

Understanding the graduate school selection process from students' perspectives

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AAPT 2018



STEM Transformation Institute

FLORIDA INTERNATIONAL UNIVERSITY



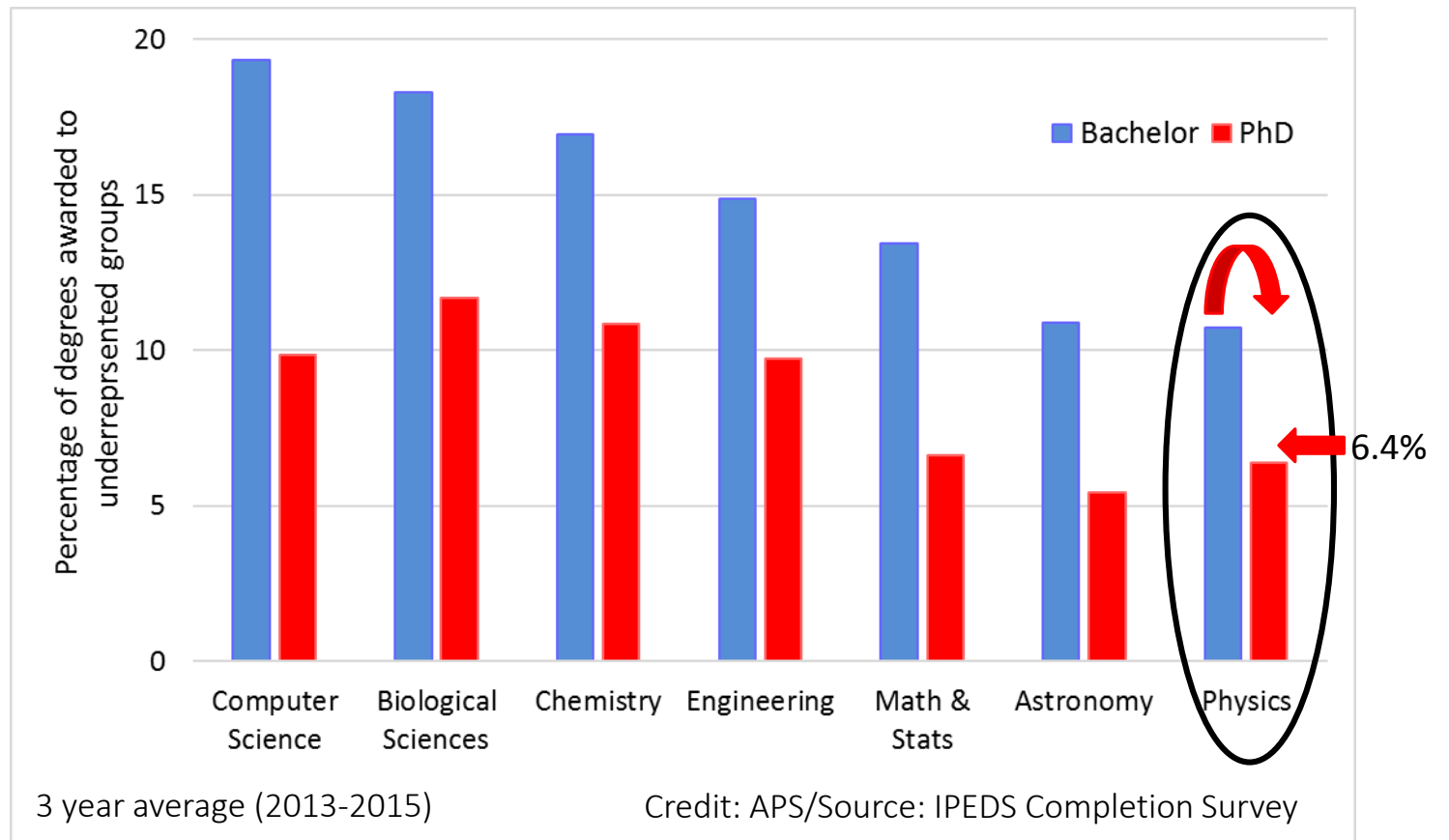
Context

- ❑ Admissions practices of physics departments- GAS survey
- ❑ Graduate school decision making- PGCI survey
- ❑ Historically under-represented (UR) race/ethnic groups in physics

Motivations: state of physics diversity

Percentage of degrees awarded to historically UR groups

- ☐ Physics is one of the least diverse disciplines.
- ☐ Gap is higher at graduate level



Motivations: responses from faculty survey

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

- 28% indicated race/ethnicity **not** taken into account at all.
- 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.*
- Other things being equal, we always give priority to female applicants in our admissions.***

Motivations: students' survey responses

Students exhibited some level of interest in applying to graduate school	79% (816 of 1031)
Students identified from historically-UR race/ethnic groups exhibited some level of interest in applying to graduate school	84% (137 of 163)

Participants: undergraduate senior physics students

Response rate: 12%

Demographic: 12% self-identify as Hispanic, Latino, or Spanish,
4% self-identify as Black or African American

Research questions

- What are the main factors influencing students' graduate school decision making?
- How do historically-UR race/ethnic groups weight the importance of graduate school decision criteria in comparison to the non marginalized groups?
- How do the importance of various admission criteria is perceived from students' (historically-UR race/ethnic groups) and faculty perspectives?

How important are the following factors in choosing which school you apply to?

(Please score each factor on the scale of 0 to 4).

- University/program reputation or competitiveness
- Availability of research opportunities that I'm interested in
- Availability/Amount of assistantships or scholarships
- Cost of living
- Not requiring physics GRE scores or not having a minimum score
- Location of university
- Recommendation from family or friends
- Recommendation from professors or teachers
- The university holds an open house/campus invitation for prospective students
- Having peers who are the same gender as myself
- Having peers who are the same race/ethnicity as myself
- Having a Ph.D. advisor of the same gender as myself
- Having a Ph.D. advisor of the same race/ethnicity as myself

(RQ1) Most importance factors in choosing graduate schools

Factors important in choosing a graduate school for application	Mean \pm standard error	
	Historically UR race/ethnic groups in physics	Non- UR race/ethnic groups in physics
Availability of research opportunity that I am interested in.	3.64 ± 0.06	3.70 ± 0.03
Availability/Amount of scholarships or assistantships	$3.33 \pm 0.09^{***}$	3.08 ± 0.04

(RQ2) Factors with significant difference

Factors important in choosing a graduate school	Mean \pm standard error	
	Historically UR race/ethnic groups in physics	Non- UR race/ethnic groups in physics
Availability/Amount of scholarships or assistantships	3.33 \pm 0.09***	3.08 \pm 0.04
Cost of living	3.02 \pm 0.10***	2.53 \pm 0.05
Not requiring physics GRE scores or not having a minimum score	1.97 \pm 0.12***	1.52 \pm 0.06
Having peers who are of the same race or ethnicity as myself	0.88 \pm 0.11***	0.42 \pm 0.04
Having a Ph.D. advisor of the same race or ethnicity as myself	0.72 \pm 0.10***	0.33 \pm 0.03

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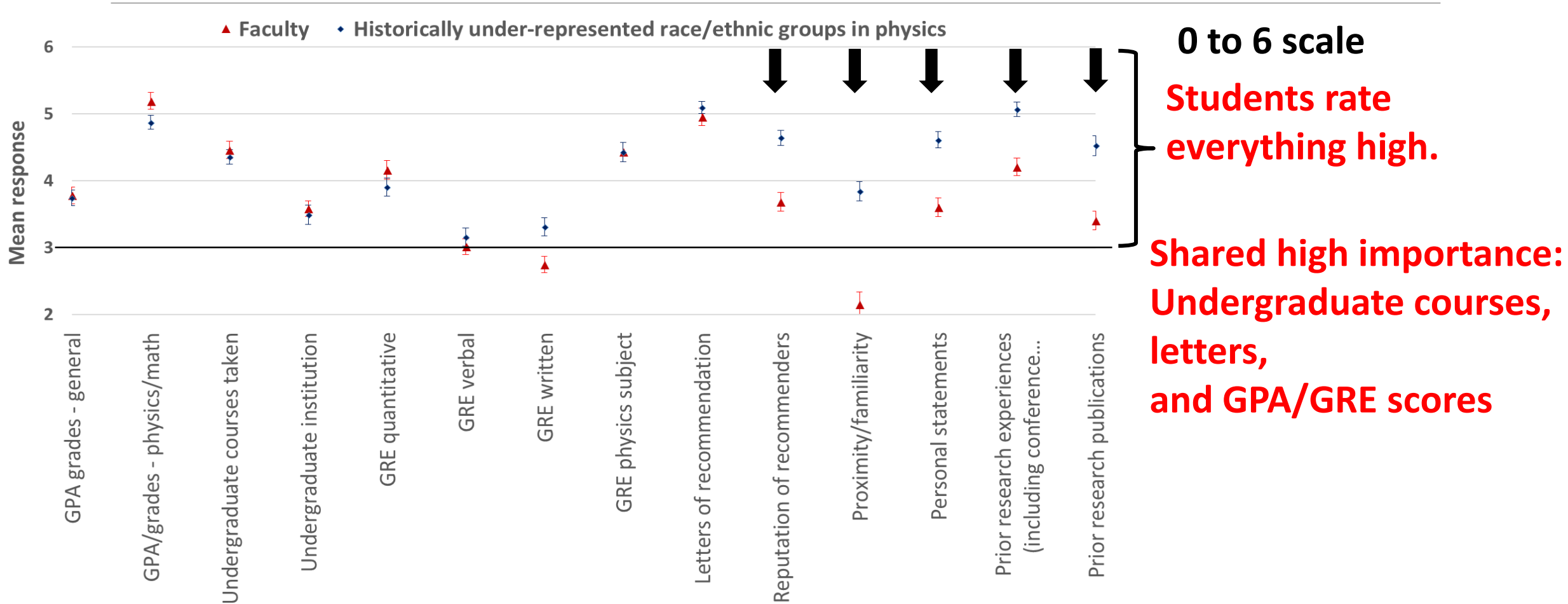
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(RQ2) How important do you think the following criteria are for a successful graduate school application?

(Please score each factor on the scale of 0 to 6).

- GPA grades - general
- GPA/grades - physics/math
- Undergraduate courses taken
- Undergraduate institution type/reputation
- GRE quantitative scores
- GRE verbal scores
- GRE written scores
- GRE physics subject scores
- Letters of recommendation
- Reputation of recommenders
- Proximity/familiarity to department
- Personal statement
- Prior research experiences (including conference participation).
- Prior research publications
- Prior conference presentations

(RQ3) How important do you think the following criteria are for a successful graduate school application?



Comparison of responses : Importance of criteria for successful graduate application

No significant differences between race/ethnic UR and the non-UR groups.

Insights

- Availability and amount of scholarships, lack of its information can influence graduate school selection. More significant for historically-UR race/ethnic groups.
- Importance of diversity at graduate cohort and faculty representation.
- Students rate every admission criteria as high.
- Recommendation letters- shared importance
- GRE test and score requirement was perceived as a barrier.

Mentoring about financing graduate education.

Environment

Mentoring about admissions.

Implicit bias

Acknowledgement

- NSF award #1143070.
- AIP (Patrick Mulvey)
- APS Bridge Program Team
- Cami and Ida
- STEM Transformation Institute colleagues