



The Leadership Alliance

A Continuum of Mentoring Leads to a Legacy of Scholars

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The Leadership Alliance Executive Office Team





Presentation Outline

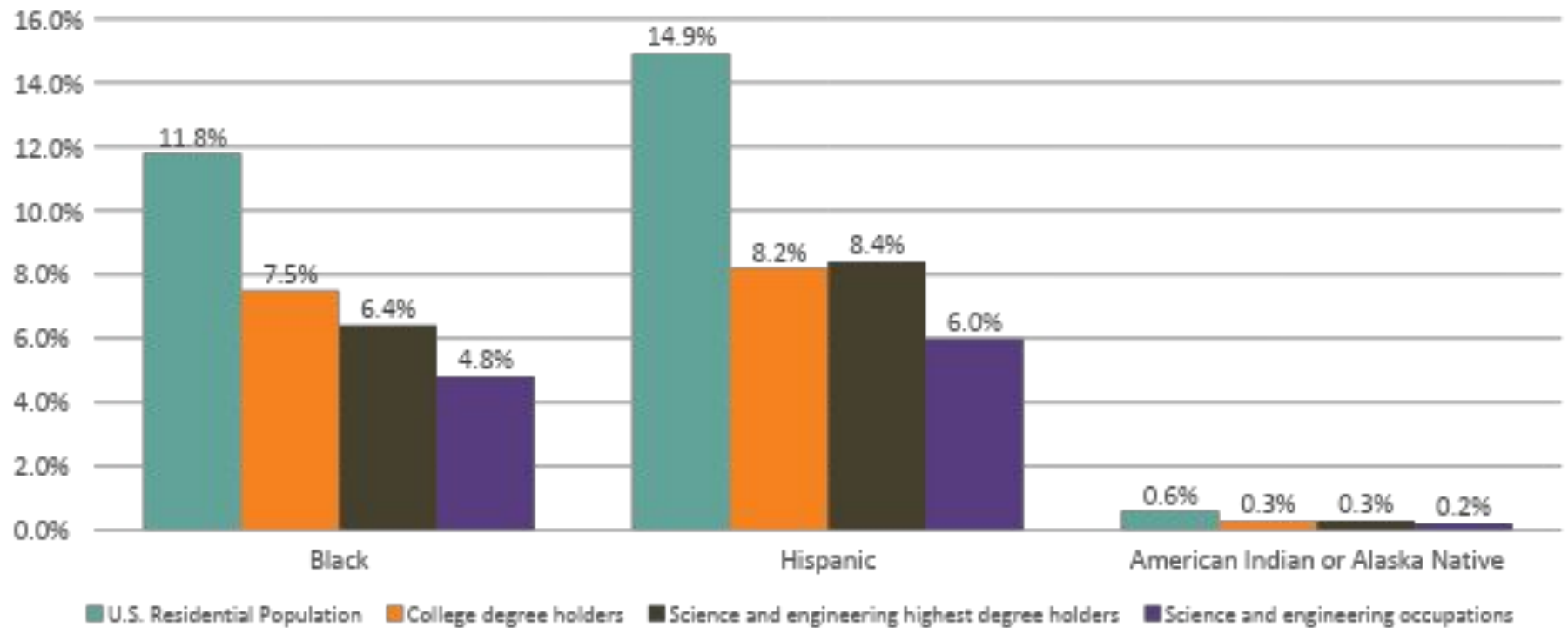


- ✓ Provide context for our work
- ✓ Provide an overview of the Leadership Alliance
- ✓ Describe our programs and resources
- ✓ Discuss what we're learning
- ✓ Present NEXT-STEPS



National Education and Workforce Data in Science and Engineering by Race and Ethnicity

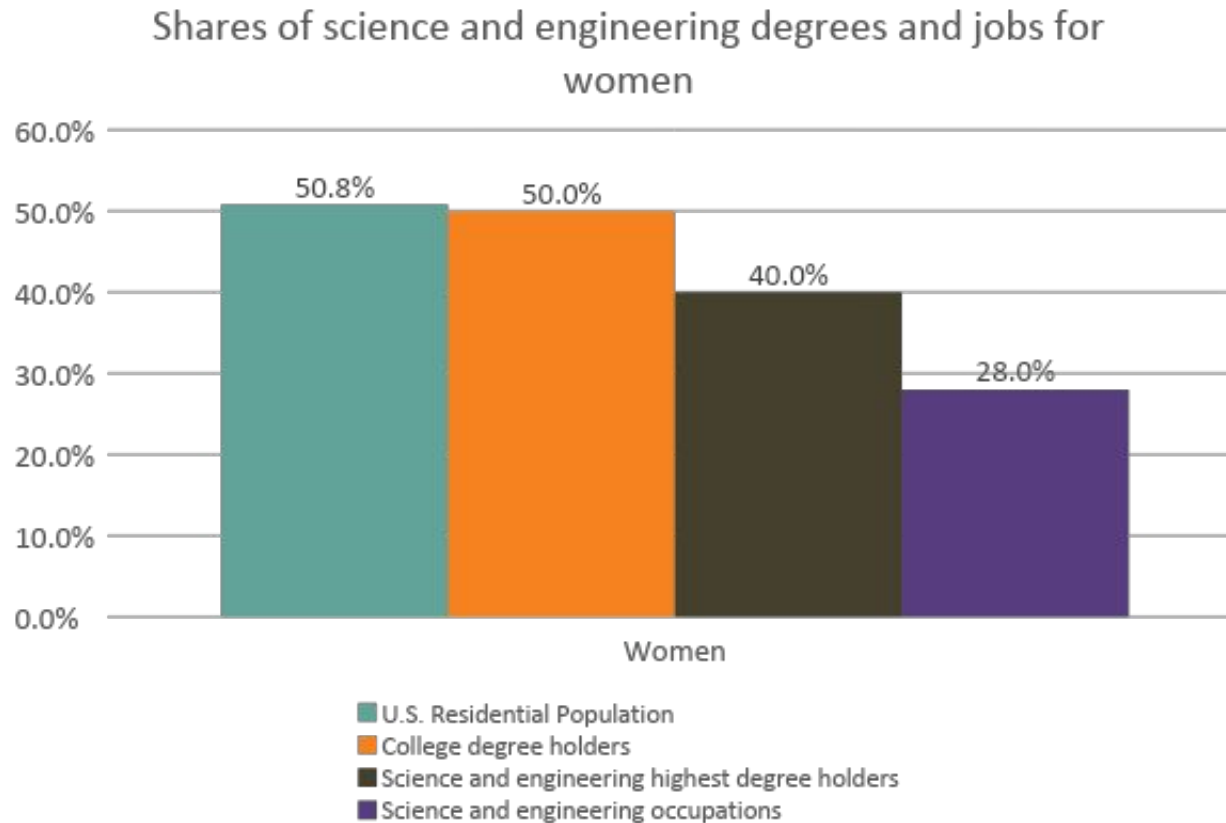
Shares of science and engineering degrees and jobs for underrepresented racial and ethnic minority groups



Source: National Science Board. 2018. Science and Engineering Indicators 2018. Alexandria, VA: National Science Foundation (NSB-2018-1).



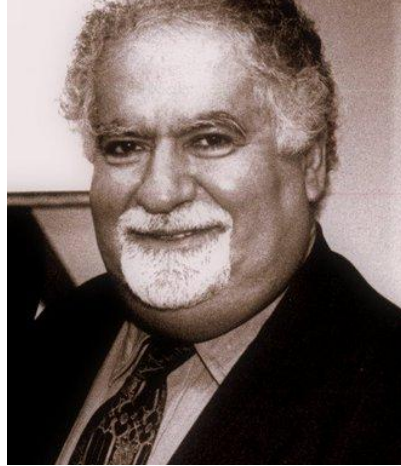
National Education and Workforce Data in Science and Engineering by Gender



Source: National Science Board. 2018. Science and Engineering Indicators 2018. Alexandria, VA: National Science Foundation (NSB-2018-1).



Addressing the shortage of underrepresented students in PhD programs and the Research workforce



1990

Vartan Gregorian

- *Brown University President (1989-1997)*

1992

James Wyche

- *Founding Executive Director (1992-2003)*



Our mission is to develop underrepresented students into outstanding leaders and role models in academia, the public and private sectors.

Brooklyn College

Brown University

Chaminade University

Claflin University

Columbia University

Cornell University

Dartmouth College

Dillard University

Harvard University

Heritage University

Howard University

Hunter College

Johns Hopkins University

Montana State University

Morehouse College

Morgan State University

New York University

North Carolina A&T State University

Princeton University

Spelman College

Stanford University

Tougaloo College

Tufts University

University of Chicago

University of Colorado at Boulder

University of Maryland, Baltimore County

University of Miami

University of Pennsylvania

University of Puerto Rico

University of South Florida

University of Virginia

Vanderbilt University

Washington University in St. Louis

Xavier University of Louisiana

Yale University



We develop programs across the academic pathway

SR-EIP



Speaker Series



FYRE



Grant Writing Coaching @ LANS



Academic Year Workshops



Research Presentation and Professional Development @ LANS



Career Development Workshop @ LANS





Leadership Alliance Resources

<https://leadershipallianceresources.blog/category/resources/>

Tips for Applying to Graduate School

Mentor Guide



Print versions available upon request





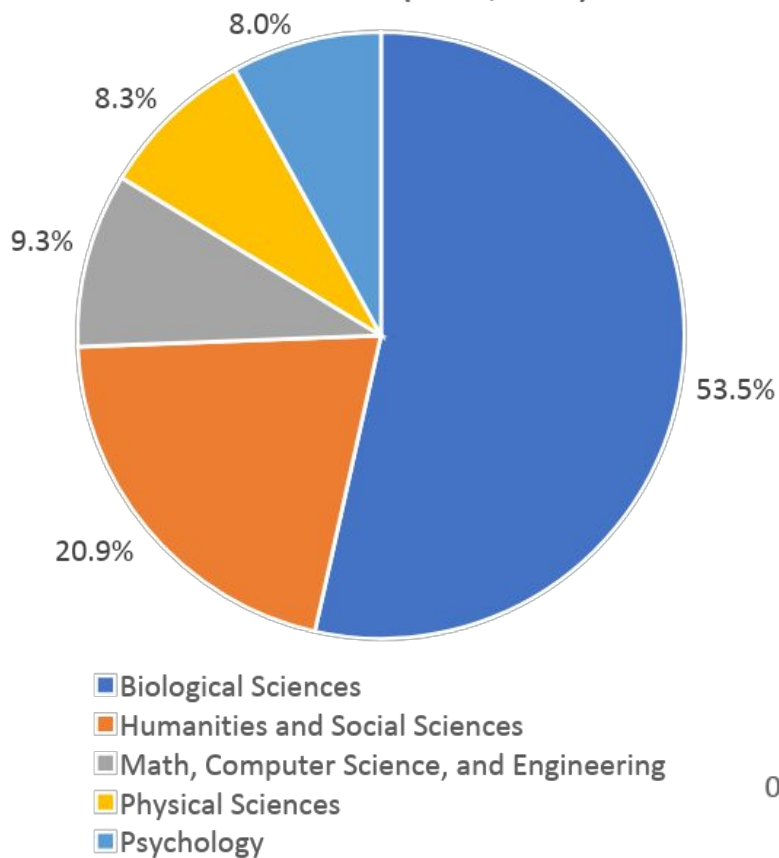
Mentoring at the Critical Transitions



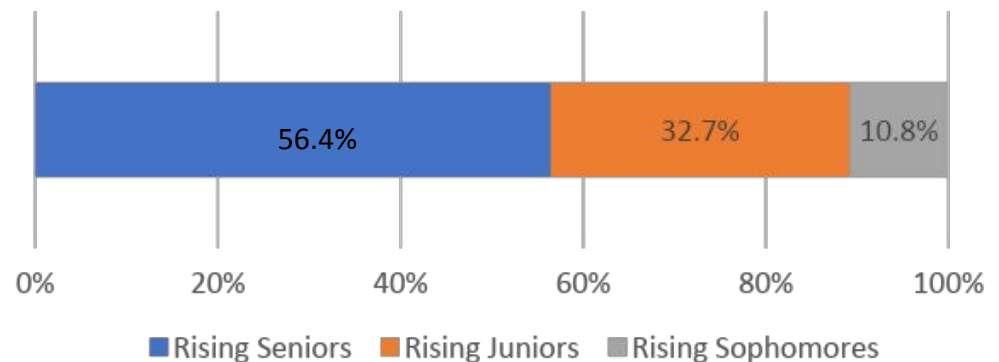


Summer Research Early Identification Program offers research experiences in all disciplines

Participants by discipline
1993-2018 (n=5,783)



Participants by Class



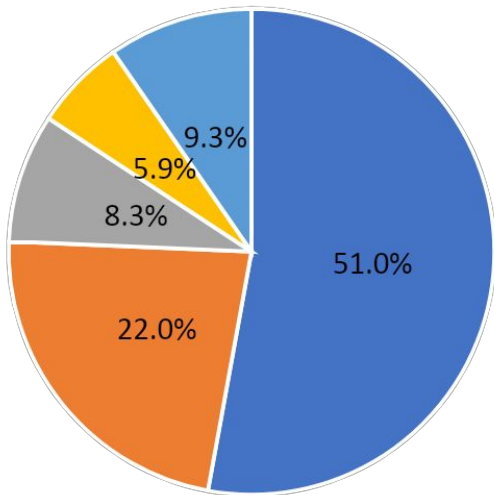
n=includes repeat participants





We are mentoring a diverse group of students

Racial Identification*



- Black/African American
- White
- Asian American/Pacific Islander
- Native American/Alaska Native
- Other Race/Decline to Indicate

Gender Identification



Ethnic Identification



Economic and Academic Indicators



41.2% attend an MSI



37.5% are First-Gen Students



52.8% are Pell Grant Eligible

*Students were allowed to select multiple racial identifications



What We're Learning

Fine-Tuning Summer Research Programs to Promote Underrepresented Students' Persistence in the STEM Pathway

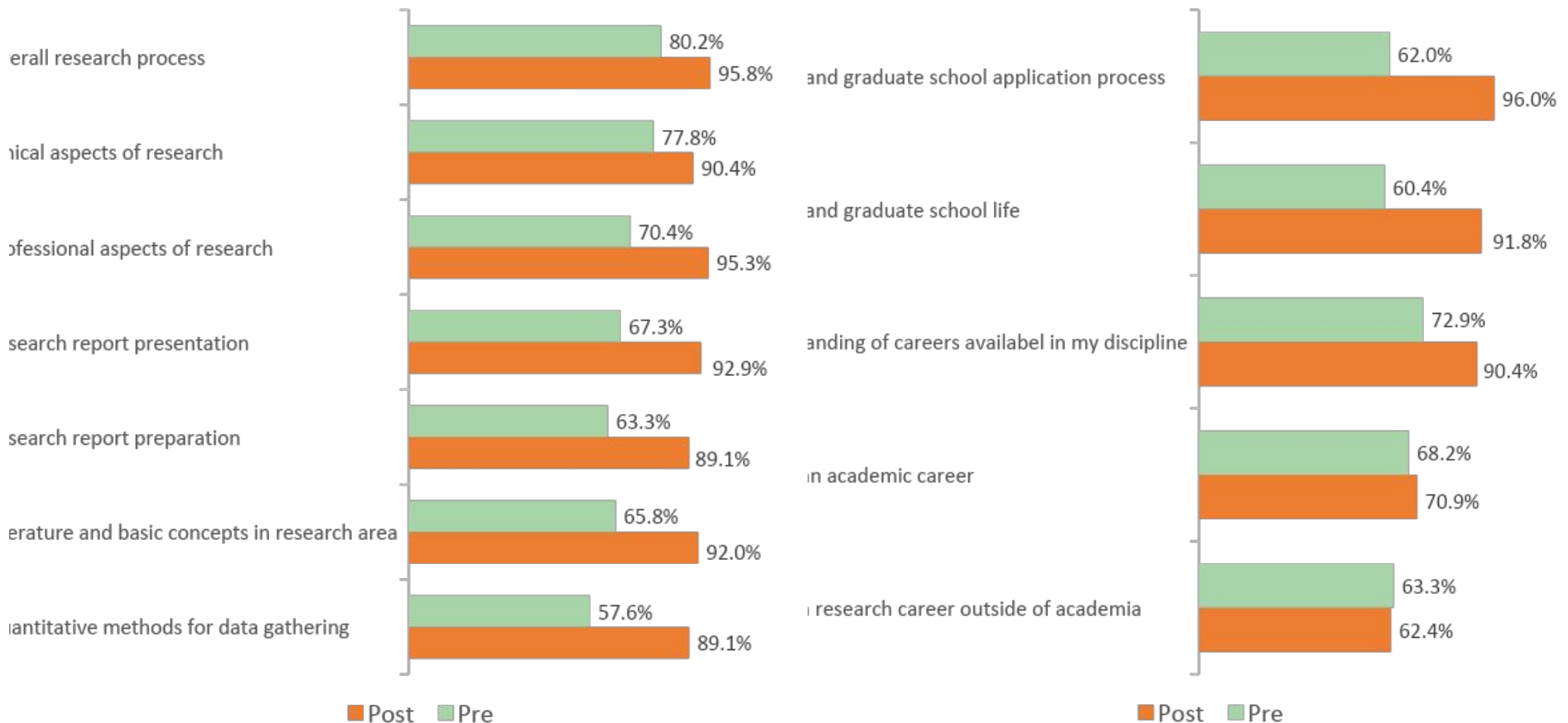
**Medeva Ghee,^{†*} Micere Keels,[‡] Deborah Collins,[†] Cynthia Neal-Spence,[§]
and Earnestine Baker^{||}**

[†]Leadership Alliance, Brown University, Providence, RI 02912; [‡]Department of Comparative Human Development, University of Chicago, Chicago, IL 60637; [§]UNCF/Mellon Programs and Department of Sociology, Spelman College, Atlanta, GA 30314; ^{||}Meyerhoff Scholarship Program, University of Maryland, Baltimore County, Baltimore, MD 21250

Ghee, M., Keels, M., Collins, D., Neal-Spence, C., and Baker, E. (2016) Fine-Tuning Summer Research Programs to Promote Underrepresented Students' Persistence in the STEM Pathway. CBE Life Sciences, 15(3) ar28.



The SR-EIP builds research skills and increases awareness of graduate programs and career opportunities



Students' self-assessment of their knowledge of research skills and career intentions. Each bar represents the percent that reported "intermediate" or "high" from participants who completed the pre- and post-survey (2013–2015 summer cohorts; $n = 450$). Students were asked to report their level of knowledge of each item on a scale of 1 through 4 (1 = none; 2 = beginning; 3 = intermediate; 4 = high). All differences significant at $p < 0.01$.



Quality and Type of Mentoring Relationship

Mentor quality variables	Satisfaction with mentor
Showing interest in your research and being supportive of your ideas	0.733
Making you feel like an integral part of the research project	0.731
Being available to discuss and respond to questions about your research	0.721
Offering guidance and advice on your research	0.710
Giving you a good sense of how your project fit within the overall goals of the project	0.715
Introducing you to a range of methodological techniques in research	0.691
Providing you with constructive feedback on your academic career development	0.604
Demonstrating knowledge/expertise in your field	0.592
Helping you make the distinction between undergraduate research and large-scale projects in a research university	0.586
Helping you establish relationships by introducing you to other faculty, graduate students and researchers	0.567



MSI+R1 faculty engagement to expose students to research: First Year Research Experience (FYRE)

Goals of FYRE

1. Introduce first year undergraduates from MSI partners to an external research experience
2. Create opportunities to build/strengthen relationships among faculty and administrators at partner institutions
3. Attract and retain students in research
4. Enhance the educational experience

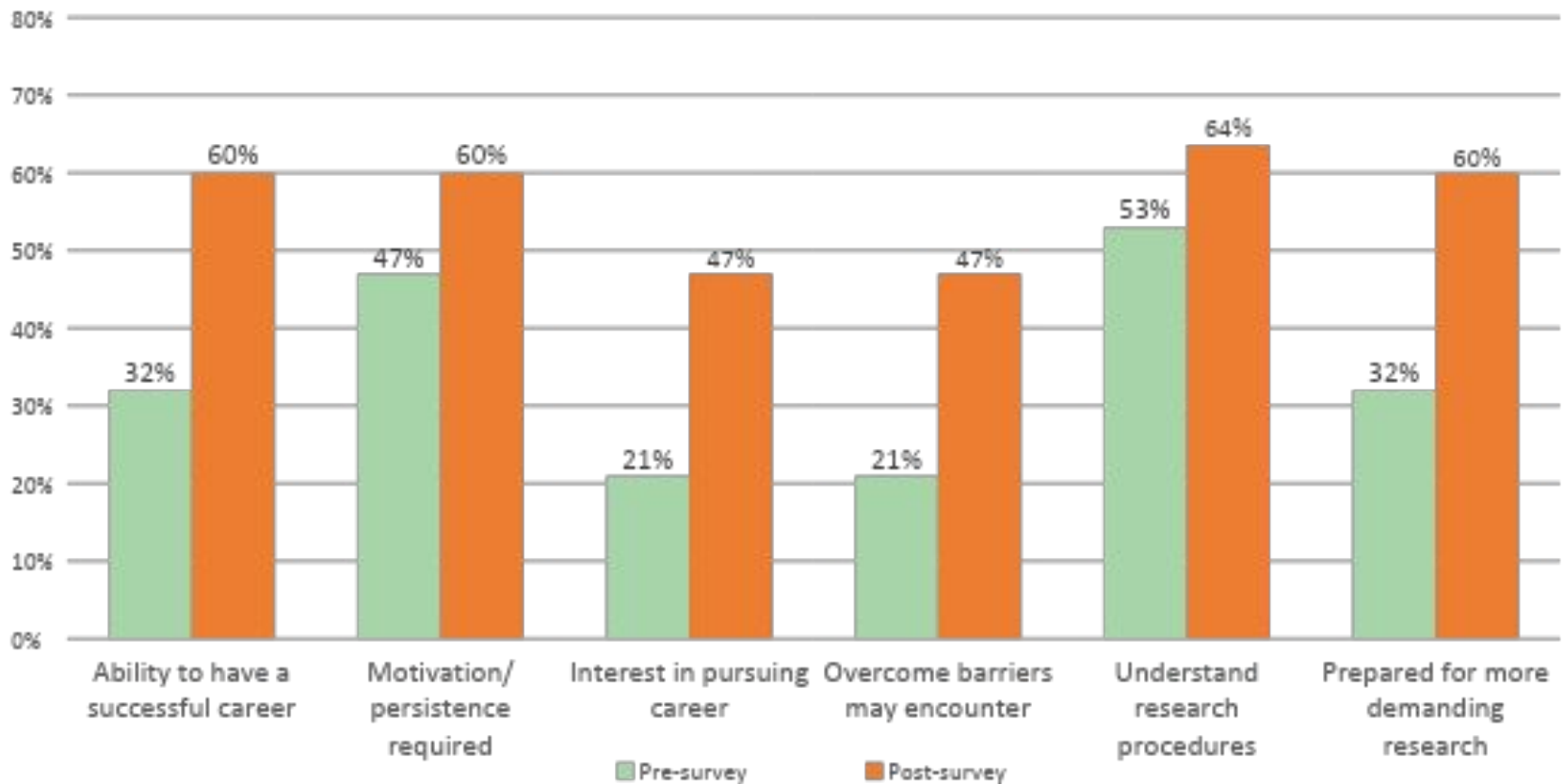
FYRE 2015 Cohort





FYRE Self Confidence

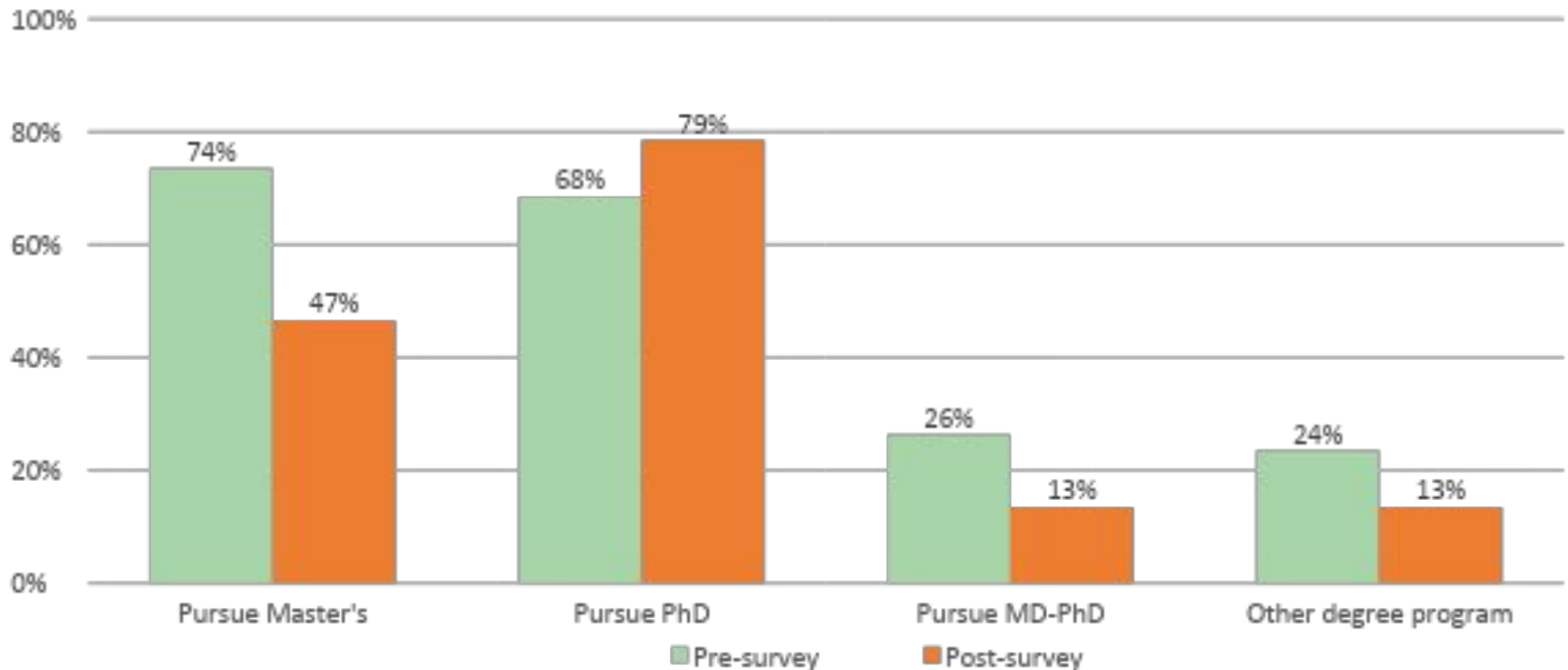
Percentage “strongly agree” with Confidence Prompts – Pre-Survey v. Post-Survey





FYRE Career Development

Percentage "strongly agree" or "agree" with statement – Pre-Survey v. Post-Survey





FYRE increases student retention in research and competitiveness for graduate programs

	N	Total eligible	Percent
Total Number of FYRE Students to Date	55	NA	NA
FYRE Students who returned to research (2015-2017)¹	21	36	58%
FYRE Students who returned to SR-EIP (2015-2017)²	13	21	62%
FYRE Students in Graduate school (2015)³	3	5	60%

¹These are students who participated in a summer research experience after FYRE through any program, including SR-EIP.

²These are only students who returned to an SR-EIP program. This could be at any SR-EIP site, not just those who returned to their FYRE institution.

³FYRE students from the 2016 cohort are currently awaiting responses from graduate school applications. An update will be provided at the next business meeting

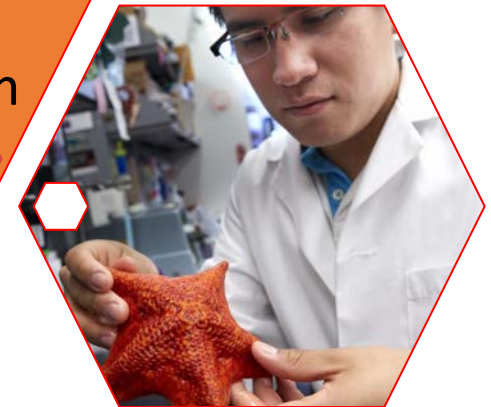


SR-EIP Outcome Data



55%
matriculating
into any PhD
program

47%
matriculate
into a STEM
PhD program





Mentoring at the Critical Transitions

Undergrad
to Grad

Grad to
Postdoc

Postdoc to
Research
Career

- Recruiting and cultivating talent from MSIs broadens participation
- Mentoring matters
- Introducing research to first year students increases their competitiveness for PhD programs



Mentoring at the Critical Transitions





Leadership Alliance National Symposium



*NIH Innovative Programs to Enhance Research Training Program (IPERT)
R25GM125707*





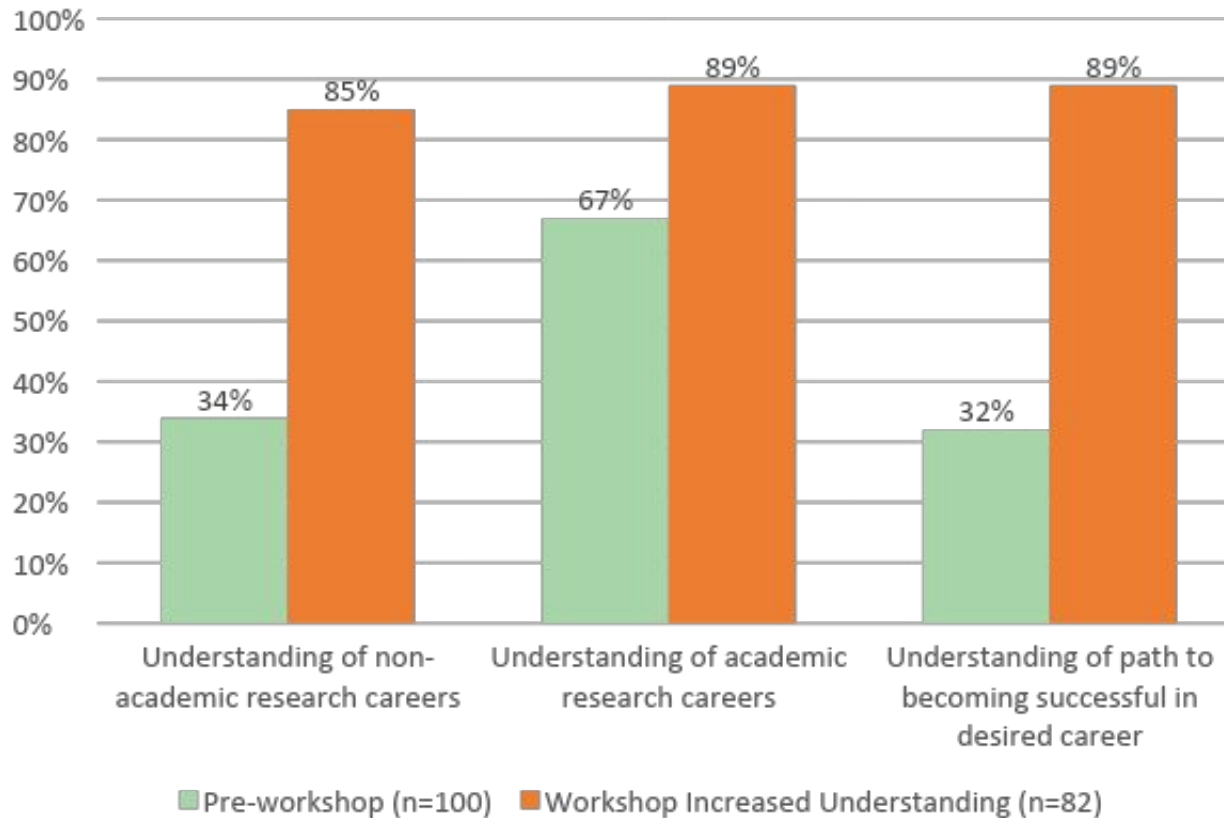
The Career Development Workshop is valuable to students at Research Intensive institutions

- “TLA Talks”
- “What Am I Doing Right? – Individual Development Plans”
- “Your Plan, Your Resume, Your Pitch”
- “Using Workforce Data to Guide Career Development”
- “How to Identify and Highlight your Experiences for the Right Career Opportunity”
- Speed Mentoring with Professional Career Mentors





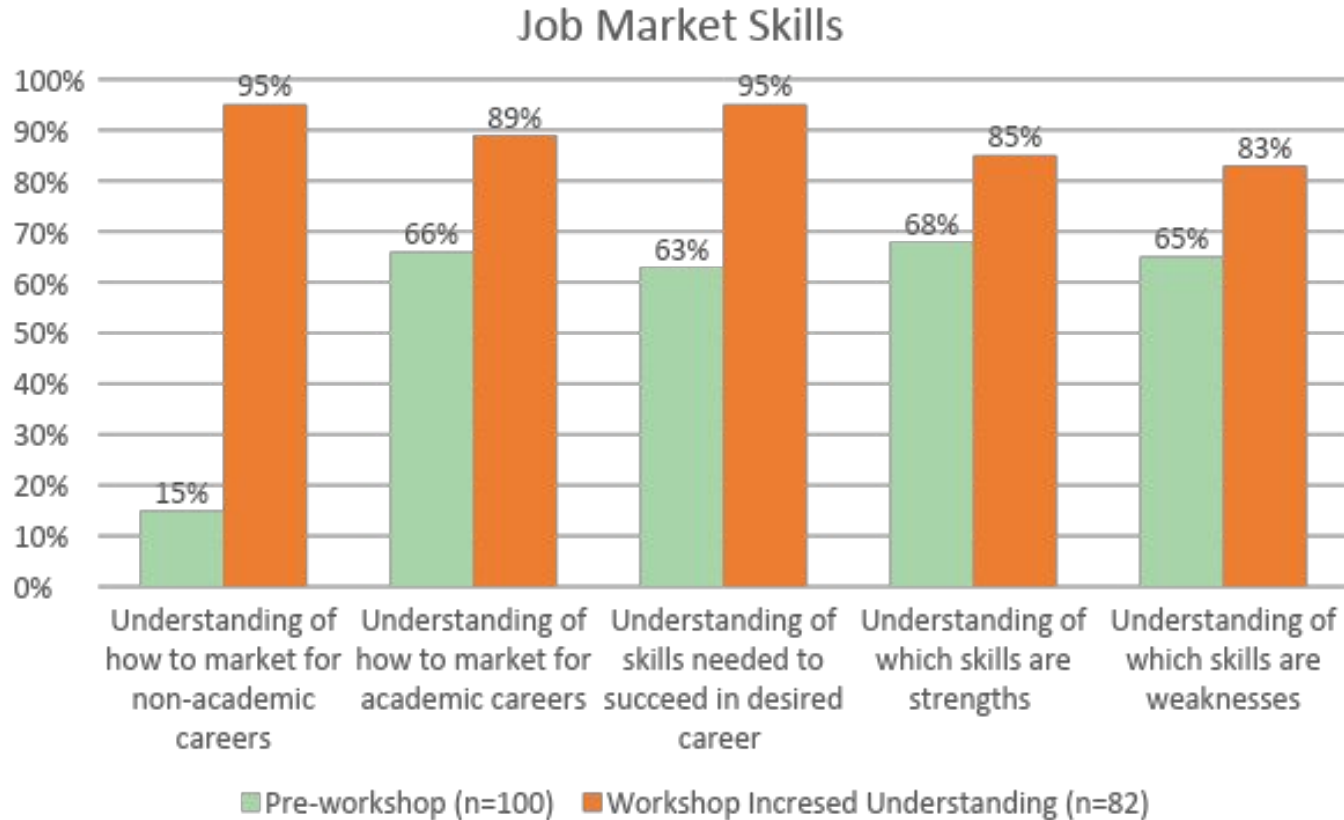
CDW Increases Career Awareness



Percentage “strongly agree” with Confidence Prompts – Pre-Survey v. Post-Survey



CDW Improves Job Market Skills



Percentage “strongly agree” with Confidence Prompts – Pre-Survey v. Post-Survey



Mentoring at the Critical Transitions

Undergrad
to Grad

Grad to
Postdoc

Postdoc to
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Career

- New network that allows participants to explore and prepare for research careers
- Increases knowledge of how to market themselves for diverse careers
- Catalyzes the development of a professional toolkit



Mentoring at the Critical Transitions





Doctoral Scholar Outcomes

*To date, we have a total of 523 Doctoral Scholars
We have complete tracking data on 330 Doctoral Scholars*

Overall Tracking
Data

233
STEM

97
Non-STEM

Postdocs/
Higher Ed

19%
STEM

22%
Non-STEM

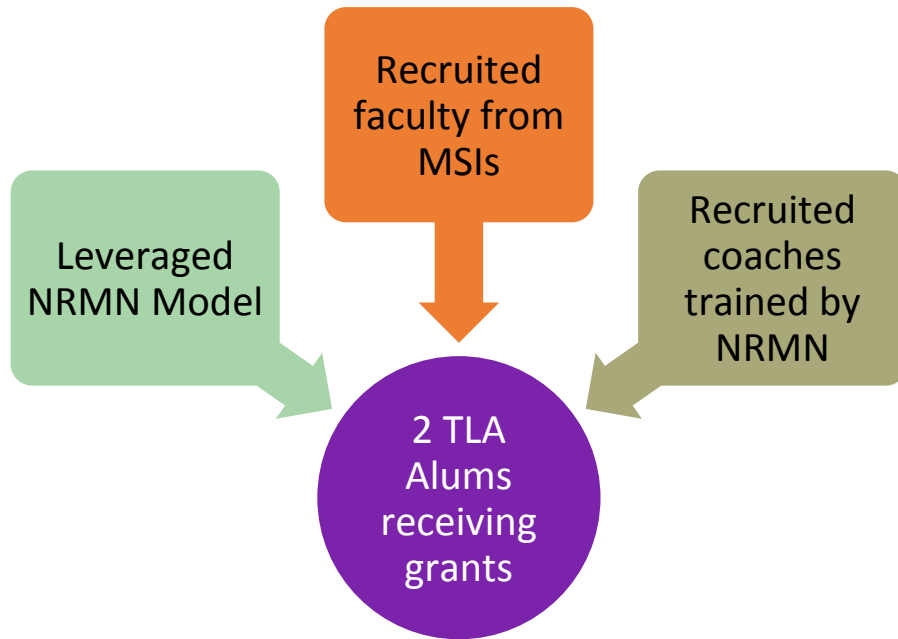
Tenure Track
Faculty

22%
STEM

33%
Non-STEM



Grant Writing Coaching Groups





Do career interests change over time?

Methodology

- Survey was sent to Leadership Alliance Doctoral Scholars in STEM
- N=330
- 43% response rate

Topics Surveyed

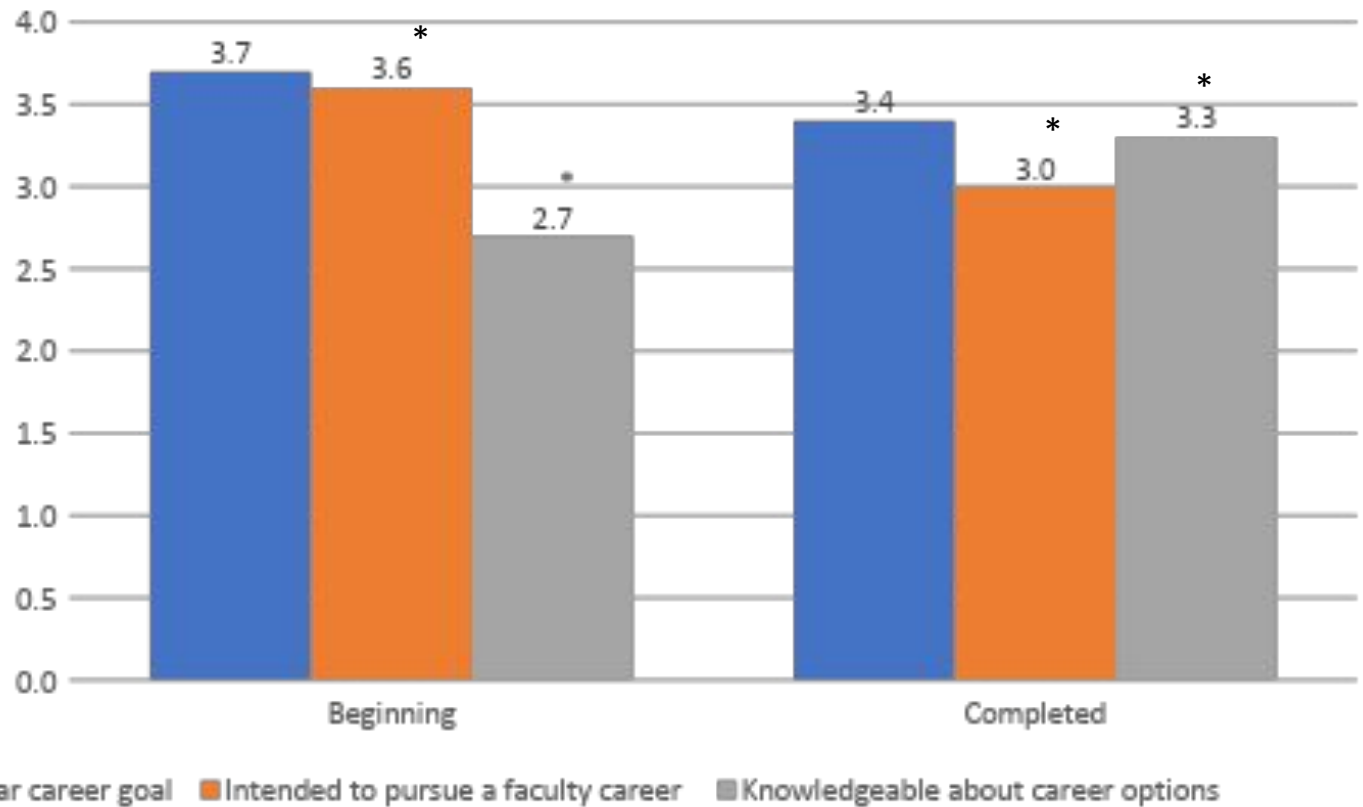
- Career intentions before and after completion of doctoral programs
- Level of career planning support during graduate and postdoctoral training
- Current career interests and aspirations

Survey adapted from: Gibbs et al., *Biomedical Science Ph.D. Career Interest Patterns by Race/Ethnicity and Gender*. PLoS ONE 9(12): e114736



Career Intentions

Mean agreement on a five-point Likert-type Scale

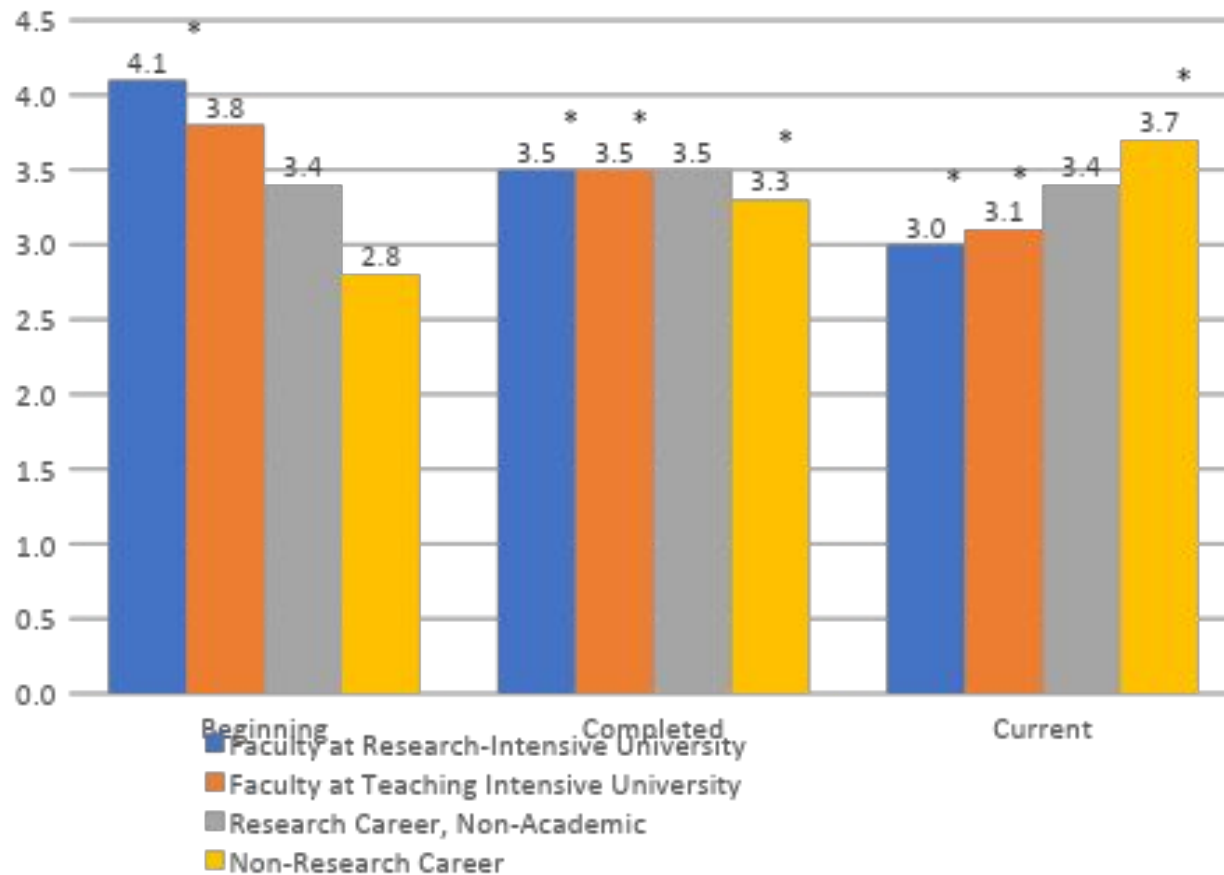


* $p \leq .001$
n=147



Career Pathway Interest

Mean response on a six-point Likert-type Scale measuring level of interest



* $p \leq .001$
n=147



Preliminary Results

Findings

- Intentions to pursue a faculty career decreases over time.
- Alumni show less interest in faculty careers and increased interest in non-academic research careers over time.

Future Research

- Interviews with alumni to better understand the mechanisms underlying career choice



Mentoring at the Critical Transitions

Undergrad
to Grad

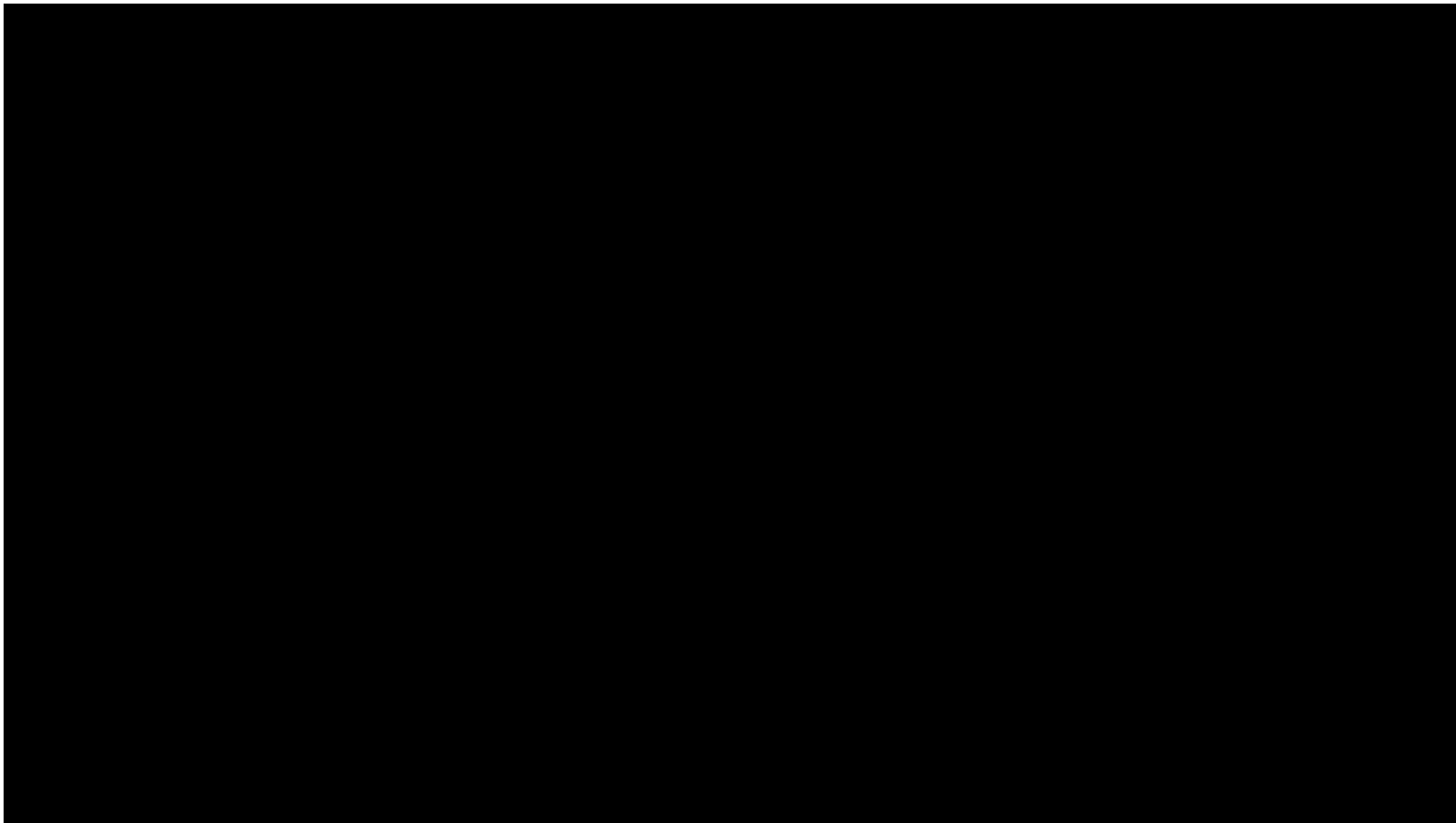
Grad to
Postdoc

Postdoc to
Research
Career

- Community
- Ongoing skill development
- Networking
- Learn more about factors that impact career decisions



Voices of Brown's Legacy





Where do we go from here? What are our next steps?

Undergrad
to Grad

- Recruiting and cultivating talent from MSIs broadens participation
- Mentoring matters
- Introducing research to first year students increases their competitiveness for PhD programs

Grad to
Postdoc

- New network that allows participants to explore and prepare for research careers
- Increases knowledge of how to market themselves for diverse careers
- Catalyzes the development of a professional toolkit

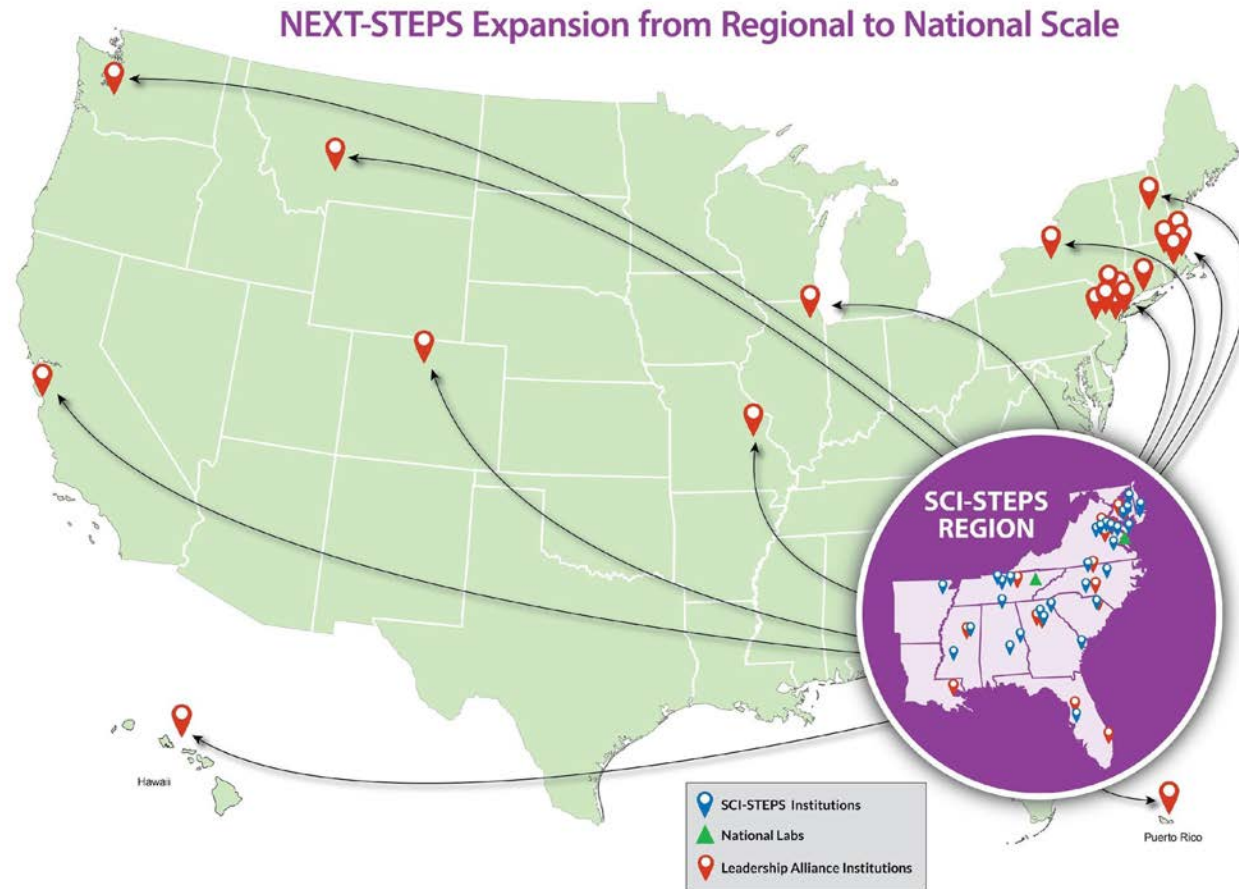
Postdoc to
Research
Career

- Community
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NEXT-STEPS

National Expansion of Infrastructure for Student Transitions in Engineering and Physical Sciences





Questions?

