

Reflections on Graduate Admissions: Current and Future Directions

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APS Bridge Program Annual Conference, FIU
2015-10-11



Acknowledgements

- Thanks to the APS Bridge Program team, especially: Ted Hodapp, Asmaa Khatib, Arlene Modeste Knowles, Monica Plisch, Kathryne Woodle.
- Thanks to all the survey participants.
- Thanks to the NSF and DOE for supporting the Bridge Program and, thus, providing a vehicle for this study.
- Thank you for listening!



Introduction

What happens between undergraduate and graduate school?

- A disproportionate number of students who identify as African American, Hispanic American and/or American Indian/Alaskan Native and who complete Bachelor's degrees do **not** go on to enroll in graduate programs.
- Graduate admissions are difficult (and intimidating for applicants), so a thorough investigation is warranted.
 - We should be conscientious to ensure that admissions decisions are based on valid and appropriate factors.
 - The messages we translate to **prospective** students determines, in part, who attempts to get into graduate school.
 - **Question:** What is the purpose of graduate admissions?

Admissions Practices

Graduate Admissions Survey

- Doctoral programs (fall 2013):
 - Solicited responses from 199 different institutions.
 - Received responses from 170 individuals at 153 different institutions.
 - 77% response rate, representing about 85% of active PhD programs.
- Master's-only programs (spring 2014):
 - Solicited responses from 57 different institutions.
 - Received responses from 45 individuals identified as being at 43 different institutions.
 - 75% response rate, representing about half of active MS-only programs.

Admissions Practices

What matters most in making admissions decisions?

Q12. Please indicate the importance of each of the following factors to your admissions decisions:

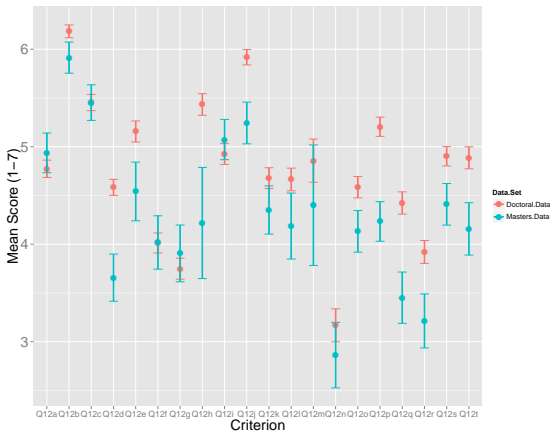
- 21 different factors, all rated from “1 - Least important” to “7 - Most important” or indicated as “Don’t Use”:

- | | |
|--|---|
| a. GPA/grades - general | m. Quality of interviews (conducted by your department) |
| b. GPA/grades - physics/math | n. Proximity/familiarity to department |
| c. Undergraduate courses taken | o. Personal statements |
| d. Undergraduate institution type/reputation | p. Prior research experiences |
| e. GRE quantitative scores | q. Prior publications |
| f. GRE verbal scores | r. Prior conference publications |
| g. GRE written scores | s. Student research interests and/or stated faculty advisor preferences |
| h. GRE physics subject scores | t. Departmental research opportunities (specific availability in research groups) |
| i. TOEFL scores | u. Other: |
| j. Quality of letters of recommendation | |
| k. Reputation of recommenders | |
| l. Recommenders' rankings of students | |

Admissions Practices

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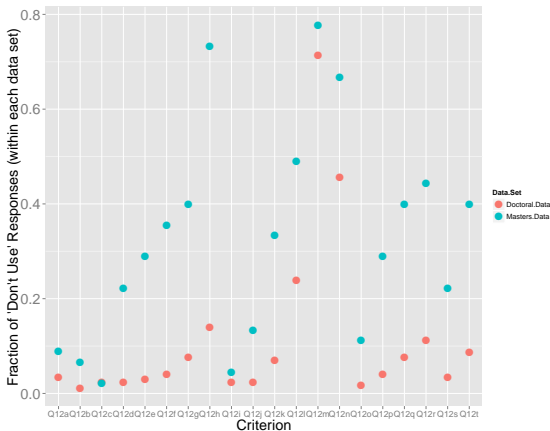


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- GPA/grades - physics/math
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- Undergraduate institution type/reputation
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- GRE verbal scores
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- GRE physics subject scores
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- Personal statements
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- Departmental research opportunities (specific availability in research groups)

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Admissions Practices

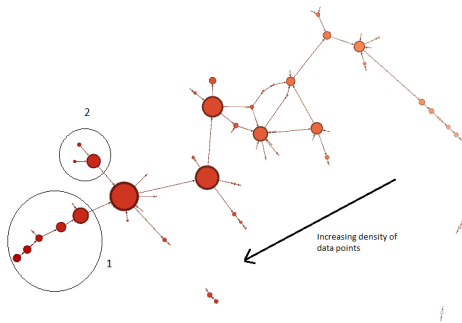
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- High priorities:
 - GPA/grades in physics/math
 - Quality of letters of recommendation
 - Undergraduate courses taken (and subject GRE)
- Differences between doctoral and Master's programs:
 - Master's-granting institutions appear to be using fewer criteria in admissions, perhaps reflecting the lower number of applications they receive.
 - Importance of GRE quantitative and physics subject scores
 - Overall use of any parts of GRE
- Are there distinct “strategies” or “schools of thought” in admissions practices?

Admissions Practices

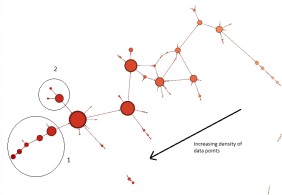
In search of distinct admissions strategies

- What are the independent factors underlying the doctoral responses?
 - Five factors: “Grades” (2 items), “GRE Scores” (4 items), “Prior Research” (3 items), “Fitting In” (4 items), “Recommendations” (3 items).
- Looked at how individuals cluster in the space spanned by these five dimensions, using topological analysis:



Admissions Practices

In search of distinct admissions strategies



- Two, relatively large ($N = 31$ and $N = 14$) clusters that are distinct from one another.
- These two clusters are statistically significantly different from one another on two dimensions: Grades ($p < 0.05$) and Prior Research ($p < 0.001$). Cluster 1 places relatively more importance on Prior Research; Cluster 2 places relatively more importance on Grades.
- There don't appear to be very distinct strategies w.r.t. the use of GRE scores.

Admissions Practices

Use and misuse of GRE scores

- The ETS guide book states

The GRE Board believes that GRE scores should never be the sole basis for an admissions decision and that it is inadvisable to reject an applicant solely on the basis of GRE scores. A cutoff score below which every applicant is categorically rejected without consideration of any other information should not be used. (p. 14)

- Casey Miller has noted how the use of a cutoff score may have a significant impact on graduate diversity.
- GRE scores are significantly correlated to first-year graduate GPA and success in qualifying exams, but much more weakly related to outcomes like citations and research products.

Admissions Practices

Use and misuse of GRE scores

Q13. Are GRE scores (quantitative, verbal, written, or physics subject) used as a minimum cutoff in admissions decisions?

- Master's institutions: 6 of 45 indicated Yes.
- Doctoral institutions: 56 of 171 indicated Yes.

Q13a. Please briefly describe how GRE scores are used:

- Master's institutions: 5 of the 39 No responses provided more details.
- Doctoral institutions: 29 of the 115 No responses provided more details.

Admissions Practices

Use and misuse of GRE scores

Q13a. Please briefly describe how GRE scores are used:

- Analysis of the No responses:
 - Several indicate a process in which the **GRE effectively acts as a cutoff**, despite answering No to Q13.
 - “No fixed cutoff, but GRE quantitative should be about 90 percentile or higher.”
 - “No hard cutoff, but used as a first cut in going through applications and GRE scores trump GPA scores in assessing students.”
 - Another typical sentiment is that **low GRE scores need to be compensated** for by some other outstanding quality:
 - “There is no strict cutoff, but a very low score means other parts of the application must compensate and explain why the student may nonetheless be successful in our program.”

Admissions Practices

How are representations considerations handled?

Q16. Please explain how applicants' gender is factored into application reviews and decisions, if at all:

- 51 indicated it is not factored in. Themes from the other 103 responses:
 - A number of respondents indicate that their institution offers **diversity fellowships** (some before admissions, some after)
 - Some programs review female applicants first, or make sure to spend a little more time reading female applications.
 - Some respondents report **not being as successful as they would like** at attracting female students:

“Approximately 15%-20% of our applicants are female. We make an effort to increase the representation of women in our program and, other things being equal, we always give priority to female applicants in our admissions. Even then, we end up with only 10%-15% female students in our incoming classes.”

Admissions Practices

How are representations considerations handled?

Q17. Please explain how applicants' race/ethnicity (e.g. students who identify as underrepresented minorities) is factored into application reviews and decisions, if at all:

- 48 indicated it is not factored in. Themes from the other 104 responses:
 - A significant number of respondents **focus solely on the availability of diversity fellowships.**
 - A number of responses outline policies that give **priority to domestic and/or underrepresented students** if “other factors are equal”.
 - Notably, several respondents indicate that **not enough students (sometimes, zero) from underrepresented backgrounds apply to their program.**

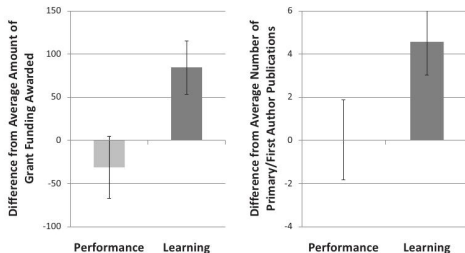
“Unlike the male/female situation, we are not very successful in recruiting underrepresented minorities. If we find a candidate, we find a fellowship. The numbers are just not there in our pool.”

“We get very few (to none) applicants that identify themselves as underrepresented minorities, the ones we get we look at carefully to see if we can accept them.”

Admissions Practices

What things “should” matter?

- Grit (A. Duckworth): How well people persevere towards achieving (long-term) goals, and resilience to challenges or obstacles to achieving them.
- Motivation towards learning/grad school (Hazari, Potvin, Almarode, Tai, 2010; 2012):
 - Physicists (and chemists) who report that they went to grad school because they loved “learning/thinking about science” are significantly more productive in their scientific careers than those who went because of good performance (e.g. grades):



Admissions Practices

Holistic approaches?

- Rather than changing the “admissions decision equation”, should we be reconsidering the entire approach?
 - **Question:** What is the purpose of graduate admissions?
- APS (Rachel Scherr) has undertaken a study of “holistic admissions” practices.
- Interviewed 14 candidates for holistic admissions practices so far (~20 planned).
 - Five appear to be practicing things that could be characterized as holistic.
 - Nine of these candidates are practicing more-or-less “standard” practices.
- Perhaps we should not define admissions by the form of the process, but by its goals.
 - **“Diversity-oriented” admissions practices** connects admissions to the organization, community, and support of the Department.
 - Traditional practices may be disconnected from such considerations.

Admissions Practices

Future work

- National survey of juniors/seniors on their grad school perceptions.
 - This book-ends well with the survey on admissions practices; will provide insight on students' application decisions, perceptions of fairness, etc.
- Analysis of grad school performance versus incoming GRE (Hodapp, Miller).
 - Will help give direct, definitive evidence about (non-)predictiveness of GRE
- Longitudinal study of bridge, and similar, students.
 - Will provide insight into the “real” impacts of these experiences, and factors contributing to student success.

Admissions Practices

Unanswered questions

- Practically, we need to know, with more depth, what elements of student induction and support are effective in making students persist, satisfied and productive.
 - For example, effective practices to build student/faculty communities?
- This will help to scale the Bridge Sites' efforts to other institutions down the road.
- Changing the conversation about admissions to think clearly about the “whole experience” of a graduate education will lead to more diversity-oriented practices.