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GRE® Test Validity: Putting It in Perspective

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There are many myths that are widely thought of as true, but actually are not. And yet other, actual facts are treated as myths. A good example is the myth that the correlations of GRE® scores with grades are so low as to suggest that the GRE General Test is of no value. This myth may come from the perception among some academics that the correlations between GRE scores and graduate GPA should be as high as the correlations they see in their own fields of study, such as medical research, aeronautics or chemical engineering.

In reality, in the field of educational measurement, the correlations between GRE scores and grades are quite meaningful. In fact, the correlations are stronger than many claims that are commonly believed to be ironclad truths.

For example, would it surprise you to learn that GRE General Test scores correlate more highly with students' cumulative graduate GPA than smoking is likely to predict lung cancer? How about scores from the GRE Analytical Writing section are better predictors of a biological and biomedical science doctoral program student's grades than taking hypertension medication is of a reduced risk of stroke?
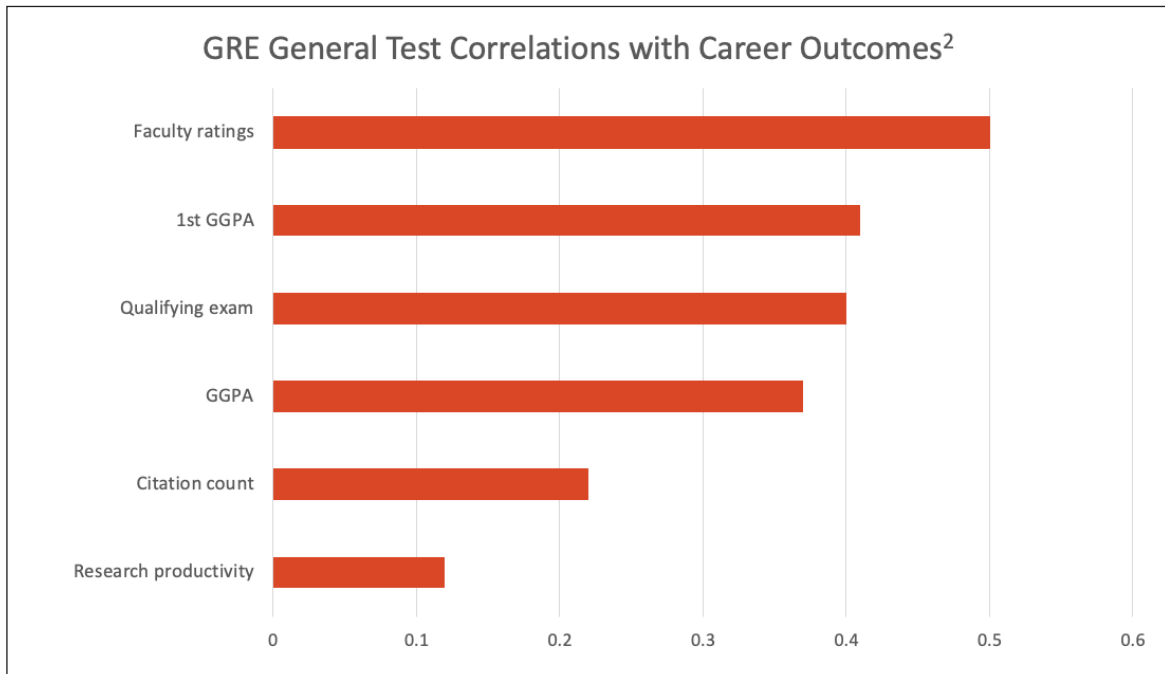
How GRE Scores Stack Up[1]

r - Coefficient of Correlation	Measures Correlated
.03	hypertension medication & reduced risk of stroke
.08	bypass surgery for heart disease & survival for at least 5 years
.08	ever smoking & incidence of lung cancer within 25 years
.09	alcohol use during pregnancy & premature birth
.12	low-level lead exposure & reduced childhood IQ
.22	**GRE Verbal Reasoning scores & cumulative graduate GPA in Health Professions & Clinical Sciences Master's Programs**
.23	alcohol use & aggressive behavior
.27	**GRE Analytical Writing scores & cumulative graduate GPA in Biological & Biomedical Science Doctoral Programs**
.30	sleeping pills & short-term improvement in chronic insomnia
.32	psychotherapy & subsequent well-being
.34	Viagra use & improved male sexual functioning
.34	elevation above sea level & lower daily temperatures
.37	**GRE Quantitative Reasoning scores & cumulative graduate GPA in MBA Programs**
.40	habitat size loss & species decline
.44	weight & height for U.S. adults

The truth is that the GRE General Test is more highly correlated with graduate-level academic readiness and performance than many commonly accepted correlations curated from popular psychology, medicine and everyday life. Yet despite dozens of studies validating the GRE tests by external, independent researchers, ETS continues to encounter criticisms based on unrealistic expectations that correlations between GRE scores and graduate GPA — a relationship that is greatly affected by grade inflation — should compare favorably with correlations observed in other fields.

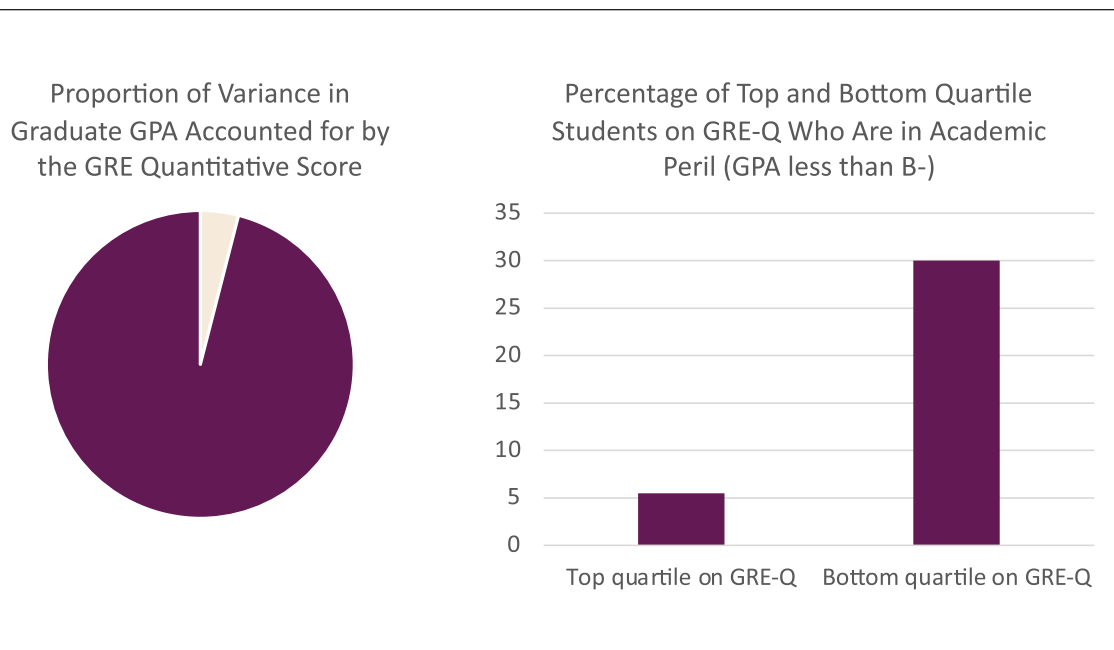## Our own misperceptions can be the most difficult beliefs to change.

GRE scores serve a critical function as the only common, objective measures that allow faculty committees to compare applicants from different educational, social and cultural backgrounds. The test is proven to be highly valid in measuring what it says it was designed to measure: graduate school readiness. It's also proven to be a reliable predictor of what it claims it can predict — first-year GPA — as well as outcomes beyond that, such as cumulative graduate GPA and faculty ratings of student performance. And this is true for both master's and doctoral program students, according to a **meta-analysis of more than 100 research studies by University of Minnesota researchers**.

GRE General Test Correlations with Career Outcomes[2]

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Category	Value
Faculty ratings	0.50
1st GGPA	0.41
Qualifying exam	0.40
GGPA	0.37
Citation count	0.22
Research productivity	0.12

It's proven that all three sections of the GRE General Test are valuable in predicting cumulative graduate GPA across many fields of study, including programs in STEM, the humanities, business and law. A **study** that examined the GRE test scores of 25,356 students enrolled at 10 institutions found that all three sections of the test were key to calculating expected cumulative graduate GPA across many master's and doctoral programs. An **examination** of the GRE scores of MBA students from 12 institutions found that GRE Quantitative Reasoning and GRE Verbal Reasoning scores predicted both first-semester and cumulative MBA GPA, above and beyond undergraduate GPA. And most recently, a 2017 study of students at 21 law schools found that all three GRE General Test scores predict first-year grades and that the scores add to the prediction even when undergraduate GPA is already available to predict those grades.[3]

The correlation between scores and grades can tell us more than just who is likely to succeed academically. It can also tell us which students are likely to struggle. As shown in the graphs below, which are based on **real data** from six biological and biomedical sciences master's programs, a test correlation that explains less than 4% of the variance in first-year grades can be very useful for identifying students likely to struggle. For the graph on the right, the authors identified students within each department who were in the top or bottom GRE Quantitative Reasoning (GRE-Q) quartiles, noted the percent of students in serious academic peril (GPA less than B-) in each quartile and averaged these across the departments. Although based on exactly the same data, the graph on the right tells a far different story than the graph on the left. Thus, GRE scores can be useful to faculty not only in making admissions decisions, but also in identifying students who might benefit from additional support to help them stick with and be successful in the program.

Proportion of Variance in Graduate GPA Accounted for by the GRE Quantitative Score

Percentage of Top and Bottom Quartile Students on GRE-Q Who Are in Academic Peril (GPA less than B-)

The GRE General Test has been proven in dozens of reports over several decades to be a valid predictor of first-year and cumulative graduate GPA, among other outcomes, in both master's and doctoral programs. All three sections of the test are valuable in predicting cumulative graduate GPA across many programs of study, including programs in STEM, the humanities, business and law — and with stronger a correlation than the correlations between many important variables in psychology, medicine and everyday life. The correlation between GRE scores and grades not only helps to identify students likely to succeed, but those who are likely to struggle and may benefit from extra support to ensure their success.

Please email **gretests@ets.org** for more information about the validity of the GRE General Test.

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[1] GRE correlation information in this chart can be found on pages 20 and 24 in New Perspectives on the Validity of the GRE® General Test for Predicting Graduate School Grades and on page 5 of The Validity of Scores from the GRE® revised General Test for Forecasting Performance in Business Schools: Phase One. Other correlations referenced in this chart can be found on pages 130–132 in Psychological Testing and Psychological Assessment: A Review of Evidence and Issues.

[2] GRE correlation information in this chart can be found on page 1080 in Standardized Tests Predict Graduate Students' Success, an article in *Science* magazine. The correlations are for Verbal Reasoning and Quantitative Reasoning scores combined, but do not include Analytical Writing scores.

[3] Law school correlation information can be found in The Validity of GRE® General Test Scores for Predicting Academic Performance at U.S. Law Schools.