

Predicting Performance

with the *Miller Analogies Test*® (MAT)

Independent research studies indicate that the *Miller Analogies Test* (MAT) is not only a valid predictor of performance in both educational and work settings, but also a better predictor of success than either the *Graduate Record Examinations*® (GRE®) or undergraduate GPA.

Valid Predictor of Academic Performance

A meta-analysis of *Miller Analogies Test* (MAT) research conducted by Kuncel, Hezlett, and Ones (2004) found the MAT to be a valid predictor of several important indications of graduate school success. After analyzing data from 127 studies involving more than 20,000 participants, the researchers suggested that the MAT is an effective measure of general cognitive ability and a valid predictor of performance in both educational and work settings.

The MAT Outperforms the GRE and Undergraduate GPA

Evaluations of the differences between the predictive validity reported in the above 2004 meta-analysis and an earlier study conducted by Kuncel, Hezlett, and Ones (2001) involving data from more than 1,500 studies and 80,000 graduate students show the MAT to be more predictive than either the GRE or undergraduate GPA for the following:

- **For first-year graduate GPA**, the MAT is a better predictor than GRE Verbal or undergraduate GPA.
- **For overall graduate GPA**, the MAT is a better predictor than GRE Quantitative or undergraduate GPA.
- **For comprehensive exam scores**, the MAT is a better predictor than GRE Verbal, GRE Quantitative, or undergraduate GPA.

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Predictive Validity Comparison

Table 1 compares predictive validity data for three key academic criteria included in the meta-analyses conducted by Kuncel, Hezlett, and Ones for the MAT (2004) and for the GRE and undergraduate GPA (2001).

Table 1: Predictive Validity Data (*p*) for Three Academic Criteria for the MAT, GRE Verbal (V), GRE Quantitative (Q), and Undergraduate GPA (UGPA)

Criterion	MAT	GRE-V	GRE-Q	UGPA
	<i>p</i>	<i>p</i>	<i>p</i>	<i>p</i>
1st-year Graduate GPA	0.41	0.34	0.38	0.33
Overall Graduate GPA	0.39	0.34	0.32	0.30
Comprehensive Exam Scores	0.58	0.44	0.26	0.12

Notes: *p* = estimated true score validity for MAT, and estimated operational validity for GRE and UGPA (calculated by the researchers to correct for sampling error, restriction of range, and measurement error in the data analyzed from the various studies).

Data Comparison Relevance

Though the data shown in Table 1 indicate that MAT scores are more predictive than either GRE subtest scores or undergraduate GPA for all three criteria, the important question is whether these differences are enough to be meaningful.

Table 2 shows the results of effect size magnitude analyses (*d*) of the predictive validity statistics, a measure of the meaningfulness of the differences. For all but two comparisons shown in Table 2, the greater MAT predictive validity statistics are meaningful (*d* above 0.50), suggesting that the MAT is a generally better predictor for all three criteria, especially for comprehensive exam scores.

Table 2: Effect Size Magnitudes (*d*) of the Differences between MAT, GRE Verbal (V), GRE Quantitative (Q), and Undergraduate GPA (UGPA) Predictive Validity Statistics

Criterion	MAT/GRE-V	MAT/GRE-Q	MAT/UGPA
	<i>d</i>	<i>d</i>	<i>d</i>
1st-year Graduate GPA	0.52	0.22	0.63
Overall Graduate GPA	0.40	0.82	0.90
Comprehensive Exam Scores	1.29	6.75	21.68

Notes: *d* = effect size magnitude (calculated from the estimated validity statistics [*p*] and their standard deviations [*SDp*] as reported by Kuncel, Hezlett, and Ones (2001, 2004)).

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References

Kuncel, N. R., Hezlett, S. A., & Ones, D. S. (2001). A comprehensive meta-analysis of the predictive validity of the Graduate Record Examinations: Implications for graduate student selection and performance. *Psychological Bulletin*, 127 (1), 162–181.

Kuncel, N. R., Hezlett, S. A., & Ones, D. S. (2004). Academic performance, career potential, creativity, and job performance: Can one construct predict them all? *Journal of Personality and Social Psychology*, 86 (1), 148–161.

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