Disparities in perceived disciplinary knowledge among new doctoral students

Allyson Flaster, Ph.D.
Research Fellow

Kristen Glasener
Doctoral Candidate

John A. Gonzalez, Ph.D.
Director

Office of Institutional Research
Rackham Graduate School
University of Michigan

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Motivation

- The goal of doctoral education is to prepare students to become scholars – to conduct original research and create new knowledge (Lovitts, 2005).

- Doctoral student success depends, in large part, on students' ability to gain knowledge about disciplinary content, norms, and practices (Golde, 2005).

- Doctoral students enter their programs with varying levels of disciplinary knowledge and skills, and these initial disparities can compound over time (Feldon, et al., 2016).

- Despite the importance of knowledge in scholarly development, we know little about what factors influence doctoral students' disciplinary knowledge as they begin their programs.
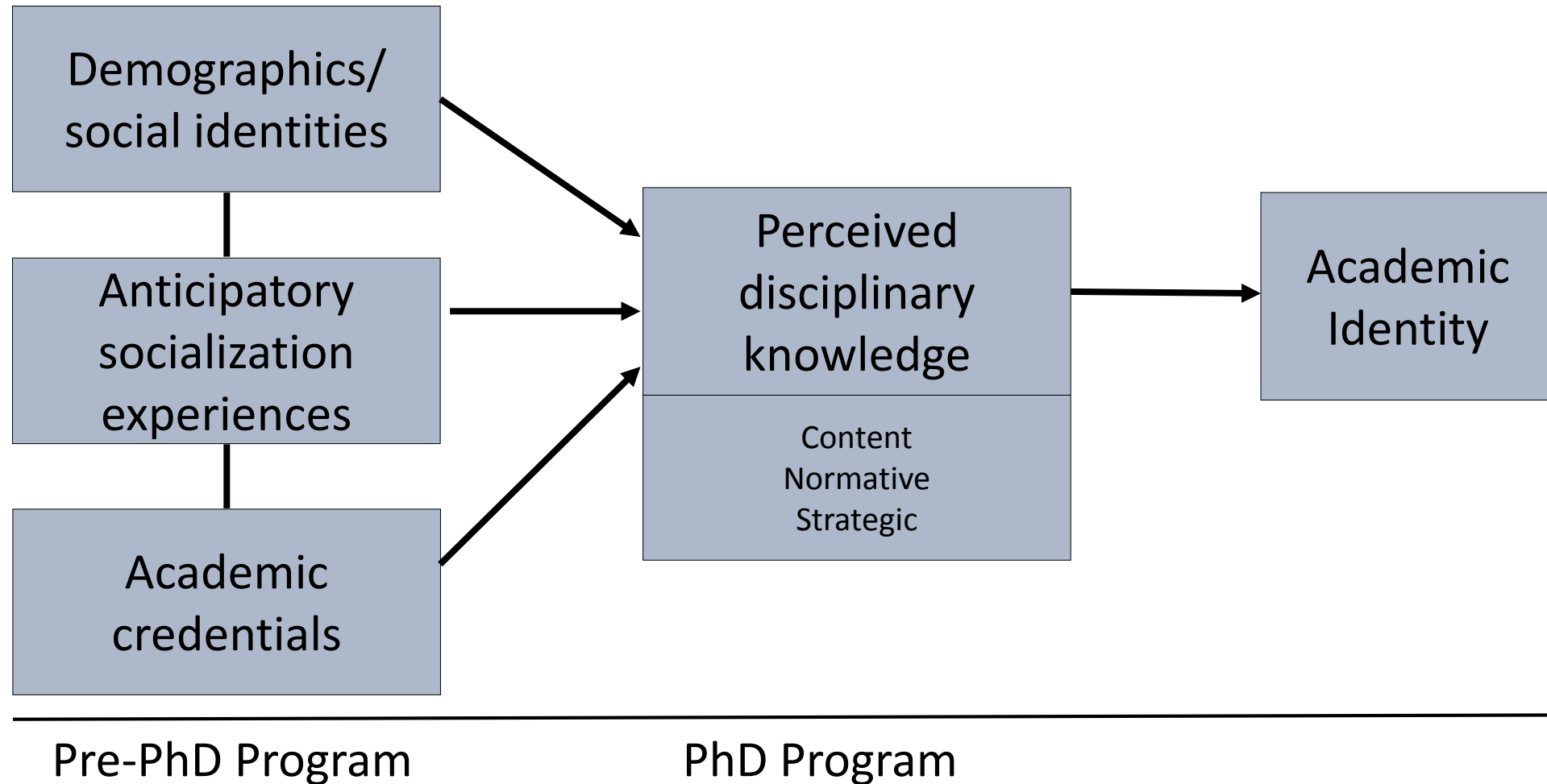
Research Question

What factors influence entering graduate students' perceptions of possessing the requisite knowledge to be successful in doctoral education?

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Conceptual Framework

Data

- This study uses survey data from the 2017 Michigan Doctoral Experience Study [MDES], which was administered to 1,027 students at the University of Michigan (response rate=77%).

- The survey asks about students' previous academic experiences, knowledge in their discipline, and other psychosocial measures.

- Survey responses are matched to institutional information on their demographic backgrounds and academic records.

Measures

Table 1. Disciplinary knowledge items and their sample means

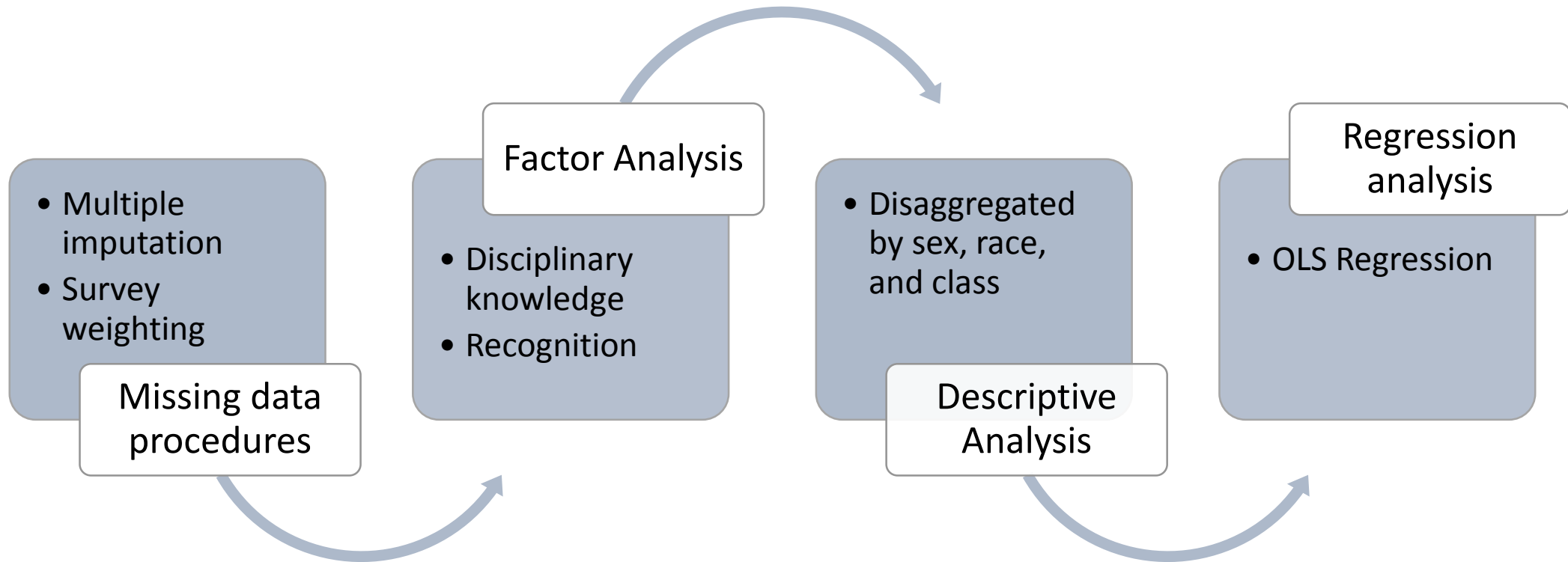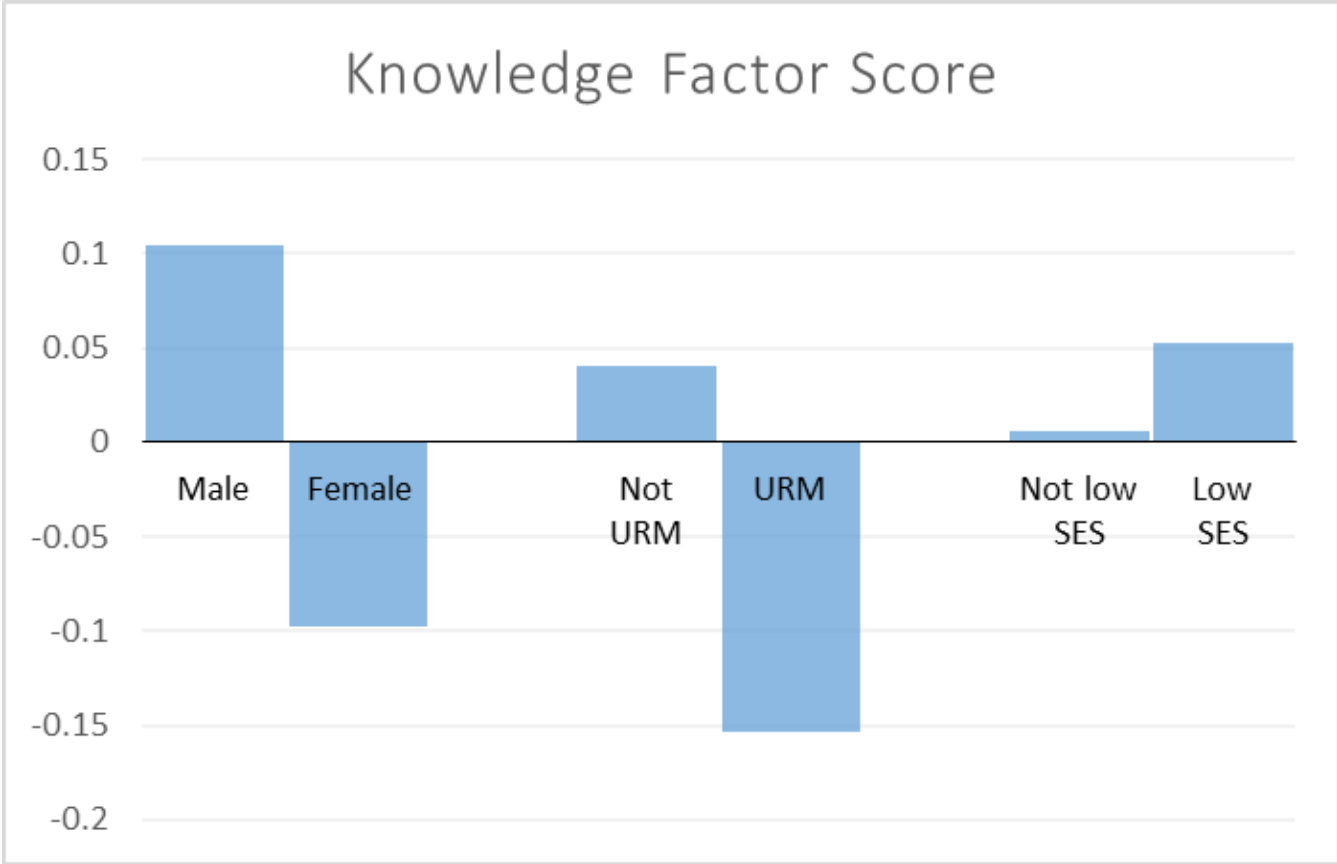| Please indicate how true the following statements are at this stage in your program: (1=Not at all true; 2=Slightly true; 3=Moderately true; 4=Very true; 5=Extremely true)	Sample Mean
Content Knowledge Items	
I have extensively read the foundational literature in my discipline	2.88
I have a deep understanding of the theories used in my discipline	2.84
Normative Knowledge Items	
I know the standards in my discipline for good work	3.40
I have a good understanding of how to frame research so that it is appealing to scholars in my discipline	3.02
Strategic Knowledge Items	
I know the steps I need to take to achieve my academic goals	3.51
I can navigate departmental politics easily	2.73

Measures

Table 2. Means of independent variables

Demographics and discipline		Anticipatory socialization		Academic credentials	
Female	0.58	MA degree	0.42	Undergraduate GPA	3.67
Underrepresented minority	0.20	Research experience	0.86	GRE Verbal %tile	74.67
Low SES	0.15	Professional practice	0.47	GRE Math %tile	76.91
US Citizen or perm. resident	0.64	Presentation experience	0.50	Undergrad THE ranking	
Discipline		Published	0.46	Not in top 200	0.57
Bio & health sciences	0.22	Disciplinary org. membership	0.48	Top 200-51	0.18
Physical sciences	0.50	Type of undergrad institution		Top 50	0.26
Social sciences	0.11	Does not award PhD	0.13		
Humanities	0.10	Awards PhD	0.56		
Professional fields	0.07	Unknown	0.31		
		Recognition	-0.01		

Analytic Strategy

- Multiple imputation
- Survey weighting

Missing data procedures

Factor Analysis

- Disciplinary knowledge
- Recognition

- Disaggregated by sex, race, and class

Descriptive Analysis

Regression analysis

- OLS Regression

Findings: Descriptive Analysis

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Results: Regression Analysis

	Coef.	
Female	-0.23	**
URM	-0.19	†

Master's degree	0.19	*
Research experience	0.28	**
Disciplinary org. member	0.12	†
Recognition factor	0.24	***

GRE Verbal Score Quartile		
First (1-25)	Ref.	
Second (26-50)	-0.39	†
Third (51-75)	-0.50	*
Fourth (76-99)	-0.77	***

Demographics/ social identities → Perceived disciplinary knowledge

Anticipatory socialization experiences → Perceived disciplinary knowledge

Academic credentials → Perceived disciplinary knowledge
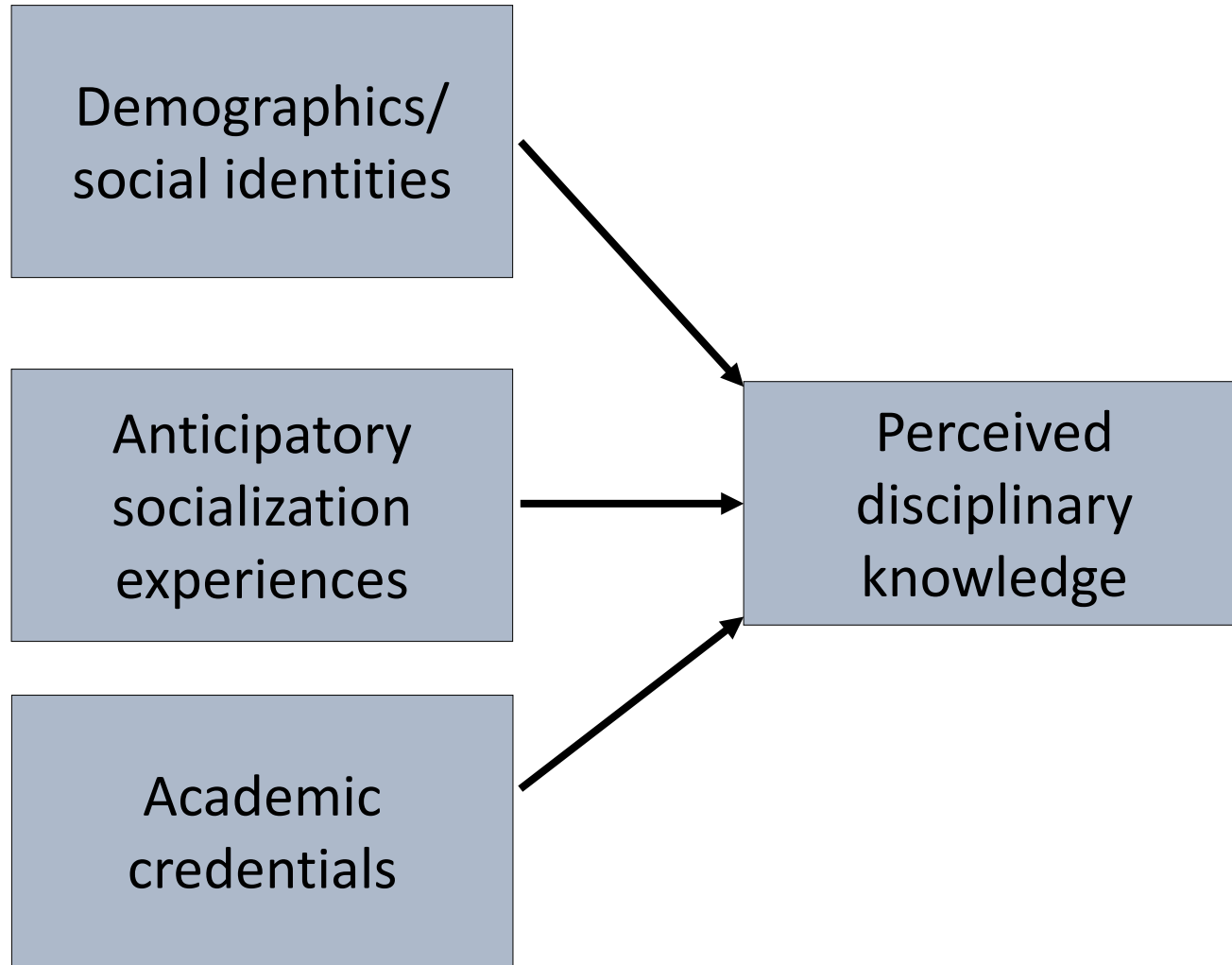
Discussion & Implications

Finding:
Sex and race are associated with students' perceptions of possessing disciplinary knowledge, controlling for other factors. Why?

- White males are more likely than White females and URM to overestimate their competence in a domain (Bakken, Sheridan, & Carnes, 2003; Bouchey & Harter, 2005; Correll, 2001; Gysler, Brown, & Schubert, 2002; MacPhee, Farro, & Cannetto, 2013).

- Societal messages about competence related to gender and race/ethnicity can bias individuals' self-perceptions (Clance & Imes, 1978; Correll, 2001).

Implication:
Interventions that target inaccurate academic self-conceptions should occur *before* PhD study begins

# Discussion & Implications

Finding:
Anticipatory socialization experiences had the strongest relationship with students' knowledge perceptions

Implication:
Expand access to anticipatory socialization experiences for underrepresented groups

Future research:
How do students' perceptions change over time, and how do they affect future outcomes?

Perceived disciplinary knowledge → Academic Identity
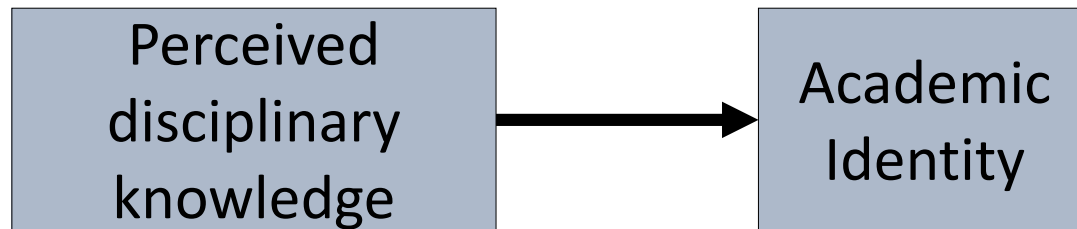
Thank you!

Allyson Flaster
aflaster@umich.edu
@allyson_flaster

Kristen Glasener
glasener@umich.edu
@kkglasener

John A. Gonzalez
jagonza@umich.edu
@johngonzalezIR