"I feel blue": The problem of using figurative language in psychological tests

Ever had difficulty describing a nagging worry or burst of joy? Emotions are hard to describe with literal language, so people often use figurative language: I'm feeling up today, but she's got the blues. However, when figurative language appears on psychological tests, it can cause confusion, especially if the test was designed by someone from a different culture. Some figurative language is specific to only a few countries. The purpose of our research was to determine whether figurative language for emotions is interpreted the same way by two culturally distinct countries, the United States and India. If this and other research shows that figurative language is interpreted the same, it can be safely used on psychological tests.

Conceptual Metaphors for Emotions

Conceptual metaphor	Examples in speech and writing
Happiness is up	She's in high spirits. I'm feeling up today.
Happiness is bright	She brightened up. She was glowing with happiness.
Happiness is warm	That warmed my spirits. His smile warmed my heart.
Sadness is down	He is down in the dumps. I'm in low spirits.
Sadness is dark	I'm feeling gloomy. It's like a black cloud.
Sadness is empty	I felt empty. The bottom of my heart has been empty.
Sadness is blue	I feel blue today. She had the blues.
Anger is dark	His face was dark with rage. He went dark with spite.
Anger is hot	Don't get hot under the collar. He was hot-headed.
Anger is red	She was scarlet with rage. He was so angry he saw red.
Fear is dark	He told me his darkest fears.
Fear is cold	He felt cold shivers running down his spine. I was filled with icy fear.
Fear is paralyzed	He became paralyzed by fear. I was petrified.
Fear is white	His face turned white with fear. She was white as a sheet.

Fig. 1. Conceptual Metaphors for Emotions.

Previous research found cross-cultural evidence for 14 "conceptual metaphors" commonly used in the U.S. (Fig. 1). Conceptual metaphors tie together multiple figurative language phrases. For instance, "the thought chilled him," "she had cold feet," and "cold shivers ran down his spine" led researchers to deduce the conceptual metaphor *fear is cold*. We asked participants in the U.S. and India whether they associated happiness, sadness, anger, and fear with 21 descriptors (up, blue, cold, etc.). For example, is happiness associated with up or down? Which temperatures are fear associated with —hot, warm, cool, or cold? Which colors are sadness associated with — blue, white, red, etc.?

After screening our data to ensure all participants were 'very comfortable' with English, we found the remaining 795 participants associated most of the descriptors with the predicted emotions (Fig. 2). However, not all participants endorsed these associations: In the U.S., only 71.7% associated hot with anger and only 65.9% associated blue with sadness. Additionally, participants often associated descriptors with more than one emotion. For example, sadness, anger, and fear are all associated with dark. Thus, while these associations are common, most are not universal or unique.

In India, fewer participants recognized each of the conceptual metaphors. (In the graph, note that the blue bar for India is shorter than the orange bar for the U.S. for every single metaphor.) Moreover, less than 50% of participants from India identified three of the conceptual metaphors that were well recognized by U.S. participants: *happiness is warm*, *fear is cold*, and *sadness is blue*. Although previous research found support for these metaphors in multiple countries, these conceptual metaphors are not culturally universal. For example, blue is associated with different emotions in other countries: In French, "fureur bleue" means to have extreme anger and "avoir une peur bleue" means to be frightened to death. Blue may not be universally associated with particular emotions because the associations are not based on common physiological reactions. People turn red when they are angry (hence, *anger is red*), but people do not turn blue when they are sad.
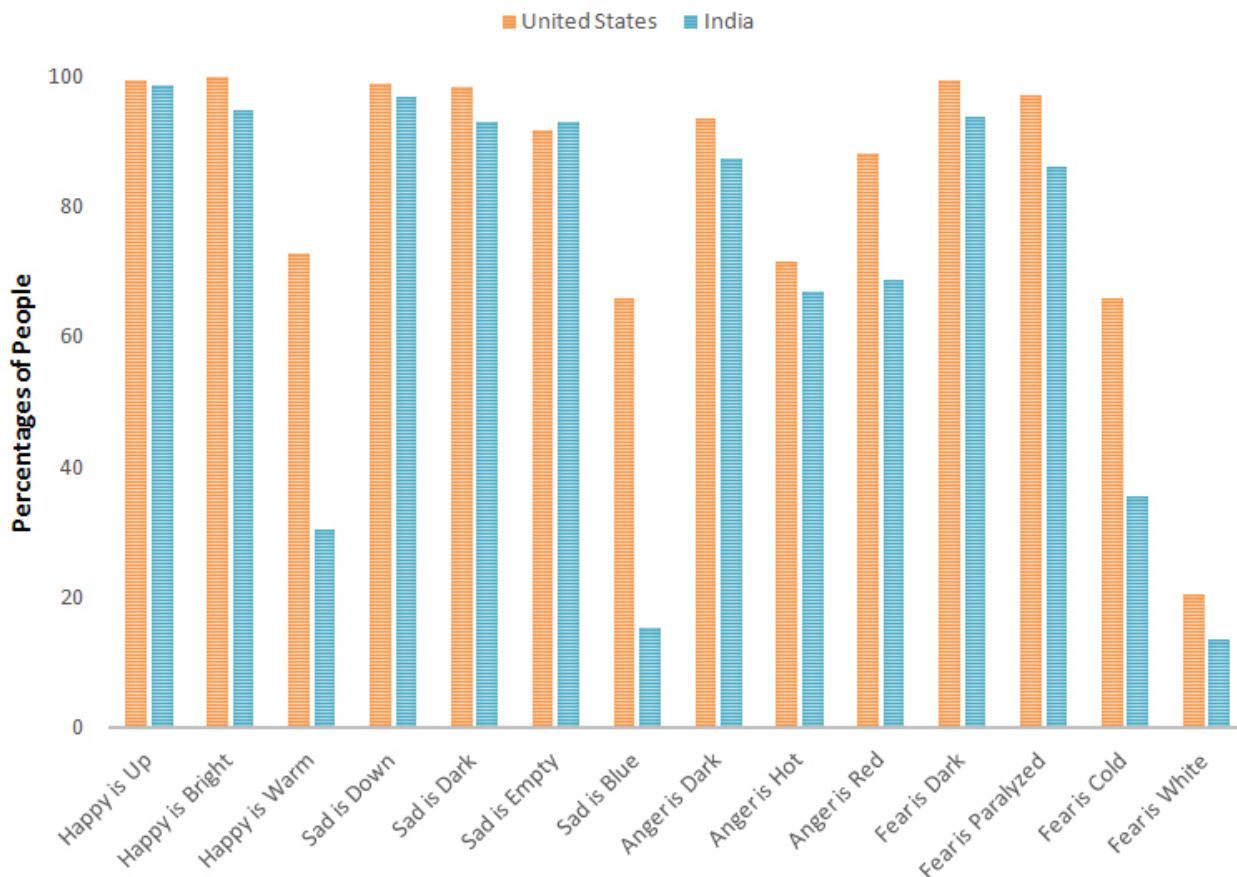
Fig. 2. Associations between descriptors and emotions.

The only conceptual metaphor that was not recognized by participants from either country was *fear is white*. Although several studies have associated fear with a white face, loss of blood flow is represented by a variety of colors (paleness, yellowness, etc.). These findings echo previous research showing that facial expressions of fear are not as well recognized as facial expressions of other emotions.

Only two of our 14 conceptual metaphors were uniquely and almost universally identified in both countries: *happiness is up* and *happiness is bright*. Based on these results, test developers should be cautious when using figurative language on psychological tests and avoid it if possible. Test-takers should ensure they understand the intended meaning of test items to obtain accurate test scores. In our increasingly globalized society, all of us should be aware of both the richness and dangers of using figurative language.

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