The Effects of Shortening ACT Tessera Scales on Validity

Kate E. Walton, Cristina Anguiano-Carrasco, Jeremy Burrus, Dana Murano, & Jason Way

When launching a new version of an assessment, one must take into consideration user feedback while simultaneously ensuring the psychometric properties of the assessment are not jeopardized. One important piece of feedback we received from users regarding ACT® Tessera® was the need for a shorter assessment; however, shortening an assessment can lead to reduced reliability and validity. In revising Tessera, the following strategies were used to reduce assessment length:

- **The two facets of conscientiousness (Organization/Responsibility and Tenacity/Grit) were combined into a single scale (Grit).**
- **The number of situational judgment test (SJT) items for Organization/Responsibility and for Tenacity/Grit was reduced from six to two, and the number of SJT items for all other constructs was reduced from three to two.**
- **The number of forced choice triads was reduced from 20 to 10.**

Not only do these changes better align the assessment with the Big Five personality framework on which Tessera is based, but they are justifiable from a psychometric standpoint as the average correlation between the two facets reaches .79. We tested whether the scales maintained an acceptable level of validity despite the reduced number of items and found that they do.

We analyzed data from 10,387 middle school and 4,738 high school students who completed the previous form of Tessera and reported their GPA. After computing construct scores for the previous form of Tessera and the shortened form, we compared correlations between the scores and self-reported GPA. Results for the Grit construct, which underwent the greatest reduction in length, are presented below in Figures 1 and 2.

Figure 1. Correlations Between Grit-Related Scores and GPA: Middle School

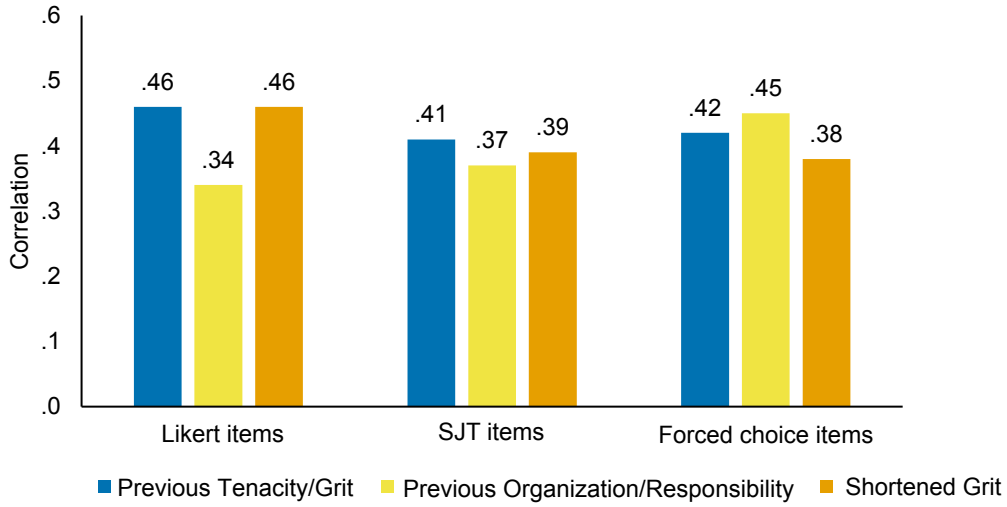
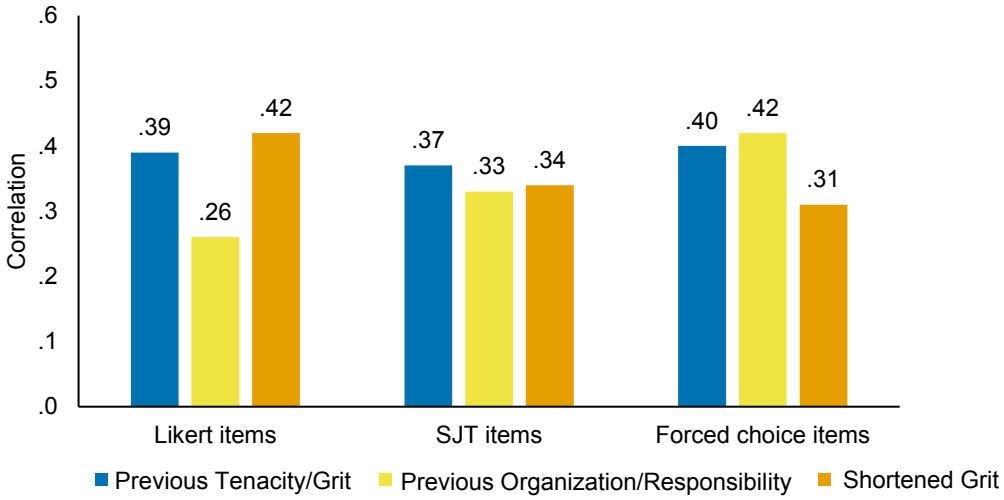


Figure 2. Correlations Between Grit-Related Scores and GPA: High School



We also regressed GPA on the previous scales (Organization/Responsibility and Tenacity/Grit Likert, SJT, and forced choice items) and compared this to a model with the shortened scales (Grit Likert, SJT, and forced choice items) as the predictor variables. In the middle school sample, the previous scales accounted for 26% of the variance in GPA, whereas the shortened scales accounted for 24%. In the high school sample, the previous scales accounted for 23% of the variance in GPA, whereas the shortened scales accounted for 21%.

In conclusion, the revised version of Tessera provides a much shorter yet equally valid assessment of Grit. We reduced the number of Grit-related Likert items from 16 to eight, the number of SJT items from 12 to two, and the number of forced choice items from 20 to six with no detriment to the validity of the assessment (i.e., roughly the same amount of variance was accounted for; Cohen, 1988).

Reference

ACT. (2018). *ACT Tessera Technical Bulletin*. Iowa City, IA: ACT. Retrieved from https://www.act.org/content/dam/act/unsecured/documents/R1675-tessera-tech-bulletin-2018-08.pdf

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