The Universality of Emotion Representations: An Investigation of Color and Emotion Associates in a Non-Western Population

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Abstract

The color associated with certain words is a domain of increasing interest in clinical psychology, as well as other disciplines. Of greater importance, is the relationship between various colors and emotions, as this provides insight into how people may cognitively view certain emotional states or items that elicit an emotional response. In a novel study conducted by Sutton and Altarriba (2015), Western (American) participants provided color associates to a list of positive and negative emotion and emotion-laden words, in an effort to determine which colors were most associated with a certain type of emotional stimulus. In the current study, color associates to emotion words that differed in valence and type were collected in a Sub-Saharan African setting, in order to determine whether those in a Non-Western culture formed color associates that differed. The results revealed several differences in the order of dominant colors generated, and are examined in terms of applications to clinical psychology and cross-cultural considerations.

Background

Color-associations to emotions are of critical importance to researchers and practitioners working in marketing, education, and clinical settings (Plass, Heidig, Hayward, Homer, & Um, 2014). In addition, perceptual processes surrounding color and emotional stimuli often differ from one culture to another and therefore, should be considered within respective cultural contexts (Pope, Butler, & Qualter, 2012). For instance, North American cultures have a tendency to use dark, solid and subdued colors, while African cultures generally use a variety of brighter colors and more patterns (Singh, 2006).

- **Emotion words**: those that explain an actual emotional state or feeling (e.g., *angry*, *happy*, *sad*)
- **Emotion-laden words**: those that elicit an emotional feeling indirectly of the literal meaning of the word (e.g., *cancer*, *money*)

Processing differences between emotion and emotion-laden words are observed across a variety of experimental paradigms (e.g., Basnight-Brown & Altarriba, 2011; Knickerbocker & Altarriba, 2013), with some revealing that emotion words show greater memory recall than emotion-laden words. In a novel experiment conducted by Sutton and Altarriba (2015), participants provided color associations to positive and negative emotion and emotion-laden words, in an effort to develop a set of norms for emotional stimuli. Their results revealed that red was the most common color associated with negative emotion and emotion-laden words, while yellow was most frequently associated with positive emotions and white with positive emotion-laden items.

Research Questions in the Current Study:
1. Are emotion/color associations represented the same way across cultures, are these representations universal?
2. If differences emerge across Western and Non-Western populations, are differences more prominent for positive or negative items?

Methodology

Participants: 111 undergraduate university students from Sub-Saharan Africa participated in the word norming task.
- Demographic data revealed that all participants were multilingual, a defining feature of many on the African continent. English was the first language for 23% of participants, with an average age of acquisition of 1.97 years old. For those whom English was not their first language, the average age of acquisition was 2.17 years old (no difference in AoA of English as the L1 vs. L2).

Stimuli: 160 words taken from Sutton and Altarriba (2015): 35 negative emotion, 55 negative emotion-laden, 29 positive emotion, and 41 positive emotion-laden.
- All emotion items were high in arousal and differed in valence according to the ANEW database
- Emotion items were presented in a mixed list with neutral items

Task: Participants were presented with each item, in English, and asked to write the first color that came to mind for each word presented. If no color was elicited, they were instructed to leave it blank. Two lists were created, with all items counterbalanced across participants.

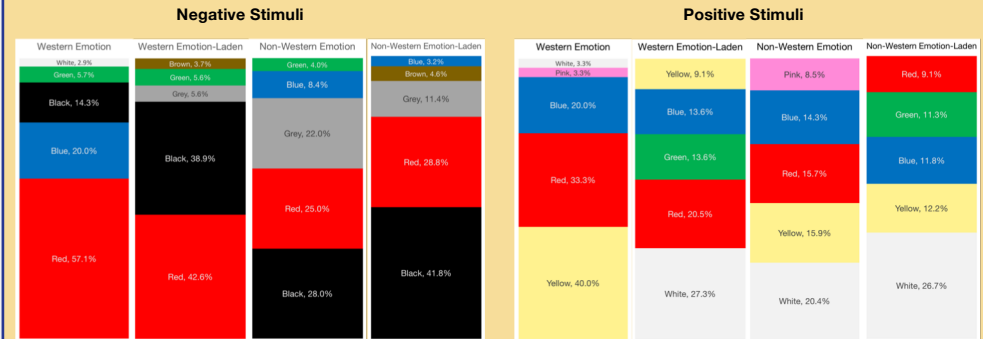| WORD TYPE	SAMPLE ITEMS
Positive Emotion	JOY, LOVE
Positive Emotion-Laden	WEDDING, HEAVEN
Negative Emotion	ANGER, FEAR
Negative Emotion-Laden	DEATH, COFFIN

Results

Figure 1: Bars above depict the 5 most dominant colors generated for each word type, with the Sutton and Altarriba (2015) outcomes compared to the top 5 dominant colors generated in the current study.

Item by Item Comparison Across Experiments:
A comparison of the dominant color generated per item for the Western (Sutton & Altarriba, 2015) and Non-Western (current study) participants revealed:
- Negative Items: 15 out of 35 (42.85%) negative emotion words elicited the same dominant color response, while 41 out of 55 words (74.54%) negative emotion-laden words produced the same response for most frequently associated color.
- Positive Items: 17 out of 29 emotion words (58.62%) produced the same dominant response, while 27 out of 41 (65.85%) emotion-laden words shared a dominant response across experiments.

Conclusions

Overall, the results indicated some differences in response sets per word type, with differences being more pronounced for negative items. Specifically, dominant color associates provided for both negative emotion and emotion-laden words were RED in the North American sample, and BLACK in the the Sub-Saharan African population, suggesting that color emotion representations for negative emotions may not be universal.

In summary, the current exploration of color and emotion associations in a highly multilingual African population revealed differences in the dominant color provided to items within each of the four emotion type categories, suggesting that different cultures differ in their cognitive representations of colors that are linked with specific emotions. Furthermore, the greater variation in number of color responses (e.g., the Western participants generated a total of 5-7 different colors per word type, while the Non-Western participants generated 20-26 different colors per word type), support previous findings that African populations make use of a larger variety of colors and patterns within their culture. As Singh (2006) reported, in the field of business marketing, collectivistic cultures generally display more variety of colors as compared to individualistic cultures.

Not only do the current findings have several important implications for the study of color and emotion memory representation in terms of cross-cultural differences that may exist, but also in how they extend to clinical work. For example, Kim and Kang (2013) observed that intentional use of color in art therapy for patients recovering from strokes, resulted in increased quality of life as the variation and intensity of colors used changed over time.

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