

Discontinuation of the GRE at the University of Michigan

Rackham Graduate School White Paper
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Executive Summary

A major focus of Rackham Graduate School’s DEI Strategic plan is the development of policy changes and practices that substantively address inequities in the graduate admissions process and, in doing so, strengthen the diversity and excellence of Rackham programs. One such opportunity arose upon examination of the use of the Graduate Record Examination (GRE) general test in the graduate admissions process at the University of Michigan (U-M). We examined the data regarding the efficacy of the GRE as an assessment instrument, the inequities inherent to the test, and the impact of cost and access on applicants. In all categories, the preponderance of evidence supports the characterization of the GRE as an ineffective assessment tool and one that has a disproportionately negative impact on the inclusion of non-whites, females, and international applicants in graduate education. Indeed, the majority of Rackham doctoral programs have already discontinued the use of the GRE as part of holistic efforts to support excellence and equity in their respective fields, with substantive success. Taken together, the data indicate that discontinuation of the GRE in doctoral admissions is an effective action to promote equity and excellence across the scholarly enterprise.

The GRE Is an Ineffective Assessment Instrument

The GRE is generally used in admissions decisions as a gauge of readiness for the rigors of a graduate program. However, numerous studies, including those produced by the Educational Testing Service (ETS), the organization that administers the GRE, show that the general test has limited predictive power. As shown in Table 1, an ETS analysis illustrates that the strongest correlation between GRE scores and graduate school outcomes is in cumulative GPA for M.B.A. programs. Indeed, data from the ETS and a plethora of published studies across disciplines demonstrate that, for doctoral students, GRE scores weakly predict first-year grades (r -coefficients of ~ 0.2) and, more importantly, do not correlate with the more common metrics of success in doctoral programs, such as persistence, research productivity, degree completion, and time to degree.^{1,2,3,4,5,6}

| r - Coefficient of Correlation | Measure Correlated |
|---------------------------------------|---------------------------------------------------------------------------------------------------------|
| .03 | hypertension medication and reduced risk of stroke |
| .08 | bypass surgery for heart disease and survival for at least 5 years |
| .08 | ever smoking and incidence of lung cancer within 25 years |
| .09 | alcohol use during pregnancy and premature birth |
| .12 | low-level lead exposure and reduced childhood IQ |
| .22 | GRE Verbal Reasoning scores and GGPA in Health Professions and Clinical Sciences Masters Programs |
| .23 | alcohol use and aggressive behavior |
| .27 | GRE Analytical Writing scores and cumulative GPA in Biological and Biomedical Science Doctoral Programs |
| .30 | sleeping pills and short-term improvement in chronic insomnia |
| .32 | psychotherapy and subsequent well-being |
| .34 | elevation above sea level and lower daily temperatures |

Table 1: GRE scores modestly correlate with GPA in some first year M.S. programs. Data and table from the Education Testing Service (ETS): <https://news.ets.org/stories/gre-test-validity-putting-it-in-perspective>

| r - Coefficient of Correlation | Measure Correlated |
|--------------------------------|----------------------------------------------------------------------|
| .34 | Viagra use and improved male sexual functioning |
| .37 | GRE Quantitative Reasoning scores and cumulative GPA in MBA Programs |
| .40 | habitat size loss and species decline |
| .44 | weight and height for U.S. adults |

The GRE Continues To Create Barriers For Diversity, Equity, Inclusion, And Excellence In Graduate Education

At the time of the GRE’s creation (1936), the institutions for which it was designed were populated by student bodies that were almost entirely white, male, and Protestant.^{7,8,9,10} Although there were coeducational institutions at the time (including U-M), most members of the Ivy League would not adopt undergraduate coeducation until the 1960s; and, the predominant path to a college degree for African Americans was through historically black colleges and universities (HBCUs).¹¹ It is thus not surprising that the GRE is a product of its time, with the format and content consistent with the contemporaneous exclusionary practices in admissions within many of these elite institutions. Although the GRE has undergone revisions since 1936, outcomes continue to correlate with race and gender.¹² As outlined by Miller & Stassun, for example, ETS data regarding the GRE scores in STEM reveals that non-white and/or non-male test takers have lower average scores.¹³ This means that any admissions process that relies upon the GRE will exclude talented students who are non-white and/or non-male, thus perpetuating the racialized and gendered educational determinism which was embedded in the test at the time of its creation. Recognizing this, ETS explicitly discourages the use of GRE scores as cutoffs for consideration. Nonetheless, the GRE continues to be frequently used in precisely this manner; indeed, Miller, et al. recently reported that 40 percent or more of physics graduate programs used GRE scores as either formal or informal cutoffs, for example.⁵ Thus, the use of the GRE in graduate admissions functions in opposition to diversity, equity, inclusion, and excellence in doctoral education.

Inequitable Access To The GRE Discourages Prospective Applicants From Even Applying To Graduate School

The GRE is an expensive test. As of July 2020, the standard fee for most of the world is \$205 (U.S.) regardless of testing format, and there are additional costs associated with electronic score reporting. This represents a substantive barrier for students from low socio-economic status backgrounds. This is especially true for international students, particularly for those from relatively under-resourced nations. For students from India, for example, the cost of taking the GRE represents 10 percent of the per capita GDP; in other words, exam costs represent more than a full month’s average salary in India. The result is that only a small strata of potential prospective students have the financial means to even take the test.¹⁴ This represents another mechanism by which the GRE amplifies accumulated advantage for the wealthiest students and accumulated disadvantage for students from under-resourced backgrounds.

Cost is not the only access barrier of the GRE. Quarantines and social distancing measures during the pandemic have led to the cancellation of scheduled testing as well as the closure of some testing sites, limiting equitable access to prospective students. While ETS has offered a “GRE@Home” option for test-taking, issues ranging from the lack of stable internet access to complete the test to inadequate or invasive proctoring have been reported.¹⁵ For these reasons, there are many prospective students who will not be able to take the GRE; or, if they do, they

may not be able to perform to their full potential. This is particularly true for students with disabilities and for international students.

Conclusions

Taken together, the data support the conclusion that the GRE General Test lacks effectiveness for graduate admissions **and** that its use perpetrates and exacerbates systemic inequities. We recognize that discontinuation of the GRE in doctoral admissions is by itself insufficient to fully address equity and excellence in admissions; furthermore, we acknowledge that the development and implementation of new holistic admissions practices will require substantive work for many departments and programs. For both of these reasons, we recommend that Rackham provide significant individualized support and scaffolding for graduate programs during the transition process. Here, we can build on the successful experiences of the many graduate programs at U-M who have made this transition and have increased the strength and diversity of their graduate student cohorts.

Citations

- (1) Sealy L., Saunders C., Blume J., & Chalkley R. (2019). The GRE over the entire range of scores lacks predictive ability for Ph.D. outcomes in the biomedical sciences. *PLoS ONE* 14(3): e0201634. <https://doi.org/10.1371/journal.pone.0201634>
- (2) Megginso, L. (2011). Exploration of nursing doctoral admissions and performance outcomes. *Journal of Nursing Education* 50(9):502-12. <https://doi.org/10.3928/01484834-20110517>
- (3) Moneta-Koehler L., Brown A.M., Petrie K.A., Evans B.J., & Chalkley, R. (2017). The limitations of the GRE in predicting success in biomedical graduate school. *PLoS ONE* 12(1):e0166742. <https://doi.org/10.1371/journal.pone.0166742>
- (4) Williams T.B., Prince L.Y., Allen A.R., Sterba K.M., Thomas B.R., McGehee R.E. (2021) Performance measures of racially underrepresented Ph.D. students in biomedical sciences: The UAMS IMSD Program Outcomes. *PLoS ONE* 16(2): e0246683. <https://doi.org/10.1371/journal.pone.0246683>
- (5) Miller C.W., Zwickl B. M., Posselt J. R., Silvestrini R. T., Hodapp T. (2019) Typical physics Ph.D. admissions criteria limit access to underrepresented groups but fail to predict doctoral completion. *Sci. Adv.* 5, eaat7550.
- (6) King M.R., Jennings G.K., Chalkley R.G. *et al.* (2020) Questioning the Value of the Graduate Record Examinations (GRE) in Ph.D. Admissions in Biomedical Engineering. *Ann Biomed Eng* **48**, 2155–2157. <https://doi.org/10.1007/s10439-020-02552-7>
- (7) *The Big Test: The Secret History of the American Meritocracy.* Nicholas Lemann. Farrar, Straus and Giroux; 1st edition (October 1, 1999)
- (8) *A study of American intelligence.* Carl C. Brigham. Princeton University Press; 1923.
- (9) Saretsky, G.D. (1982) Carl Campbell Brigham, the Native Intelligence Hypothesis, and the Scholastic Aptitude Test. *Educational Testing Service Research Publications*, ETS-RM-82-4.
- (10) *The Chosen. The hidden history of admission and exclusion at Harvard, Yale, and Princeton.* Jerome Karabel. Mariner Books; 2006.
- (11) *College in Black and White: African American Students in Predominantly White and in Historically Black Public Universities* Walter R. Allen, Edgar G. Epps, Nesha Z. Haniff SUNY Press; 1991.
- (12) A snapshot of the individuals who took the GRE General Test 2014-2019: https://www.ets.org/s/gre/pdf/snapshot_test_taker_data_2019.pdf
- (13) Miller C.W., Stassun K. (2014) *Nature* volume 510, pages 303–304.
- (14) United Nations Statistics Division, 2017 & 2019 data, available at <http://data.un.org>.
- (15) Hu, J. (2020, June 24). Graduate programs drop GRE after online version raises concerns about fairness. *Science Magazine*. <https://www.sciencemag.org/careers/2020/06/graduate-programs-drop-gre-after-online-version-raises-concerns-about-fairness>