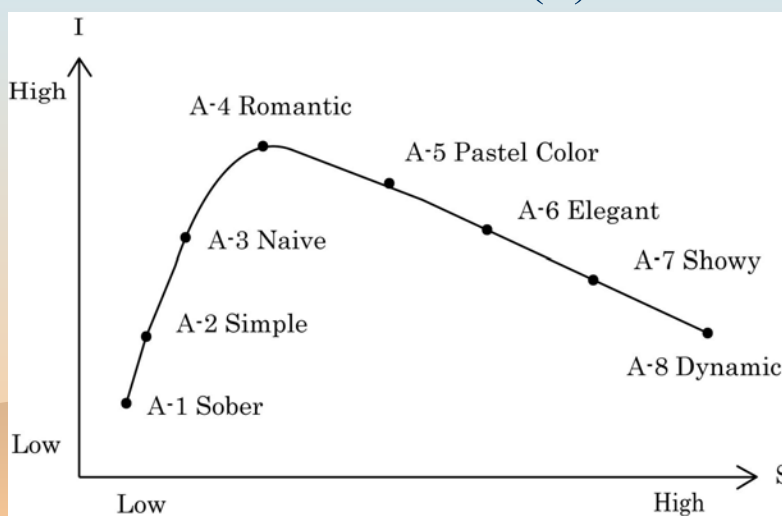
Contrast within limited balance

Development of Color Palette (A)

Development of Color Palette (B)

	B1 Mild	B2 Cute	B3 Withered	B4 Restful	B5 Simple & Quiet	B6 Young	B7 Calm	B8 Clean	B9 Cool	B10 Refined	B11 Dreamy	B12 Gorgeous

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Patent pending (特許出願中：不許複製)

Color Design for Mapping

- Step 1: Overall design in consideration of color harmony and selection of Kansei Word

- Step 2: Selection of base color for the background (usually block in a city map) with the maximum area: Intermediate tone be selected.

- Step 3: Selection of the dominant color (usually roads in a city map) with stronger color

- Step 4: Selection of separation color for adjusting too strong or too weak contrast for other features

Trial of Kansei-based City Maps

- Trail 1: Hiroshima City Map with Kansei words of "Romantic" and "Dreamy" using Kansei Color Palette designed by three professional map designers
- Trail 2: Zurich City Map with Kansei words of "Romantic" and "Restful" in comparison between the existing map and Kansei-based maps by a professional map designer

Trial 1 for Hiroshima City Map

- "Romantic" by Designer A

Trail 1 for Hiroshima City Map

- "Dreamy" by Designer A

Trail 1 for Hiroshima City Map

- "Romantic" by Designer B

Trial 1 for Hiroshima City Map

- "Dreamy" by Designer B

Trial 2 for Zurich City Map

- Existing Map produced by Hallwag AG, Bern

Trail 2 for Zurich City Map

❀ With Kansei Word : "Romantic"

Trail 2 for Zurich City Map

❀ With Kansei Word: "Dreamy"

Trail 2: Zurich City Map

- With Kansei Word: " Clean"

Conclusions

- Kansei-based map can be produced "On Demand" of user's request with Kansei Word
- Psychological test for those Kansei-based Maps" were mostly accepted by users
- Professional designers reported that "Kansei-based Color Palette" made more efficient for the color design (about two times faster for the design than conventional color selection)