

Ad Hoc Committee - Examining the Efficacy of the GRE

Response to Charge S-2203

August 22, 2022

Charge Number: S-2203

Title- Examining the Efficacy of the GRE

Description- Examine the effectiveness of the Graduate Record Examination (GRE) and its impact on Rutgers University graduate programs. Investigate other peer aspirants.

Abstract

The committee's overriding concerns are the cost of taking the GRE exam as well as how it creates barriers for underrepresented groups and often fails to predict graduate school completion. Rutgers Graduate Admissions on each of the campuses are allowing for the GRE to be optional in many of their program offerings. In response to this recent charge, an Ad Hoc Committee was created to examine the current practices among leading national institutions, and to review the formal literature review that examines the correlation between GRE scores and success in graduate school performance and retention.

Background

An Ad Hoc Committee was convened to explore the current research literature examining the Graduate Record Examination (GRE) as a data point in securing admissions to a graduate school program for masters' programs and PhD programs, primarily in the STEM field. The LSAT and MCAT examinations were excluded for the purposes of addressing this charge. Ashley Bernstein, a PhD candidate in Chemistry and a former senator, submitted this Charge with the hope of Rutgers examining its reliance on the GRE tests for entry into STEM PhD degree programs.

Holistic Review Process is a mission-aligned admissions or selection processes that takes into consideration applicants' experience, attributes, and academic metrics as well as the value an applicant would contribute to learning, practice, and teaching. The Holistic Review process involves the review of everything a candidate has submitted, understanding of the presence and impact of unconscious biases, and deliberate awareness of inequities in access and opportunity. Extracurricular activities, the rigor of college level courses, letters of recommendation, demonstrated interest, and college interviews may be important factors in a Holistic Review

process. Holistic Review is utilized as an alternative review admissions process when either the GRE is optional or when GRE scores fall below benchmarked mean ranges for a given discipline or program. Holistic Review is currently in use at Rutgers University because of a reduced availability of GRE scores for applicants. When faced with the challenges of reduced data sources, Holistic Review has been viewed as a component solution to provide alternative data points to review the quality of applicants.

The GRE is a standardized test that provides substantial normalized data on academic performance. The GRE and other standardized examinations, like the LSAT and the MCAT, have been used as an assessment of an applicant's cognitive abilities and skill sets in preparation for graduate study. Thus, admissions committees have historically relied heavily on the use of GRE score to select students because students with higher scores were deemed more likely to succeed (Kuncel & Hezlett, 2007; Kuncel, Hezlet, & Ones, 2001; Kuncel, Wee, Searfin, & Hezlett, 2010).

There are, however, problems with utilizing the GRE to select the highest caliber students in admissions, specifically related to impeding enrollment of a diverse student body (Durka, 1999; Pruitt, 1998; & Toyama, 1999) The GRE quantitative portion correlates positively with male gender, Caucasian, and Asian American ethnicity. Specifically, women perform 80 points below average, while African Americans perform 200 points below the mean (ETS, 2014); (2015a) & 2015 b). There are problems with utilizing the GRE to predict success. There is no correlation between persistence rates and women who score well. Men scoring in the higher 25% in the GRE quantitative portion were also more likely to leave school without a degree than those who scored in the lowest 25% (Halford, 2019).

Rutgers' utilization of GRE scores as an important factor in graduate admissions appears problematic because of its biases against female and underrepresented minority (URM) students and its questionable prediction of success. The committee does not support eliminating the use of the GRE, nor is this a call to admit academically unqualified students in favor of a more diverse student body in graduate programs. The committee does seek to facilitate development and use of alternative pathways in graduate admission processes that involve innovative, augmented processes that utilize proven success markers and program completion with a diminished reliance on GRE data points.

Nationwide, Graduate Schools have been working to expand program access to a more diverse group of applicants. However, the dependency on GRE quantitative scores remains steadfast. The committee reviewed several journal publications (Wilson, M. Odem, M., Walters, T, Depass, A., & Bean, A. (2019); Miller & Stassum, (2014); Cantwell, Canche, M.; & Sutton, F., (2010); Kuncel, N.R., Ones, D. S. A, (2001) & MacLachlan, A.J., (2017).

Discussion and Considerations

The committee utilized a two-prong approach to explore this charge. First, the committee conducted a detailed review of admissions-related literature on the GRE within the past 10 years. Next, key Graduate School staff representatives from each campus were invited to outline their

admissions-related processes and, when applicable, the Holistic Review processes instituted during the 2020-21 pandemic year when GRE testing became optional.

Invited guests included Richard Welsh, Jennifer Soyka, & Julianne Apostolopoulos from the Office of General Counsel, Vice Chancellor Courtney McAnuff, and Assistant Chancellor Marco Dinovelli, Dean Taja-Nia Henderson, Newark, & Dean Henrik Pedersen, New Brunswick.

Both Dr. McAnuff and Dinovelli outlined a well-defined holistic review practice conducted at Rutgers University Undergraduate admissions since the pandemic Spring 2020 semester. It should be noted this was the inception of a SAT and GRE optional phase because of students' inability to complete testing during New Jersey state test facility closures. The selection of students was and is still based on specific individualistic criteria when test scores when submitted were slightly below the mean range. The Holistic review criteria included a student's academic record, letters of recommendation, personal qualities involving leadership experiences, enrollment in a precollege program, research experience, military experience, coupled with any socioeconomic or environmental factors that the student experienced during their education and upbringing. Additionally, information regarding the level of parents' college achievement and household income provided the admission committee with a gauge for students drive to succeed, learn and inhabit a sense of grit. A rubric was developed and annually updated for this team to score as much as possible to address some implicit bias. It is understood that substituting a GRE score for other viable options within a holistic review will not eradicate bias entirely. It was suggested the university train as many admissions counselors and volunteer staff in this methodology for the holistic review process.

Dean Taja-Nia Henderson and Dean Henrik Pedersen have outlined similar approaches for specific programs utilizing a holistic review process and have additionally offered webinar training sessions to faculty to enlist their support and understanding of this process. While many programs have agreed to this methodology, several PhD program directors are maintaining their steadfast support of the GRE quantitative scores as degree completion indicators for the PHD. Dean Henderson posited more frequent and timely data from OIRAP to uphold this claim. The committee members argue the GRE scores simply do not indicate how successful a student will be in their programs when 50 percent leave halfway through their degree pathways.

Literature suggests statistically significant increases in diversity within doctoral programs when holistic review is used (Kent, J.D., & McCarthy, M.T., (2016); Okahana, H., Zhou, E. (2017); Paceheco, W.I.,Porter, J., & Appleyard, C.B. (2015); Posselt, J.R., (2016); Scott, L.D., & Zerwic, J. (2015); & Wilson, M.B., Depass, A, (2018). The committee discussed adding a prerecorded interview submission from a standardized list of questions. For example, "Spark Hire" is currently in use at specific Rutgers programs with some positive results in its ease of use in conducting interviews remotely, eliminating interview scheduling challenges, and screening graduate applicants in a time sensitive manner.

Dr. Eduardo Molina, VP of OIRAP attended a scheduled meeting with our committee on September 20, 2022. The discussion points included:

- Identifiable Success markers as defined by each department.
- Tracking data that is meaningful and useful
- Holistic Review along coupled with a series of student support resources that aligns with student retention and degree completion
- Develop customizable dashboards that have department identified success markers
- Incorporate quantitative and qualitative data points

University of Michigan/Rackham Graduate School, Dean Michael Solomon attended one of our scheduled meetings on October 3, 2022 at 9:30 am to explain the multitiered process in removing GRE from its admissions process through several faculty open forums. The University of Michigan's Rackham graduate school had decided to stop using the GRE in any of its internal decisions about fellowships, program review, program quality, etc. It left the choice about using the GRE with each individual program. It also hosted numerous workshops in which it reviewed the evidence about GRE efficacy and its potential impact on access to doctoral education. It is noted that 10% of the U. of Michigan's graduate programs voted against removing the GRE. In these years, many programs on their own stopped using the GRE. The graduate school asked all programs to stop using the GRE during the pandemic, and most did. Some of the graduate programs' chairs reported positive admissions outcomes in this period. It was in this context that the proposal was made to the established Executive Board. The U. of Michigan instituted an Executive Board of elected faculty members for a three-year term to conduct ongoing programmatic admission reviews. All Rackham doctoral programs use a common application; they can add a supplemental page that requests department specific information. Within the bounds of the law, all programs then conduct their admissions processes independently; however, programs are accountable to their admissions practices considering the goals of their programs and this is a discussion point in U. of M. Rackham Program Review. The action of the Executive Board here was to agree to adopt a common approach for doctoral programs to not use the GRE. Finally, U. of M. Rackham reviews each graduate program on a five-year cycle. The review is accomplished by a team of Rackham associate deans and staff. Instead of formally reviewing admissions practices we offer support through holistic admissions workshops and consultation services.

Summary and Synthesis

The issues discussed in the biweekly sessions throughout the summer months were as follows:

- -Predictive validity of GRE and its utility in graduate admissions. Removing barriers for underrepresented students without jeopardizing the academic caliber of applicants.
- -GRE preparatory courses incur a high cost to many impoverished students.
- -Compare and contrast traditional quantitative measures, such as GRE and grade point average (GPA), with Holistic Review.

-Holistic Review as a practice tends to minimize dependence on one specific data point, for example the GRE score, and signal other areas of strengths in the-students' application.

Recommendations

Be it resolved, the University Senate recommends

- 1. Graduate school deans shall advise graduate program directors on the strengths and weaknesses of the GRE, as well as on the strengths of holistic review, before the end of the Spring 2023 semester and on an annual basis thereafter.
- 2. Graduate admission committees need to decide on whether to require, eliminate, or maintain the GRE as optional for the admissions process for the incoming class of 2024-2025 AY.
- 3. Programs that decide to use the GRE must explicitly define how and why the GRE is used, which candidates will be asked to take the GRE, and must make this information readily available to all candidates. Moreover, this needs to be part of a holistic review process.
- 4. If a program chooses to use the GRE, the University should provide financial support, such as free or low-cost GRE preparation materials, to address financial inequities and reduce barriers.
- 5. In consultation with the Office of Institutional Research and Academic Planning (OIRAP), each graduate program shall develop reporting systems on graduate student outcomes.

Respectfully submitted,

Ad Hoc Committee Chairs

Richard Dool, New Brunswick SC&I-Faculty

Adam Kustka, School of Arts and Sciences-Newark Faculty

Suja Patel, Newark-Staff

Lucille Foster, Newark RBS, Vice Chair University Senate

Ad Hoc Committee Members

Gloria Bachmann, Faculty, Robert Wood Johnson Medical School

Joseph T. Barbarese, Faculty, Camden, English Department

Ashley Bernstein, Graduate Student, former SGS Senator, New Brunswick

Robert Boikess, Executive Committee Member, Faculty-School of Arts and Sciences

Alison Clarke, RBHS-New Brunswick Staff

Jon Oliver, Immediate Past Chair-University Senate, Staff New Brunswick

Adrienne Simonds, Chair-University Senate, Faculty-School of Health Professions

Jose Torres, PTL Camden Faculty

Michael Van Stine, Graduate Student Camden

References

Antonio, A. L. (2002). Faculty of color reconsidered: Reassessing contributions to scholarship. Journal of Higher Education, 73, 582–602.

Atwood, K. L., Manago, A. M., & Rogers, R. F. (2011). GRE requirements and student perceptions of fictitious clinical psychology graduate programs Psychological Reports, 108(2), 375–378. doi: 10.2466/07.28.PR0.108 .2.375-378.

Becher, T, & Trowler, P. R. (Eds.). (2001). Academic tribes and territories: Intellectual enquiry and the culture of disciplines (2nd ed.). Buckingham: Society for Research into Higher Education & Open University Press.

Cantwell, B., Canche, M., Milem, J., & Sutton, F. (2010). Do the data support the discourse? Assessing holistic review as an admissions process to promote diversity at a US medical school. In annual meeting of the Association for the Study of Higher Education, Indianapolis.

Clark, B. R. (1989). The academic life: Small worlds, different worlds. Educational Researcher, 18(5), 4–8. doi: 10.2307/1176126.

Cleary, T. A. (1965). Test bias: Prediction of grades of Blacks and white students in integrated colleges. Journal of Educational measurement, 5(2), 115-124.

Durka, J.T. (1999). Beyond inclusion: Multicultural perspectives in the service of transformation. The GRE, FAME Report Series, Vol 3, Princeton, NJ, ETS.

Durning, S. J., Dong, T., Hemmer, P. A., Gilliland, W. R., Cruess, D. F., Boulet, J. R., & Pangaro, L. N. (2015). Are commonly used premedical school or medical school measures associated with board certification? Military Medicine, 180(suppl 4), 18–23. doi: 10.7205/MILMED-D-14-00569.

Educational Testing Services (ETS). (2011). Guidelines for the Use of GRE Scores. Princeton, NJ. Retrieved June 25, 2018, from www.ets.org/gre/ institutions/scores.

ETS. (2014). A snapshot of the individuals who took the GRE revised general test. Princeton, NJ. Retrieved June 25, 2018, from www.ets.org/s/gre/ pdf/snapshot test taker data 2014.pdf.

ETS. (2015a). Graduate Record Examination: Guide to the use of scores, 2015–2016. Princeton, NJ. Retrieved June 25, 2018, from www.ets.org/s/gre/pdf/gre_guide.pdf.

ETS. (2015b). Identify the best applicants for your next incoming class: Avoid these five common mistakes when using GRE scores. Retrieved June 25,2018, from www.ets.org/gre/bestpractices.

Gibbs, K. D., Basson, J., Xierali, I. M., & Broniatowski, D. A. (2016). Decoupling of the minority PhD talent pool and assistant professor hiring in medical

school basic science departments in the US. Elife, 5, e21393. doi:10.7554/eLife.21393

Gibbs, K. D., McGready, J., Bennett, J. C., & Griffin, K. (2014). Biomedical science Ph.D. career interest patterns by race/ethnicity and gender. PLoS

ONE, 9(12), e114736. doi: 10.1371/journal.pone.0114736.

Grossbach, A., & Kuncel, N. R. (2011). The predictive validity of nursing admission measures for performance on the National Council Licensure Examination: A meta-analysis. Journal of Professional Nursing, 27(2), 4–128. doi: 10.1016/j.profnurs.2010.09.010.

Heggeness, M. L., Evans, L., Pohlhaus, J. R., & Mills, S. L. (2016). Measuring diversity of the National Institutes of Health-funded workforce. Academic Medicine, 91(8), 1164–1172. doi: 10.1097/ACM.000000000001209.

Jacobs, J. A. (2013). In defense of disciplines: Interdisciplinarity and specialization in the research university. Chicago: University of Chicago Press.

Kanter, R. M. (1977). Men and women of the corporation. New York: Basic Books.

Kent, J. D., & McCarthy, M. T. (2016). Holistic review in graduate admissions: A report from the council of graduate schools. Washington, DC: Council of Graduate Schools.

Kuncel & Hezlett, (2007) Standardized test predict graduate students' success. Science, 315, 1080-1081.

Kuncel, N. R., Ones, D. S., & Hezlett, S. A. (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., Wee, S., L., & Hezlett, S.A, (2010). The validity of the graduate record examination for masters and doctoral programs: A meta-analysis investigation. Educational and Psychological Measurement, 70, 340 - 352.

Kyllonen, P. (2011). The case for noncognitive constructs and other back-ground variables in graduate education (ETS GRE Board research report ETS GREB-00-11). Retrieved June 25, 2018, from www.ets.org/research/policy research reports/publications/report/2011/ined.

Lazarsfeld, P., & Merton, R. (1954). Friendship as a social process: A substantive and methodological analysis. In Berger, M., Abel, T., & Page, C. H. (Eds.), Freedom and control in modern society (pp. 18–66). New York.

MacLachlan, A. J. (2017, February). Preservation of educational inequality in doctoral education: Tacit knowledge, implicit bias and university faculty (UC Berkeley CSHE, 1.17, January 2017). Berkeley: Center for Studies in Higher Education, University of California—Berkeley. Retrieved June 25, 2018, from https://escholarship.org/uc/item/5zv6c3nj.

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. Annual Review of Sociology, 27(1), 415–444. doi: 10.1146/annurev.soc.27.1.415.

Mervis, J. (2016). Scientific workforce. NSF makes a new bid to boost diversity. Science, 351(6277), 1017. doi: 10.1126/science.351.6277.1017

Milkman, K. L., Akinola, M., & Chugh, D. (2015). What happened before? A field experiment exploring how pay and representation differentially shape bias on the pathway into organizations. Journal of Applied Psychology,100(6), 1678–1712. doi: 10.1037/apl0000022

Miller, C., & Stassun, K. (2014). A test that fails. Nature, 510, 303–304.

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. doi: 10.1371/journal. 0166742

National Science Foundation. (2017). Women, minorities, and persons with disabilities in science and engineering: 2017 (Special report NSF 17-1310). Arlington, VA.

Okahana, H., & Zhou, E. (2017). Graduate enrollment and degrees: 2006 to 2016. Washington, DC: Council of Graduate Schools.

Pacheco, W. I., Noel, R. J., Porter, J. T., & Appleyard, C. B. (2015). Beyond the GRE: Using a composite score to predict the success of Puerto Rican students in a biomedical PhD program. CBE—Life Sciences Education,14(2), ar13. doi: 10.1187/cbe.14-11-0216

Park, H. Y., Berkowitz, O., Symes, K., & Dasgupta, S. (2018). The art and science of selecting graduate students in the biomedical sciences: Performance in doctoral study of the foundational sciences. PLoS ONE, 13(4), e0193901. doi: 10.1371/journal.pone.0193901

Posselt, J. R. (2016). Inside graduate admissions: Merit, diversity, and faculty gatekeeping. Cambridge, MA: Harvard University Press.

Roush, J. K., Rush, B. R., White, B. J., & Wilkerson, M. J. (2014). Correlation o fpre-veterinary admissions criteria, intra-professional curriculum measures, AVMA-COE professional competency scores, and the NAVLE. Journal of Veterinary Medical Education, 41(1), 19–26. doi: 10.3138/jvme.0613-087R1

Scott, L. D., & Zerwic, J. (2015). Holistic review in admissions: A strategy to diversify the nursing workforce. Nursing Outlook, 63(4), 488–495. doi: https://doi.org/10.1016/j.outlook.2015.01.001.

Stichweh, R. (1992). The sociology of scientific disciplines: On the genesis and stability of the disciplinary structure of modern science. Science in Context, 5, 3–15. doi: 10.1017/S0269889700001071.

Valantine, H. A., & Collins, F. S. (2015). The National Institutes of Health addresses the science of diversity. Proceedings of the National Academy of Sciences USA, 112(40), 12240–12242. doi: 10.1073/pnas.1515612112

Wilson, M. A., DePass, A., & Bean, A. J. (2018). Institutional interventions that remove barriers to recruit and retain diverse biomedical PhD students. CBE—Life Sciences Education, 17(2), ar27. doi: 10.1187/cbe.17-09-0210.