Perceiving Emotions in Metaphors: Vocabulary or Emotion Perception?
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Abstract

The ability to understand the emotional connotations of written material is more important than ever. With worldwide electronic media being used for both personal and professional communication, people must understand both the literal meaning of words and their emotional connotations. The Metaphors Test (Barchard, Anderson, Hensley, & Walker, 2011) was designed to measure this aspect of emotion perception. The Metaphors Test asks people to indicate the extent to which ten metaphors convey each of three emotions. It has high internal consistency and strong convergent validity with tests of emotional intelligence (Barchard et al., 2011). However, previous research has shown that metaphor comprehension depends upon word knowledge (Landi, 2009). Therefore, the purpose of the current study was to explore the relationship between the Metaphors Test and vocabulary. A total of 105 undergraduates completed the Metaphors Test and the Las Vegas Vocabulary Test (Barchard, 2004). The correlation between these tests was moderate ($r(103) = .31$). We conclude that the Metaphors Test is not simply a measure of vocabulary. Combined with previous research, these results suggest that the Metaphors Test is a promising new measure of a new aspect of emotion perception. In a world that depends upon global communication, understanding the emotional connotations of written language is essential in both our professional and personal lives. It helps us recognize the emotional content of instructions from supervisors that reside in different cities, and maintain ties with family and friends who are scattered across the globe.

Introduction

People are using electronic media to communicate more than ever before – whether they are texting friends on cell phones or emailing colleagues and supervisors. Therefore, it is imperative that people understand both the literal denotative information that is contained in written materials and their emotional connotations. If they do not, they may misunderstand what their friends and colleagues are saying, which may alienate them in this new technological world.

The Metaphors Test (Barchard, Anderson, Hensley, & Walker, 2011) was designed to measure the ability to decipher the emotional connotations of ambiguous verbal stimuli. Specifically, respondents are asked to indicate the extent to which ten metaphors convey each of three emotions. Previous research has provided support for the reliability and validity of this test. Barchard et al. (2011) found that the Metaphors Test has strong internal consistency (coefficient alpha = .86). They also found that the Metaphors Test correlates with several tests of emotional intelligence: It correlates with both total scores and branch scores on the Mayer-Salovey-Caruso Emotional Intelligence Test (Mayer, Salovey, & Caruso, 2002a, 2002b; Total scores, $r(104) = .51$, p < .001; Perceiving, $r(104) = .50$, p < .001; Facilitating, $r(104) = .49$, p < .001; Understanding, $r(104) = .36$, p < .001; and Managing, $r(104) = .32$, p < .05), with the Levels of Emotional Awareness Scale (Lane, Quinlan, Schwartz, Walker, and Zeitlin, 1990; $r(104) = .36$, p < .001), and with three of the four O'Sullivan and Guilford Tests – Cartoon Predictions ($r(104) = .37$, p < .001), Expression Grouping ($r(104) = .31$, $p < .05$), and Missing Cartoons ($r(104) = .31$, p < .05). Thus, the evidence for the reliability and validity of the Metaphors Test is promising.

However, no research has examined the discriminant validity of the Metaphors Test, and previous research has shown that vocabulary is essential for understanding novel metaphors. A person's ability to comprehend a metaphor can be predicted by that person's word knowledge (Landi, 2010). When people come across a metaphor for the first time, they use the surrounding words to decipher the meaning behind the metaphor. Also, if someone is unfamiliar with a word in the metaphor, this person is more likely to have difficulty deciphering the metaphor (Frisson & Pickering, 2001). Finally, for commonly used metaphors, knowledge of every word is not required to comprehend the metaphor, but if you have never encountered a particular metaphor before, vocabulary is important to understanding it (Gibbs & Nagaoka, 1985). Given the relationship between metaphor comprehension and vocabulary, the purpose of the current study was to examine the relationship between the Metaphors Test and vocabulary to ensure that it is not simply a measure of vocabulary.

Method

Participants

A total of 105 undergraduates (59 females and 46 males) participated in this study in return for course credit. They ranged in age from 18 to 39 (mean 19.99, SD 3.39). Most participants identified themselves as Caucasian (58.1%), followed by Hispanic (14.3%), Asian (10.5%), African American (6.7%), Pacific Islander (5.7%), Other (3.8%), and 1.0% did not identify their ethnicity.

Measures

The Metaphors Test

The Metaphors Test (Barchard et al., 2011) includes 10 metaphors, with three emotions each. Respondents are asked to imagine that someone said each metaphor, and to rate the extent to which that person is feeling each of the three emotions. They use a five-point scale (ranging from 1 = Not at all, to 5 = Extreme). An example is given in Figure 1.

Figure 1
Example Item from the Metaphors Test

	Not at all	A little	Somewhat	A lot	Extreme
His face is a ray of sunshine.					
uplifted	1	2	3	4	5
embarrassed	1	2	3	4	5
admiration	1	2	3	4	5

The Metaphors Test is scored using proportion consensus scoring. In proportion consensus scoring (MacCann, Roberts, Matthews, & Zeidner, 2004), the respondent's score is equal to the proportion of people that chose the same answer in the norm group. For example, if 60% of the norm group selected response A, then A would be scored as .60.

Las Vegas Vocabulary Test

The Las Vegas Vocabulary Test (Barchard, 2004) is a multiple-choice test. Participants are given a vocabulary word and are asked to select the word that is equivalent to it, out of a list of four to five possible options. There are no emotion words on the test. There are two sections, each containing 30 items. In each section, the words vary in difficulty, beginning with the easiest and ending with the hardest.

Procedure

These two measures were administered as part of a larger study, which was completed on-line in two 90-minute sessions.

Data Analysis

We calculated the correlation between scores on the Las Vegas Vocabulary Test and the Metaphors Test.

Results

We found a moderate positive correlation between the Metaphors Test scores and the Las Vegas Vocabulary Test scores ($r(103) = .31$, $p = .001$). Figure 2 shows the scatter plot for these two variables.

Examination of the scatter plot shows that there was an outlier: One person obtained a low score on the Vocabulary test but a high score on the Metaphors Test. To check that this one person was not unduly influencing the results, we recalculated the correlation with that person excluded from the analysis. The correlation was still moderate ($r(102) = .36$, $p < .001$).

Figure 2
The Relationship between the Metaphors Test and the Las Vegas Vocabulary Test
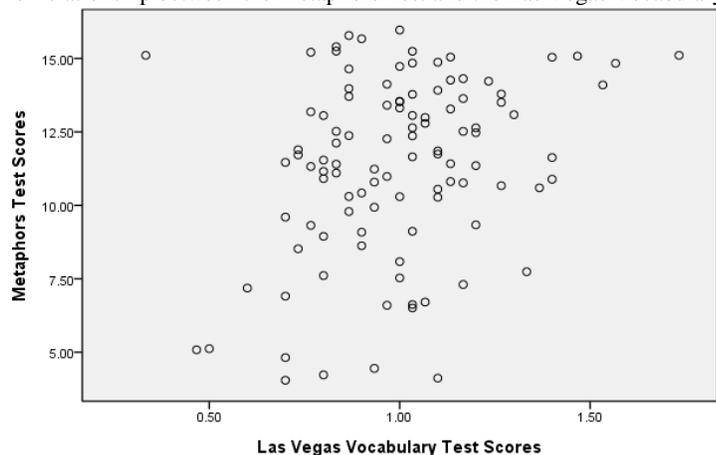

Discussion

This study examined the discriminant validity of the Metaphors Test. The Metaphors Test scores were significantly related to the Las Vegas Vocabulary Test scores; however, this correlation was only moderate in size. Therefore, we conclude that the Metaphors Test does not simply measure vocabulary. These results provide further evidence that the Metaphors Test is a good measure of emotion perception. Future research should explore the utility of the Metaphors Test as a selection and training tool for jobs that rely upon the ability to decipher emotional connotations in written materials, such as online counselors or managers who work with globally distributed groups.

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