

AIP

American Institute
of Physics

The TEAM-UP Report: Major Findings and Recommendations

Mary James, A.A. Knowlton Professor of Physics, Dean for Institutional Diversity, Reed College & Co-Chair of TEAM-UP

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TEAM-UP as a Model for Cultural Change

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Our conclusions in 2017 - prior to the study

- AA students are succeeding in college and earning degrees in other STEM majors at increasing rates yet their percentage of physics and astronomy BA/BS degrees has declined; **their relative lack of success in physics and astronomy suggests problems within the physics environment rather than a deficit in the students.**
- The best way to understand the problem is to study the student experience *from the student perspective*. The student experience IS the data.

AIP and our Member Societies agreed.



TEAM-UP Guiding Principles

Student Centered

Strengths-Based Approach

Undergraduate Focus

Social Science Methods & Perspectives

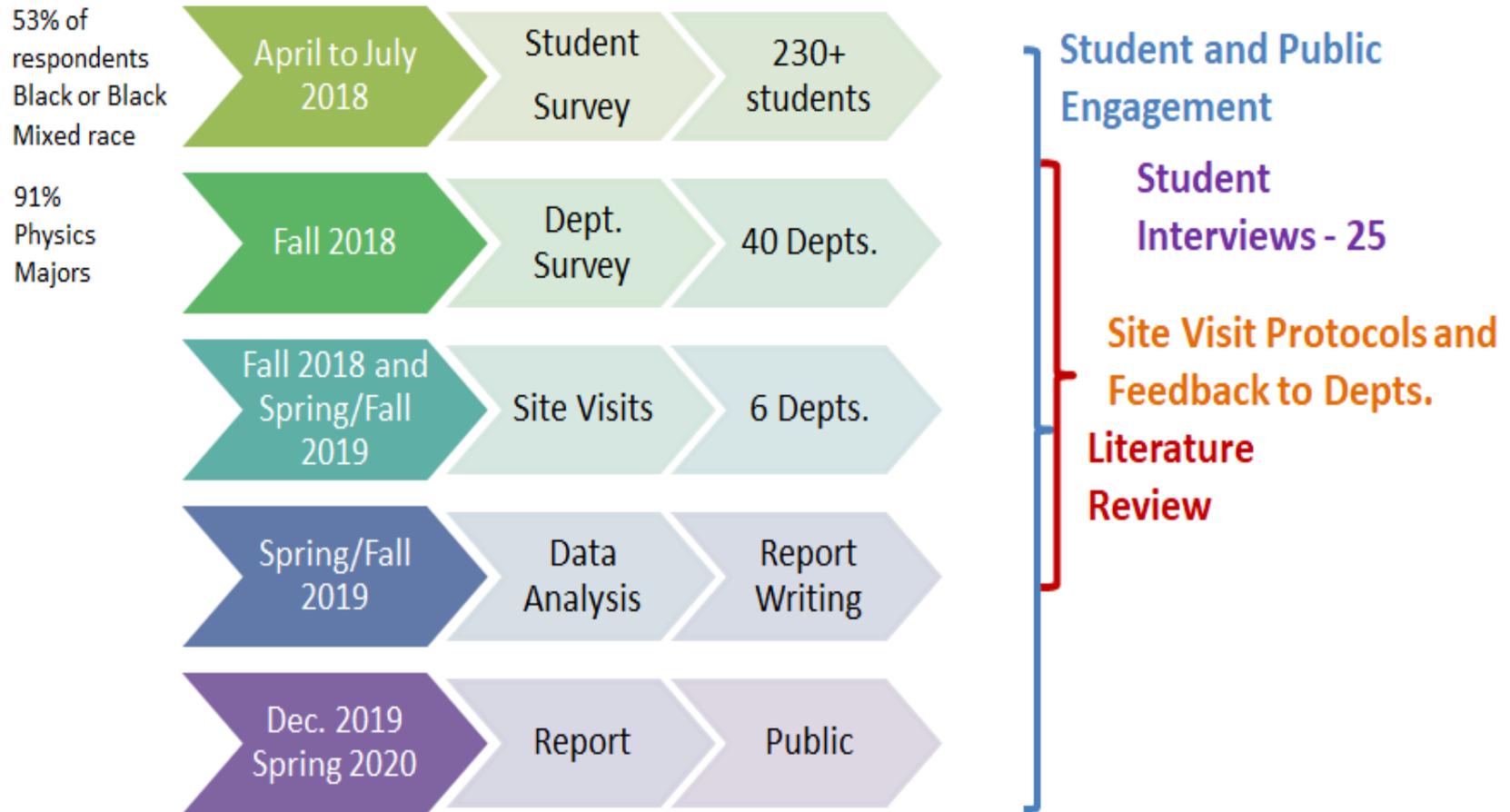


TEAM-UP Research Questions

1. How does physics culture enhance or diminish African American students' success?
2. What are the influencing experiences?
3. What factors lead to the persistence of AA students obtaining B.S./B.A. degrees in Physics/Astronomy?
4. What impedes or promotes culture change in the physics and astronomy community necessary for AA student persistence?



Activities and Timeline

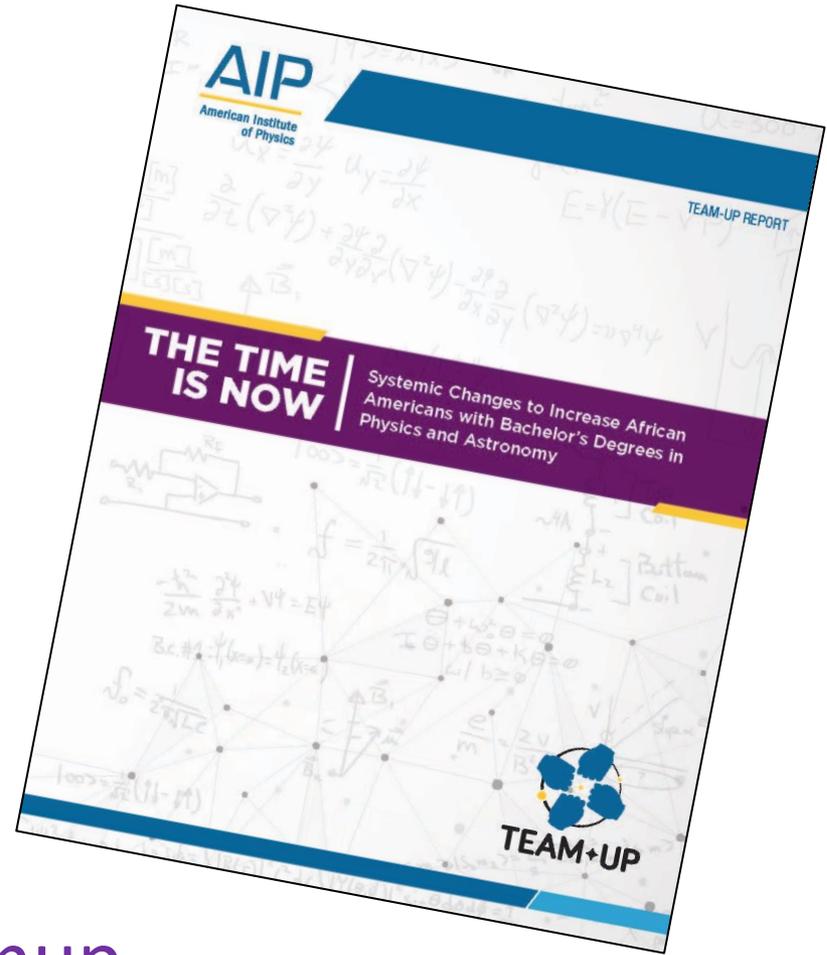


AIP TEAM-UP Report

The Time Is Now:
Systemic Changes to
Increase African
Americans with
Bachelor's Degrees in
Physics and
Astronomy



aip.org/teamup



Factors for Persistence

Belonging

Data:

“The climate of the physics department is very non-inclusive of people of color . . . They would say [things] like ‘You should change your major.’”

Findings:

Fostering a sense of belonging is essential for African American student persistence and success.

Example recommendations:

- Creating a welcoming department climate: “We are glad you are here; we want to support your success”
- Department training and codes of conduct to minimize microaggressions.
- Training for all faculty to foster a strong sense belonging in AA students



Factors for Persistence

Physics Identity

Data:

“I’ve had two professors ask me why I’m in physics. ... ‘Why are you still a physics major? ... You’re making your life difficult doing all this.’ It’s very discouraging when you hear [this].”

Findings:

To persist, AA students must perceive themselves, and be perceived by others, especially faculty, as future physicists and astronomers.

Example recommendations:

Departments should invite experts in physics identity development to train faculty on evidence-based ways to strengthen students’ sense of physics identity, including encouragement, recognition, and mentoring.



Factors for Persistence

Academic Support

Data:

“There was one teacher that—really, honestly, I was going to give up on physics and she changed everything...”

Findings:

Effective teaching, multiple pathways to graduation, and a strengths-based approach to academic support are necessary for African American student retention and success.

Example recommendations:

- Create multiple pathways into and through the major.
- Departments should regularly and quantitatively assess department recruitment activities and curricular pathways to identify points at which students leave before graduation, and develop actionable plans to increase the persistence of all students to the degree.



Factors for Persistence

Personal and Financial Support

Data:

“The continual stress of worrying about money to pay for school and the mounting debt cut across a number of the comments in our survey responses and impacted all aspects of students’ lives, including dealing regularly with a lack of sleep.”

Findings:

Many AA students need support to offset financial burdens that create stress and impede academic progress

Example recommendations:

- Departments should help students find on or off campus paid internships or jobs related to their major, enabling students to earn needed income while supporting academic progress.
- Departments should identify campus resources for emergency financial aid, conference travel, and other unmet needs and help students take advantage of them.



Factors for Persistence

Leadership and Structures

Data:

“The [departmental diversity, equity, and inclusion] committee is responsible for maintaining a welcoming and respectful learning environment. It organizes events and responds to diversity/equity issues when they arise.”

Findings:

Lone champions can make a big difference for students, but their efforts are unsustainable, making this an ineffective long-term strategy. In the most successful departments, a significant fraction of the faculty consistently value and support underrepresented students.

Example recommendations:

Department chairs should provide incentives and rewards to multiple faculty members, including those who are not members of marginalized groups, to actively support underrepresented students.

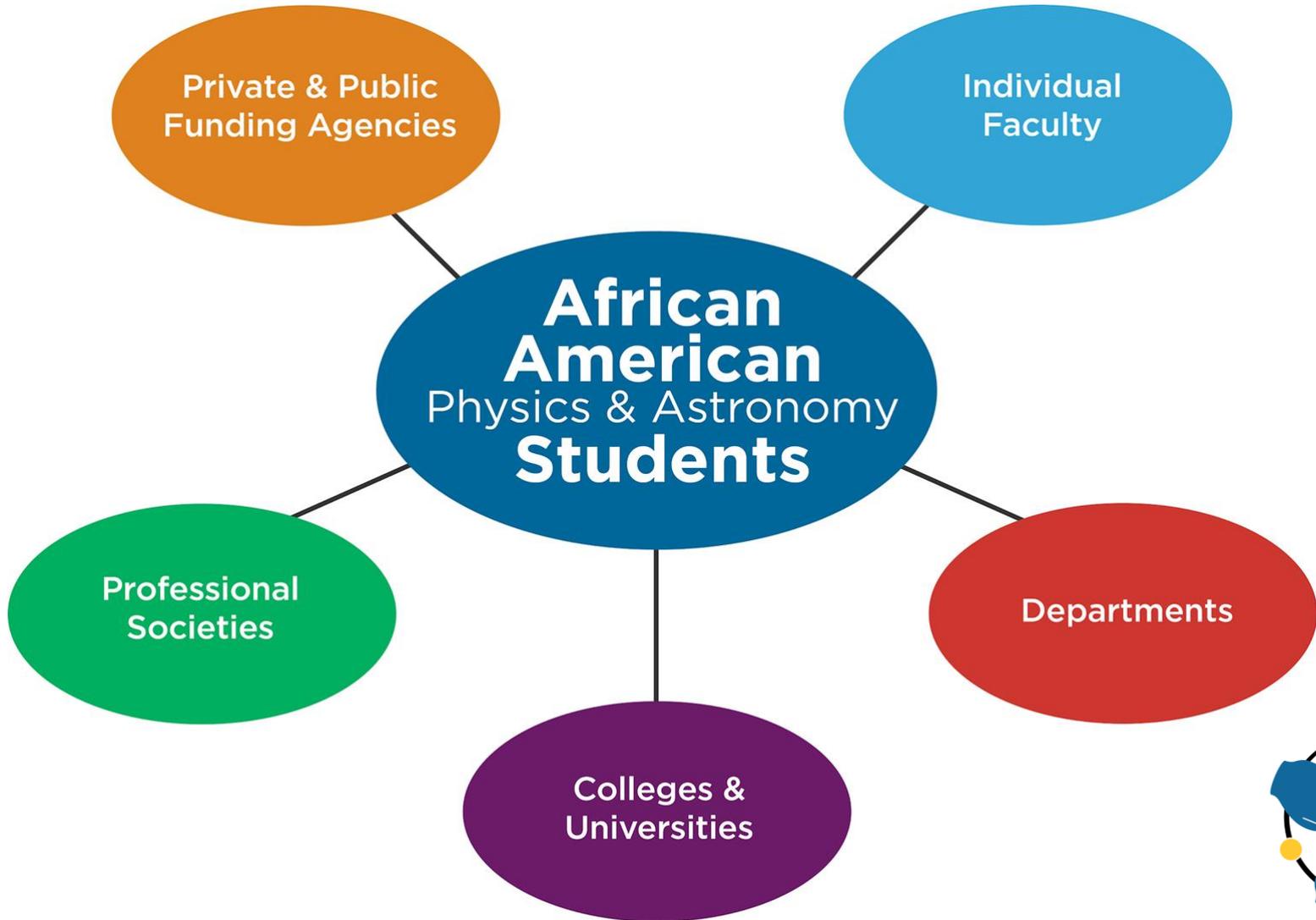


Conclusions

“The persistent underrepresentation of AA students in physics and astronomy is due to **the lack of a supportive environment** for these students in many departments, and to **the enormous financial challenges** facing them and the programs that have consistently demonstrated the best practices in supporting their success. Solving these problems requires addressing **systemic and cultural issues** and creating a large-scale **change management framework.**”



Community-wide efforts



TEAM-UP Process

- Member driven & broad support from AIP Member Societies
 - LCURM and Member Society Committees on Diversity
- Proposal written to AIP
 - TEAM-UP Commissioned and Funded by AIP Board
- Task Force members selected for expertise, diverse identities and experiences
- Guiding principles established
- Focus on *evidence-based* study using internal and external expertise and prior research literature



TEAM-UP Process

- Collect multiple of forms of data
- Data analysis to identify emerging findings
- Recommendations based on findings and best practices from exemplar departments and the literature
- Engage report reviewers from the community who are versed in these issues
- Finalize report



Things to Consider

- Is there consensus in the community about the problem?
- What can you reasonably study and what is your sphere of influence?
- Does your committee include the people being studied and the appropriate expertise?
- What is the goal of your study and who are your stakeholders?
- Is there strong academic rigor in the study?
- Are your recommendations bold enough?



AIP TEAM-UP Members & Staff

