Kansei-based Color Design for City Mapping

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

Selected Kansei Words (B)

- B Type: Similar Color Type

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

Development of Color Palette (A)
Development of Color Palette (B)

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

Trial 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)