

Note: this document may not describe the most recent version of this cognitive test available from TestMyBrain. TestMyBrain cognitive test documentation will be updated over the next several months to align with current test versions.

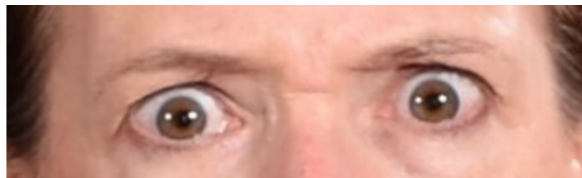
# TMB Multiracial Reading the Mind in the Eyes

**Constructs Measured:** Social Communication / Reception of Facial Communication

**Duration:** 4 minutes

**Sample size for which normative data are available:** 10,523

**Description of procedure:** Participants view photographs of eyes displaying varied emotions and choose the word that best describes the emotion shown in the expression.



1. ANXIOUS
2. DISAPPOINTED
3. SHOCKED
4. CONCERNED

TMB Multiracial Reading the Mind in the Eyes Test is a digital adaptation of the Reading the Mind in the Eyes test, a measure of social communication and perception. Unlike more commonly used versions of this task, the TMB Multiracial Reading the Mind in the Eyes test includes faces of diverse racial and ethnic backgrounds and includes an equal number of male and female faces. Advantages of this test include ease of administration on all commonly used devices. Disadvantages include the use of relatively uncommon words as answer options (e.g. “aghast”); for this reason, we do not recommend the use of this test in non-native English speakers or participants with lower levels of education.

## Psychometric Characteristics

Here we focus on accuracy (number correct or proportion correct) as the primary outcome measure or score. There are other reaction time-based measures that could be derived from this test (e.g. mean response time), but since this is not a speeded test the interpretation of these measures would not be clear.

Internal reliability of this test was high; using split-half correlation with Spearman-Brown correction, we found  $r = 0.69$ . Scores on this test are normally distributed (see Figure 1). Performance improves throughout adolescence and young adulthood and is consistent throughout adulthood (see Figure 2). Female participants show greater average accuracy than male participants (see Figure 3). There is no consistent relationship between performance on this test and education (see Figure 4).

Our sample did not show significant practice effects; first-time participants had a mean accuracy of 56.6% (SD 12.8), while repeat participants had a mean accuracy of 55% (SD 13.0). However, because of the limited number of possible responses, participants who take the test multiple times may be able to learn the correct answers by process of elimination.

### **Validation**

Performance on this test shows a modest correlation with responses on the Autism Spectrum Quotient Communication Subscale, a self-report survey measuring ability to understand social information (age-corrected  $r = 0.14$ , 95% CI = (0.71, 0.21); higher score on questionnaire indicates greater self-reported ability to understand social information). In developing the multiracial version of this test, we also created a hybrid test using both images from the set used in the Multiracial RMET and images and word sets from the widely used Revised Reading the Mind in the Eyes Test (Baron-Cohen et al., 2001), a version which includes only White/European-presenting faces. These two sets of items were highly correlated ( $r = 0.63$ ), indicating that this version is psychometrically similar to previous versions of this test while including a more diverse stimulus set.

### **Appropriateness for Field Test Use**

This test includes a practice trial, in which the correct answer is given to the participant, to familiarize them with the format of the test. Participants must complete this trial before beginning the scored portion of this test. This ensures that performance is not artificially lowered due to difficulty understanding the task.

**Device Effects:** There were no significant differences in performance between users of different devices. Users of iPhones had a mean accuracy of 57.4% (SD 12.4), while users of iPads had a mean accuracy of 57.3% (SD 12.7) and users of Macintosh computers had a mean accuracy of 59.4% (SD 11.9).

**Participant Burden:** This task is relatively well-tolerated by participants, but poses a higher burden than many shorter tasks. 80% of participants who began the task completed it. The average rating for batteries containing this task is 3.62/5, compared to a sitewide average of 3.67/5.

Figure 1. Distribution of scores

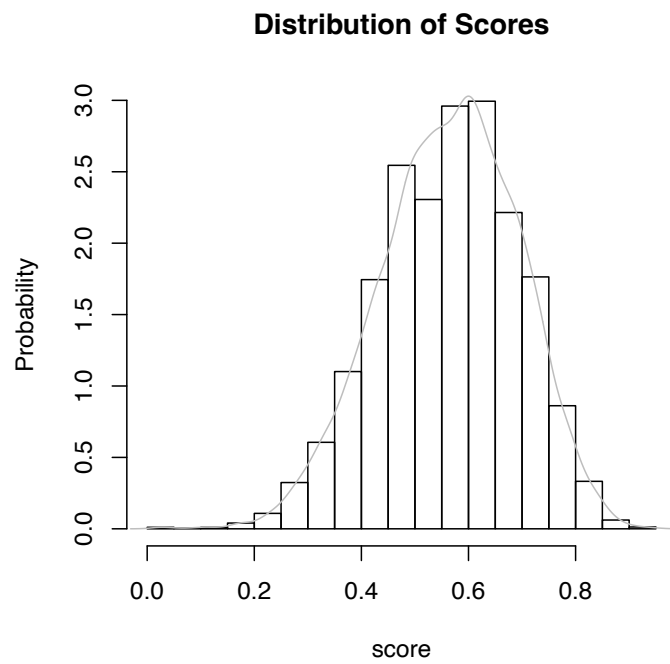


Figure 2. Age-related differences in performance

## Age Differences

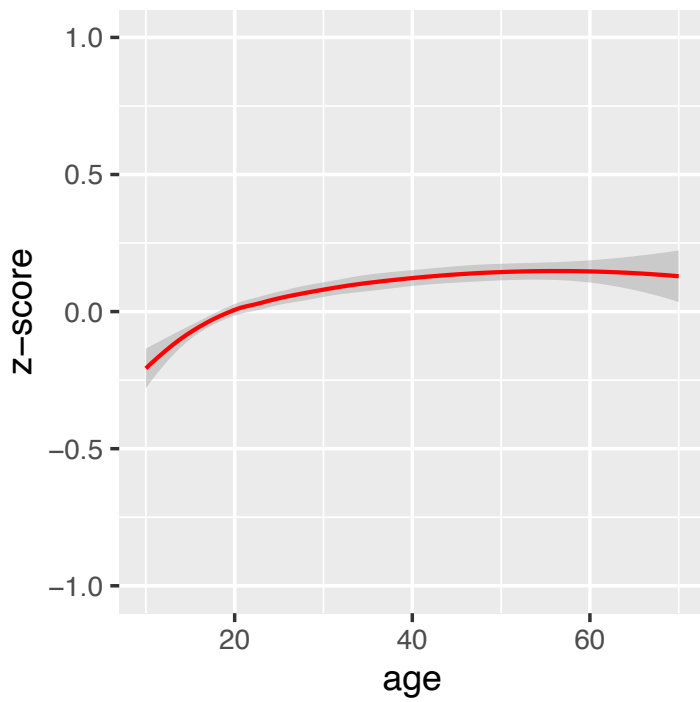


Figure 3. Sex differences in performance

## Sex Differences

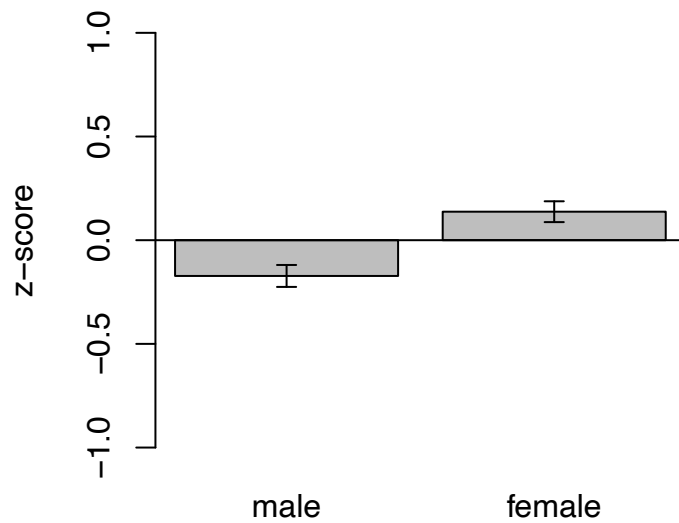


Figure 4. Education-related differences in performance

