Synesthesia

The Cross Cultural Generality of Visual–Verbal Synesthetic Tendencies

Charles S Osgood 1960

- Synesthesia – one sense triggering another; hear music and see color
- Disorder of Synesthesia- people experience letters, music, and other sensations as having specific colors or other combinations of senses
  - Sensations do not change, meaning if someone sees the letter B as blue they will always see it that way

Experiment questions

- Do cultures share generality of visual –verbal Synesthesia
- Do they also function as opposites in other languages.
- What do people base their judgements on.
- Do Navajo and Anglos have the same color connotations for color term. If they overlap where do they overlap in terms or color samples.

- Osgood examines the connation that certain words have visually
  - Is happy smooth, or colorful,
- Examine if other cultures and languages view words like happy and strong the way Anglo subjects do
Subject was given a word like heavy and asked to point to the idea in Figure 1 it correlated with to them.

Subjects consisted of
- 40 Navajos
- 10 Mexican-Spanish
- 27 Anglo
- 20 Japanese

Subject Details
- Anglo subjects- graduate, undergraduate psychology students at University of Illinois tested in a classroom
- Japanese Subjects- staff or students at the university who had been in the United States less than two years tested in a classroom
- Mexican-Spanish subjects- from a rural area, with little formal education tested in the field
- Navajo subjects- also from a rural area with little formal education tested in the field
  - All somewhat bilingual to native language and English, except Anglos
  - Huge difference in education
    - All these factors could affect the results

Do cultures share generality of visual –verbal Synesthesia

- Words with a high agreement within a certain language (above the margin of chance) had high agreement between languages
- Words that did not agree within a language did not agree across the languages
### Do they also function as opposites in other languages.

- **Concept Correlation**
  - Do translation equivalent verbal opposites have the same semantic meaning in different languages

- **Visual Alternative Correlation**
  - Does the selection of words like Dark vs. Light tend to correlate across the set of concepts with the selection of words like Thin vs. thick

---

### Concept Correlations

- **Many shared correlations**
  - Good is happy and Bad is Sad, Light is fast and Excitement is Noisy

  - **Suggest true shared metaphors**
    - Same synesthetic choices for white, good, calm and fast
    - Opposed synesthetic choices for black vs. light
    - However Navajo speakers had less polar concepts
      - Fast and slow were not seen as opposites, because they use moving and stationary instead

---

### Table 3

**ANGLOS, NAVAJOS AND JAPANESE AGREE THAT:**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEAVY</td>
<td>is down, thick, dark and near.</td>
</tr>
<tr>
<td>GOOD</td>
<td>is homogeneous and bright.</td>
</tr>
<tr>
<td>FAST</td>
<td>is thin, bright, and diffuse.</td>
</tr>
<tr>
<td>HAPPY</td>
<td>is colorful and bright.</td>
</tr>
<tr>
<td>UP</td>
<td>is up and diffuse.</td>
</tr>
<tr>
<td>ENERGETIC</td>
<td>is colorful.</td>
</tr>
</tbody>
</table>

**ANGLOS, NAVAJOS AND JAPANESE DISAGREE ON WHETHER:**

<table>
<thead>
<tr>
<th>Concept</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEAVY</td>
<td>is crooked (A) or straight (N, J)</td>
</tr>
<tr>
<td>HAPPY</td>
<td>is rounded (A) or angular (N, J).</td>
</tr>
<tr>
<td>UP</td>
<td>is large (N) or small (J).</td>
</tr>
<tr>
<td>ENERGETIC</td>
<td>is heterogeneous (A) or homo-</td>
</tr>
<tr>
<td></td>
<td>geneous (N); is thin and light</td>
</tr>
<tr>
<td></td>
<td>(N) or thick and dark (J).</td>
</tr>
</tbody>
</table>
Visual Alternative Concepts

• Many visual dimensions are used in the same distinguish verbal concepts
• Up is colorful and diffuse, thick and dark
• Disagreements between words are divided along an Anglo Japanese agreement and Mexican-Spanish Navajo agreement

Table 7

<table>
<thead>
<tr>
<th>Concept Matrices</th>
<th>Navajo</th>
<th>Mexican-Spanish</th>
<th>Japanese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglo</td>
<td>.43</td>
<td>.75</td>
<td>.67</td>
</tr>
<tr>
<td>Navajo</td>
<td>.41</td>
<td>.24</td>
<td>.68</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visual Alternative Matrices</th>
<th>Navajo</th>
<th>Mexican-Spanish</th>
<th>Japanese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglo</td>
<td>.37</td>
<td>.43</td>
<td>.76</td>
</tr>
<tr>
<td>Navajo</td>
<td>.81</td>
<td>.39</td>
<td>.42</td>
</tr>
</tbody>
</table>

Table 6

<table>
<thead>
<tr>
<th>A. Visual Alternative Correlations for Which Anglo, Navajo, Japanese and Mexican-Spanish Display Agreement in Direction N ≈ ± .30</th>
<th>A</th>
<th>N</th>
<th>J</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>up/colorful</td>
<td>.75</td>
<td>.38</td>
<td>.06</td>
<td>.41</td>
</tr>
<tr>
<td>up/diffuse</td>
<td>.85</td>
<td>.41</td>
<td>.78</td>
<td>—</td>
</tr>
<tr>
<td>vertical/shape</td>
<td>.72</td>
<td>.45</td>
<td>.50</td>
<td>—</td>
</tr>
<tr>
<td>horizontal/straight</td>
<td>.71</td>
<td>.25</td>
<td>.78</td>
<td>.66</td>
</tr>
<tr>
<td>outline/dark</td>
<td>.66</td>
<td>.54</td>
<td>.51</td>
<td>.32</td>
</tr>
<tr>
<td>thick/dark</td>
<td>.96</td>
<td>.90</td>
<td>.92</td>
<td>.91</td>
</tr>
<tr>
<td>thick/thin</td>
<td>.73</td>
<td>.94</td>
<td>.99</td>
<td>—</td>
</tr>
<tr>
<td>dark/white</td>
<td>.94</td>
<td>.47</td>
<td>.55</td>
<td>—</td>
</tr>
<tr>
<td>blue/rounded</td>
<td>.87</td>
<td>.84</td>
<td>.71</td>
<td>.09</td>
</tr>
<tr>
<td>large/small</td>
<td>.38</td>
<td>.37</td>
<td>.45</td>
<td>—</td>
</tr>
</tbody>
</table>

* M.S. data not used as criterion.

What do people base their judgements on

• Four factors found but the researchers only could identify two of them
  – Evaluative
    » Positive or negative connotation
      • Good, happy, and white on the positive pole and bad, sad, and black on the negative pole
        – Navajos see strong tight, energetic, and man as positive while Anglos only see energetic as positive
  – Potency
    • Strong and Man are positive loading
    • Women, yellow and weak are negative loadings
Do Navajo and Anglos have the same color connotations for color terms. If they overlap where do they overlap in terms or color samples.

Showed subjects a color and asked them to describe it on the scale created
Used a 6 step scale without a middle position so the subject had to chose a direction

- Notes on the colors
  - Red was saturated and bright
  - Green was pale
  - Blue was a very deep hue but not saturated

Results of color connotations

- Both Anglos and Navajos have the same general connotative principles for color
- Anglos and Navajos agree more on the connotations of color chips than on the connotations of color words
  - Brightness
    - White is good happy pretty sweet while Black is rough, angry, crooked
  - Saturation
    - Most saturated colors are stronger, harder, heavier and thicker
  - Hue
    - Differs b/w the two groups, Green is the peak of cold, quiet, loose, and unripe for the Navajos unlike the Anglos

What does this mean?

- Does not support Sapir-Whorf theory
- Strong intercultural correlations despite very different languages and culture
- Navajos large differences could be attributed to the lack of generalizing in metaphor in pre-literate cultures
- Similarities might arise because these characteristics are universally part of the physical world,
  - red hot and alive; blue cold and passive