Is Sadness Blue? Cross-Cultural Differences of Color-Emotion Associations

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Abstract

In our increasingly globalized society, it is more important than ever for people to be able to perceive the emotional connotations of written material. People from different countries communicate with each other through written media, such as email, blogs, Facebook, and text messaging. With the absence of visual cues and gestures, successful communication can be difficult. In particular, it may be difficult for people to communicate emotions, which are essential for conveying which ideas are most important, which deadlines matter, when someone is joking, etc. When discussing emotions verbally, people often use figurative language (Fainsilber & Ortony, 1987). For example, someone might say "I feel blue." Literary analyses have found associations of emotions with some colors. For example, anger is associated with red (Kovecses, 2005). "Anger is red" is known as a conceptual metaphor, in which the descriptor "red" can be used to connote anger (Lakoff & Johnson, 1980). Not all of these conceptual metaphors may be used in all cultures. The purpose of this study is to explicitly test whether seven color-based conceptual metaphors are used in two different countries: the United States and India.

To accomplish this, we recruited 388 participants from the United States and India using Amazon's mechanical Turk. Participants indicated whether each of four emotions (happiness, sadness, anger, and fear) was associated with various colors and hues. The results supported five of the seven conceptual metaphors. In both the United States and India, happiness was associated with bright, anger with dark and red, fear with dark, and sadness with dark. Fear was not associated with white in either country. Sadness was associated with blue in the United States, but not in India. Thus, there are differences between how people in the United States and India associate emotions with colors. Because of these differences, one should be careful using color-based metaphors for emotions. Indeed, one should be careful using any type of figurative language when communicating with someone from a different country.

Introduction

In our increasingly globalized society, people from different countries are communicating with each other more and more often, particularly through written media. When people describe their emotions, they often use metaphors (Fainsilber & Ortony, 1987). Will a person in India understand what is meant by the sentence, "I'm feeling blue today," or will there be problems of interpretation? The purpose of this study is to determine if emotions are described using the same colors in different countries.

Literary research has found that emotions are associated with specific colors. For example, sadness is associated with blue (Tao, Tan, & Picard, 2005) and anger is associated with red (Kovecses, 2005). "Anger is red" is referred to as a conceptual metaphor, in which one concept (the descriptor) provides information about another concept (the emotion) (Lakoff & Johnson, 1980).

Table 1

Color-Based Conceptual Metaphors for Emotions

Metaphor	Examples
Happiness is bright	"Look on the bright side." (Lakoff & Johnson, 1980)
Sadness is dark	"She is in a dark mood." (Tao, Tan, & Picard, 2005)
Sadness is blue	"I have felt blue." (Salokangas, Vaahtera, Pacriev, Sohlman, & Lehtinen, 2002)
Anger is dark	"He went dark with spite." (Apresjan, 1997)
Anger is red	"He got red with anger." (Lakoff & Kovecses, 1986)
Fear is dark	"His darkest fears"
Fear is white	"She turned white with fear." (Apresjan, 1997)

Extensive research supports the conceptual metaphors for each of four emotions: happiness, sadness, anger, and fear. More specifically, cross-cultural literature analyses support seven conceptual metaphors involving colors. See Table 1. Three of these metaphors are specific to individual colors. The remaining four are based on the premise that brightness is associated with positive emotions and darkness with negative emotions (Barcelona, 2003; Terwogt & Hoeksma, 2001). Following this premise, brightness is associated with happiness, while darkness is associated with anger, sadness, and fear.

The purpose of the current study is to provide explicit evidence for seven color-based conceptual metaphors in the United States and India. We predict happiness will be associated with bright, sadness will be associated with dark and blue, anger will be associated with dark and red, and fear will be associated with dark and white.

Method

Participants

Participants were recruited from Amazon's mechanical Turk (mTurk). On mTurk, requesters advertise tasks for workers to complete in return for monetary compensation.

In order to examine the relationships between emotions and descriptors in multiple countries, we recruited participants from both the United States and India. To ensure that participants understood the study and the items, we only analyzed the data from participants who stated that they were very comfortable with English.

From the United States, there were a total of 206 participants (104 male, 102 female). These participants ranged in age from 18 to 64 (mean = 32.8, SD = 11.0). Of these, 82.5% identified themselves as White, 11.7% as Black or African American, 5.8% as Asian, and 3.8% as belonging to other groups. English was the first language of 95.6% of the United States participants.

From India, there were a total of 182 participants (116 male, 6 female). These participants ranged in age from 19 to 61 (mean = 31.6, SD = 9.0). Of these, 95.1% identified themselves as Asian, and the remaining 4.9% identified themselves as belonging to other groups. English was the first language of 25.3% of the participants. The next most common first languages were Malayalam (19.2%), Tamil (19.2%), and Hindi (17.6%).

Measures

Demographics. The demographics survey included nine items, including sex, age, race, and what country they live in. It also asked them what their first language is, how many years they have been speaking English, and how comfortable they are reading, writing, speaking, and listening to English (1 = 'Very uncomfortable, it's a real struggle' and 10 = 'Perfectly comfortable').

Language of Emotions Questionnaire. The Language of Emotions Questionnaire (LEQ) is a self-report close-ended survey. The LEQ was created to assess whether the conceptual metaphors that were chosen based on previous literary analyses correspond to each emotion. For instance, does the descriptor "red" correspond to the emotion "anger?" See Appendix A.

Results

Happiness was associated with bright in both the United States and India. See Table 2. In addition, happiness was associated with yellow, green, and white in both the United States and India, further confirming that happiness is bright. See Table 3.

Sadness was associated with dark in both the United States and India. See Table 2. Furthermore, sadness was associated with black and grey in both the United States and India. See Table 3. However, sadness was only associated with blue in the United States.

Anger was associated with dark and red in both the United States and India. See Tables 2 and 3.

Fear was associated with dark in both the United States and India. See Table 2. Furthermore, fear was associated with black in both the United States and India. See Table 3. However, fear was not associated with white in either the United States or India.

Table 2

Associations of Emotions with Dark and Bright

Emotion	Dark	Bright
Happiness		
U.S.	0.0	**100.0**
India	4.9	**95.1**
Sadness		
U.S.	**98.5**	1.5
India	**93.4**	6.0
Anger		
U.S.	**93.2**	6.8
India	**85.2**	13.7
Fear		
U.S.	**99.5**	0.5
India	**93.4**	6.6

Note. Percentages greater than 75% are in bold.

Table 3

Associations of Emotions with Colors

Emotion	Red	Purple	Blue	Green	Yellow	Orange	Black	Gray	White
Happiness									
U.S.	18.4	22.8	18.9	**38.3**	**75.7**	**44.7**	1.5	0.5	**33.0**
India	12.6	13.7	**28.6**	**44.5**	**29.7**	24.7	3.8	5.5	**52.2**
Sadness									
U.S.	1.5	12.1	**66.0**	2.4	1.5	0.5	**50.0**	**55.3**	7.3
India	9.9	7.7	16.5	6.0	7.7	3.3	**56.6**	**33.5**	8.2
Anger									
U.S.	**88.3**	8.3	1.5	1.0	3.9	18.0	**37.9**	6.8	8.7
India	**69.2**	4.4	7.7	4.9	7.7	8.8	23.6	6.6	3.3
Fear									
U.S.	10.2	10.7	14.6	6.8	14.1	5.8	**57.3**	**39.8**	20.4
India	18.7	7.7	15.9	8.2	12.1	8.2	**39.6**	23.1	14.3

Note. Percentages greater than 25% are in bold.

Discussion

To achieve social and professional success in the new millennium, people must understand the emotional connotations of written language. The purpose of our research was to provide explicit evidence that

seven conceptual metaphors for emotions are valid in both the United States and India. We found evidence for six of the seven metaphors in the United States, but only for five of them in India. There was insufficient evidence for "fear is white" in either country and there was insufficient evidence for "sadness is blue" in India.

There are multiple reasons why individuals may not associate fear with the color white. This conceptual metaphor appears to be based upon the physiological reaction that people experience when they are scared. When individuals become scared, their faces are drained of blood, thereby becoming pale or white (Maalej, 2007). However this loss of blood flow is represented by a variety of colors depending upon the culture, including "paleness, whiteness, yellowness, blueness, and etcetera" (Maalej, 2007, p. 93). Moreover, people may not think of facial blood loss when asked what colors fear is associated with. Instead, individuals seem to link fear with external factors that cause fear, such as blackness and darkness. In addition, it is possible that a more realistic conceptual metaphor is "scared people are white" rather than "fear is white." In other words, even though people observe that other individuals become white when they are scared, they may not describe their own internal feelings in this way. Because of this, "fear is white" may not have an emotional association, but simply a physical association.

Blue was associated with sadness in the United States. However, blue was not associated with sadness in India, but instead was associated with happiness. This discrepancy becomes clearer after looking at the history of the color blue in both the United States and India. In the United States, sadness has been associated with blue since the 1600s ("Blue," Oxford, 2013). This association began with stories of demons called "blue devils," who caused melancholy or depression in individuals. This association eventually led to the popular music "the blues" of the early 1900s ("Blue," Oxford, 2013). However, in India, blue is associated with happiness more than sadness. This association might be partly due to one of the major religions in India: Hinduism. In Hinduism, one of the most widely known divinities is the blue-bodied Krishna, who is associated with divine and human love ("Krishna," Encyclopaedia Brittanica, 2014). Moreover, blue is associated with success in India and is the color of many Indian sports teams.

Communication with other countries is widespread and unavoidable in the new globalized economy. This study showed that there are some differences between the United States and India in how people associate emotions with colors. Because of these differences, one should be careful using color-based metaphors for emotions. Indeed, one should be careful using any type of figurative language when communicating with someone from a different country.

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