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Abstract

As text-based communication (e.g., email, instant messaging, and online chat rooms) gains popularity, it is increasingly important that people accurately perceive emotions in written language. The Metaphors Test (Barchard, Hensley, Anderson, & Walker, 2013) is a new test designed to measure this skill. The purpose of our study is to examine the discriminant validity of the Metaphors Test by correlating it with verbal ability. A total of 181 undergraduates completed an online study including the Metaphors Test and a 4-item test of verbal ability. As was hypothesized, we found a moderate positive correlation ($r(179) = .30$), which showed the discriminant validity of the Metaphors Test. These results should be considered tentative, though: Many participants gave the highest possible score for verbal ability, causing a ceiling effect that may have affected the correlation. Future research should replicate this study using a measure of verbal ability with a greater range of scores.

Introduction

As text-based communication (email, text, online chat rooms, forums) has become more prevalent, the ability to understand the emotional connotations of written language has also become more important. It is an important aspect of maintaining healthy relationships (Byron, 2008). The ability to perceive emotions accurately is one part of emotional intelligence, which has been defined as the ability to “carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought” (Mayer, Roberts, & Barsade, 2008, p. 511). One of the most commonly used measures of emotional intelligence is the Mayer Salovey Caruso Emotional Intelligence Test. It divides emotional intelligence into four categories: Perception, Facilitation, Understanding, and Managing (Brackett & Mayer, 2003). Although MSCEIT is a reliable and valid measure of these four branches (Brackett, Mayer, & Warner, 2004), it only measures the perception of emotions in nonverbal cues, such as facial expressions (Brackett & Mayer, 2003). It does not measure the ability to perceive emotions in verbal materials.

There are several tests of the ability to perceive emotions in written stimuli. Some tests, such as the Emotional Accuracy Research Scale (Mayer & Geher, 1996) and the Stories task from the Multifactor Emotional Intelligence Scale (Mayer, Salovey, & Caruso, 2001), include explicit emotion words within the item stimuli. This makes it impossible to know if the respondent has the ability to decipher the emotional connotations of the materials or simply knows the synonyms of the emotion words that are given. Other tests, such as the ones used by Gregory and Waggoner (1996) only include very easy items. This reduces their usefulness for measuring this skill in adults. The Metaphors Test (Barchard et al., 2013) avoids including emotion words in the item stems, making it possible to measure emotion perception separately from emotion vocabulary, and was designed to be more difficult than the Gregory and Waggoner test, allowing us to distinguish between high and low emotion perception skill (Barchard et al., 2013).

Metaphors are an appropriate tool for measuring emotion perception skill because deciphering metaphors requires comprehension of emotions (Kövecses, 2000). For example, psychopaths are able to understand the literal meanings of metaphors, but have difficulty understanding their emotional connotations (Hervé, Hayes, & Hare, 2003). However, metaphor comprehension hinges on word knowledge (Landi, 2009). Therefore, it is important to establish that the Metaphors Test is not simply a measure of verbal ability. Previous research on the relationship between the Metaphors Test and verbal ability has shown that there is a positive, but low correlation ($r(103) = .28$) among college students (Barchard et al., 2013). The purpose of this study is to replicate that research using a non-college sample.

Method

Participants

A total of 181 people, 81 female and 100 male, participated in our study. The participants were recruited from Amazon’s Mechanical Turk (mTurk) and were compensated 10 cents for their time. Their ages ranged from 20 to 68 (mean = 31.05, SD = 10.83). The majority of participants identified themselves as Asian (78.5%), followed by White (11.6%), Indian (4.5%), American Indian or Alaskan Native (3.3%), Black or African American (1.1%), and other (1.2%). Most participants lived in India (86.2%) or the United States (9.9%).

Measures

Metaphors Test

The Metaphors Test measures the ability to perceive the emotional connotations of verbal stimuli. It consists of 30 items: for each of ten metaphors, three emotions are given (Barchard et al., 2013). Participants are asked to rate the three emotions (1= not at all, to 5= extreme) based on how they perceived the speaker of each metaphor would feel (Barchard et al., 2013). The Metaphors Test is scored using proportion consensus scoring (PCS). With PCS, a person’s score on an item is equal to the proportion of respondents in the norm group that gave the same answer (MacCann, Roberts, Matthews, & Zeidner, 2004). For example, if 45% of the respondents answered with “not at all”, then everyone who selected “not at all” would be scored as .45.

Verbal Skill

The participants completed a four-item questionnaire on their comfort in reading, writing, listening, and speaking English. Each question used a 10 point scale, with 10 being “Completely Comfortable”.

Procedure

The two measures were administered as part of a larger online study that took approximately 15 minutes to complete. The online materials for this study were created using Qualtrics. The study was advertised through Amazon Mechanical Turk (mTurk): a website that connects people who want work done (called requesters) with people who want to do the work (called workers). Requesters advertise tasks (called Human Intelligence Tasks) that can be completed for compensation. Typically, compensation is minimal. mTurk is frequently used to advertise psychological studies

(Buhmester, Kwang & Gosling, 2011). In this study, participants received a validation code that was generated in Qualtrics. Participants entered the validation code into mTurk in order to receive credit: a monetary compensation of 10 cents.

Data Analysis

To evaluate the discriminant validity of the Metaphors Test, we correlated it with the test of verbal skill.

Results

We found a significant moderate correlation between the Metaphors Test and verbal skill ($r(179) = .30, p < .001$). Although the correlation was statistically significant, there were some participants who scored low on the Metaphors Test and yet reported their verbal skill as being high, and there was also an outlier who scored high on the Metaphors Test but reported their verbal skill as low. A scatter plot of the data is shown in Figure 1.

Discussion

The goal of this study was to evaluate the discriminant validity of the Metaphors Test compared to verbal skill in a non-college sample. As expected, we found a moderate positive correlation, thus replicating previous research that used a college sample (Barchard et al. 2013). This makes sense, because metaphor comprehension requires understanding both the denotative and conative meaning of words. These findings thus provide additional evidence for the validity of the Metaphors Test as a measure of emotional perception.

This study had three limitations. First, because the study was administered online, we did not control the testing environment. If future research was done in person, the researchers could ensure that the environment was free from distraction. Second, the participants were not homogeneous. In mTurk, we did not limit participation to people from specific countries. Because of this, the majority of our participants (86.2%) lived in India or the United States (9.9%). The inclusion of two widely disparate countries can confound within-group relationships with between-group differences. It is therefore unclear if these results would generalize to the United States population. This research should be replicated using United States residents. Third, this study used a self-report measure of verbal ability. Such self-reports depend upon how participants feel about their verbal ability at that particular moment and not their actual skill with the language. Some participants may have overestimated their skill. Many participants gave the highest possible response to all four verbal skill items. This ceiling effect will have reduced the size of the correlation. In addition, one participant scored high on the Metaphors Test but reported low verbal skill. Perhaps this participant was comparing himself to a different reference group than the other participants used. Regardless of the cause, this outlier will also have reduced the size of the correlation. This study should be replicated with a maximum performance test of verbal ability that is sufficiently difficult to avoid ceiling effects.

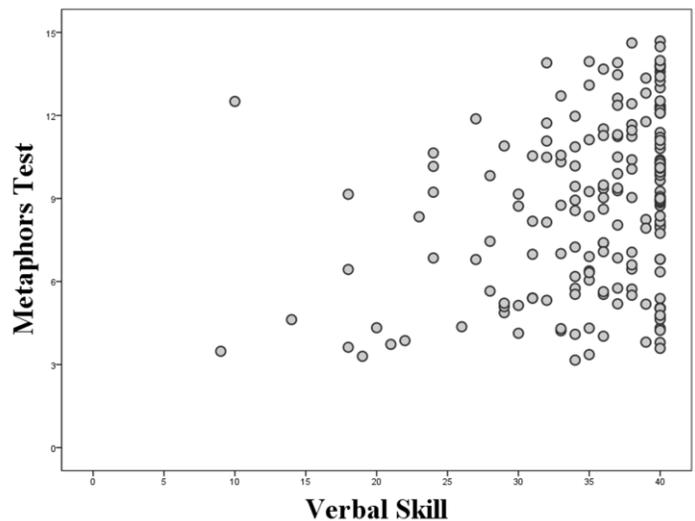


Figure 1. Correlation between the Metaphors Test and verbal skill.

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