

Year 2 PTaP Data

Research questions

1. Does GFO PTaP Data fairly represent U.S. College students by race/ethnicity?
2. How does student interest in grade 7-12 mathematics and science teaching differ by student identity?
3. How do student perceptions of grade 7-12 mathematics and science teaching vary by group?



U.S. K-12 teachers vs. U.S. Labor Force

Race	Teachers*	STEM Teachers*	U.S. Labor Force**
White (non-Hispanic)	79%	81%	67%
Black (non-Hispanic)	7%	6%	12%
Hispanic	9%	7%	17%
Asian	2%	3%	6%
American Indian/Alaska Native	1%	1%	1%
Two or more races	2%	2%	2%

*NCES 2015-2016 school year **U.S. Labor Force 2016: BLS.gov

Race/Ethnicity question

I am ... (choose all that apply)

- White or Caucasian
- Black or African American
- Hispanic or Latino
- Asian or Asian American
- American Indian or Alaska Native
- Native Hawaiian or Other Pacific Islander
- Middle Eastern or North African
- Prefer not to say
- Other (please specify) _____

Year 2 P TaP Data

Institution Type	Total Number	% of Study Sites	National %
All Institutions	46	100%	-
MSI	12	26%	20%
HSI	6	13%	11%
AANAPISI	4	9%	4%
HBCU	4	9%	3%
PBI	1	2%	3%

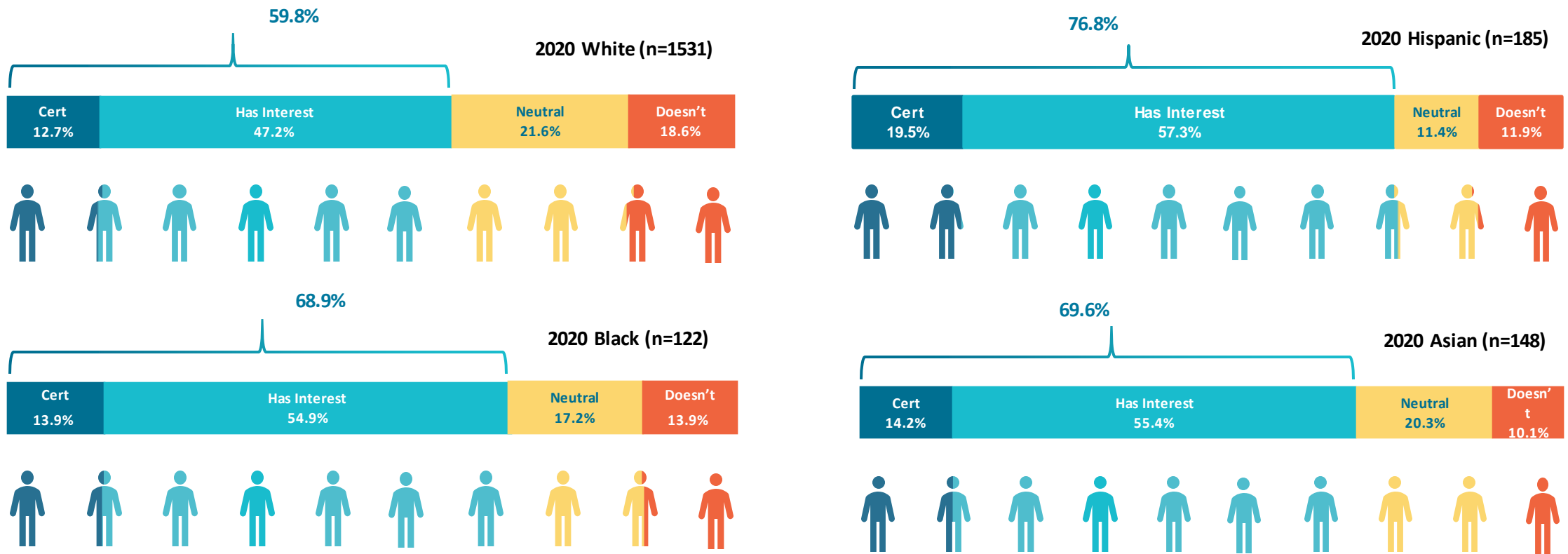
Demographics of the 46 GFO Comprehensive Sites. MSI – Minority Serving Institution, HSI – Hispanic Serving Institution, AANAPISI - Asian American and Native American Pacific Islander-Serving Institutions, HBCU - Historically Black Colleges and Universities, PBI - Predominantly Black Institutions

N=2364	White or Caucasian	Black or African American	Hispanic or Latino	Asian or Asian American	American Indian or Alaska Native	Native Hawaiian or Other Pacific Islander	Middle Eastern or North African	Prefer not to say	Two or more
# of responses	65% (1531)	5% (122)	8% (185)	6% (148)	0.2% (5)	0.1% (3)	1% (33)	2% (47)	12% (290)
% U.S. STEM degrees**	63%	8.8%	10.3%	9.7%	0.6%				

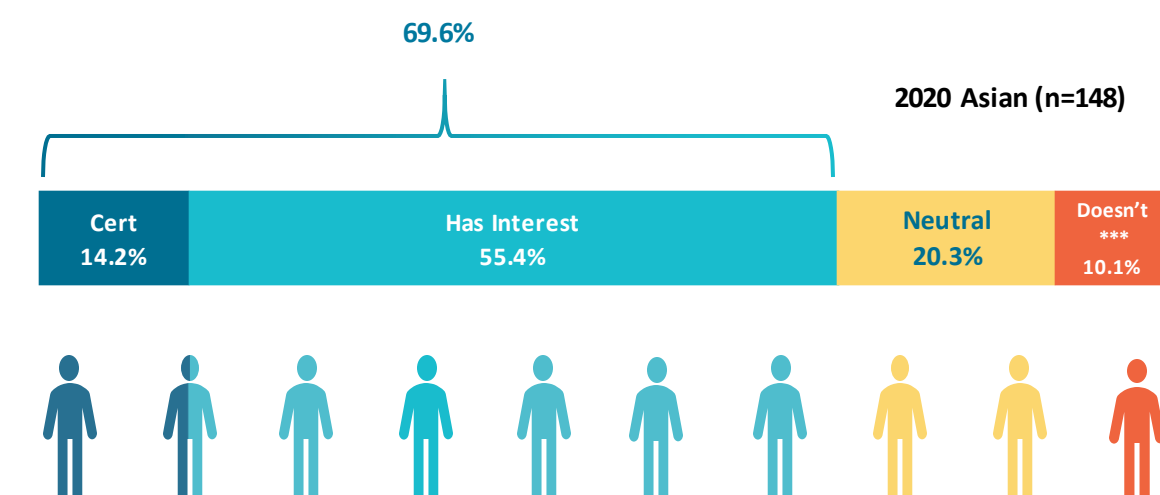
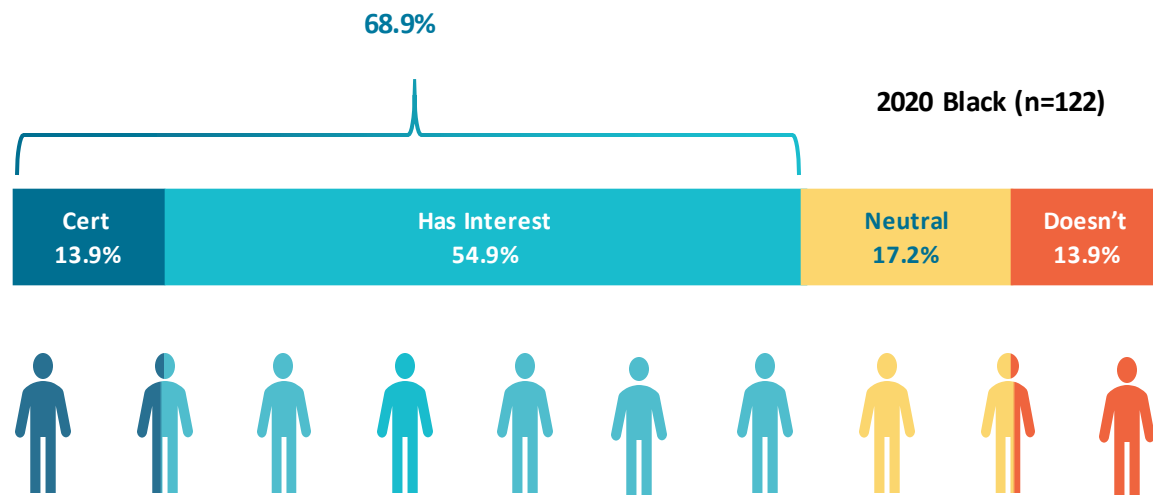
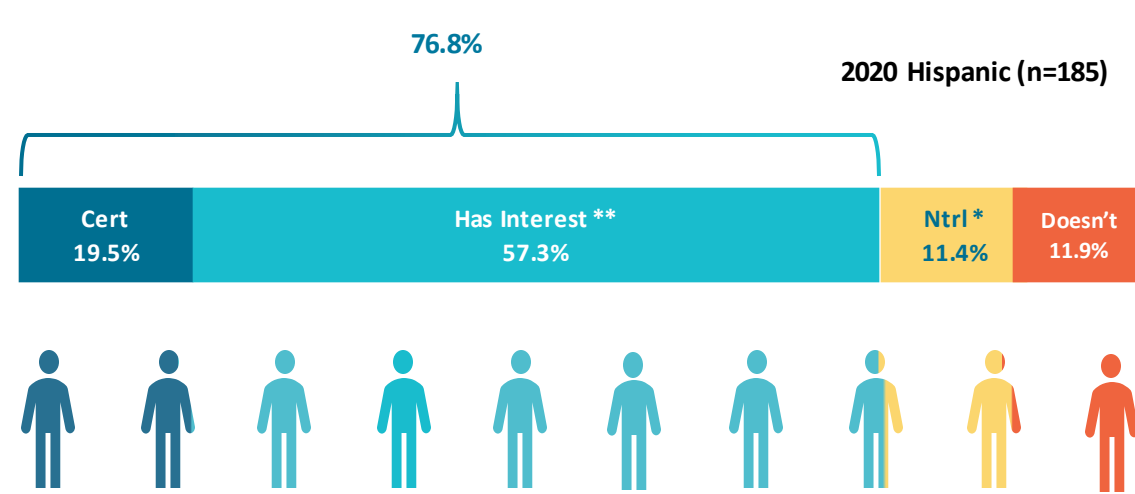
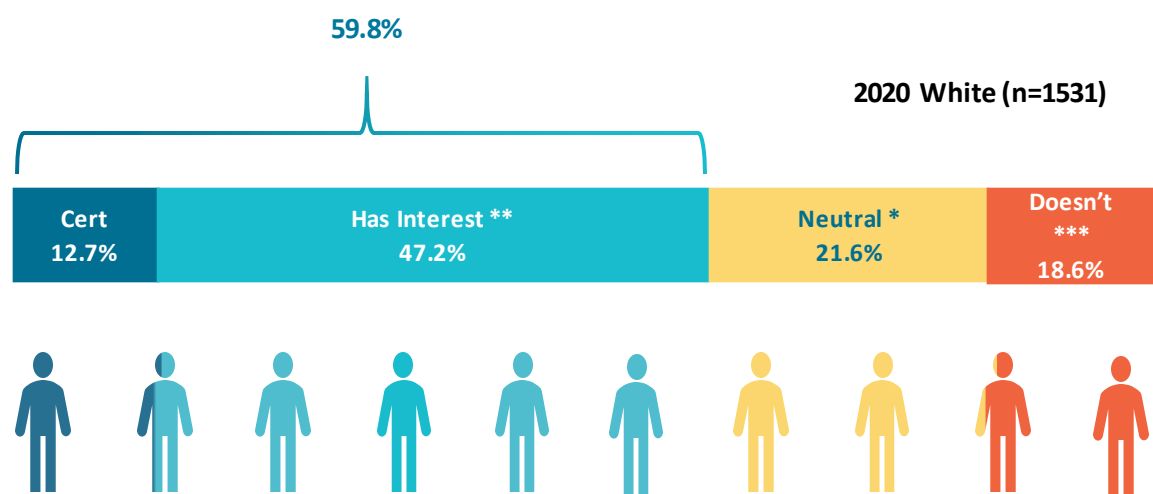
Data is limited to STEM students. Each student appears only once. **retrieved from <https://www.nsf.gov/nsb/sei/edTool/data/college-11.html>

Pictogram of Prospective Teachers

POPT (*popped*) Responses from a series nine statements that directly address a student’s interest in becoming a grade 7-12 math or science teacher



Planning to Pursue Certification includes those who answered agree/strongly agree (A/SA) to either “I plan to pursue certification at my institution” or “I plan to pursue certification through another route”. **Has Interest** includes those who A/SA with any of the six I would if (IWif) statements and/or those who answered A/SA to “I want to become a grade 7-12 teacher” (WTT) but did not A/SA with either certification statement. **Neutral** includes those remaining who chose neutral on any one of WTT, either certification statement, or IWif statement. **Doesn't Want to Teach** includes those who D/SD with all seven statements – WTT, certification, and IWif statements.



Hispanic students are significantly more likely to have interest or plan to pursue teacher certification than White students at $p=0.05$ (76.8% vs. 59.8%)

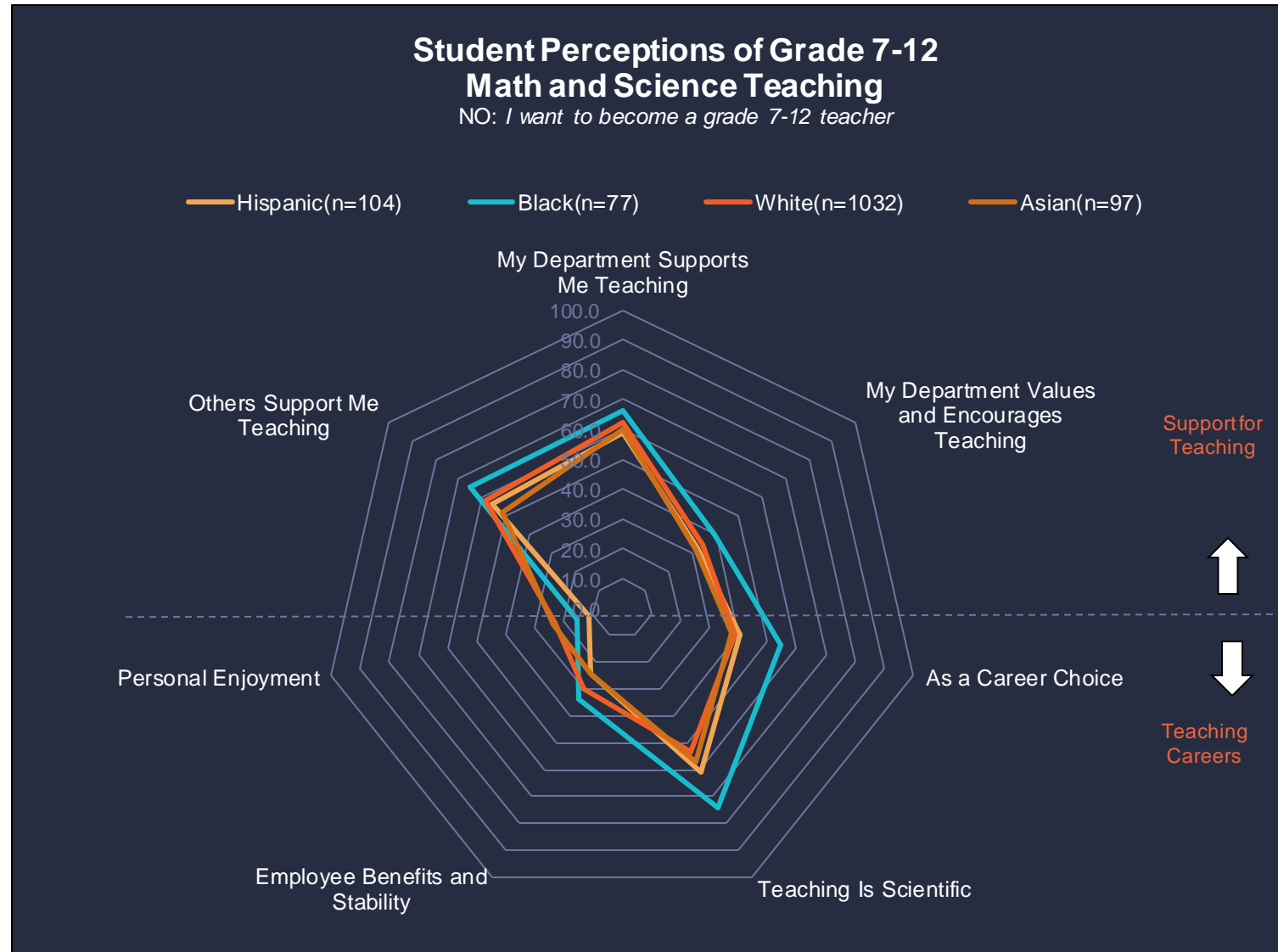
Asian students are significantly more likely to have interest or plan to pursue teacher certification than White students at $p=0.10$ (69.6% vs. 59.8%)

*Hispanic students are significantly less likely to be in the neutral category than White students at $p=0.05$. (11.4% vs. 21.6%)

**Hispanic students are significantly more likely to be in the "has interest" category than White students at $p=0.10$ (57.3% vs. 47.2%)

***Asian students are significantly less likely to be in the "does not want to teach" category than White students at $p=0.10$ (10.1% vs. 18.6%)

I want to become a grade 7-12 teacher: **NO**

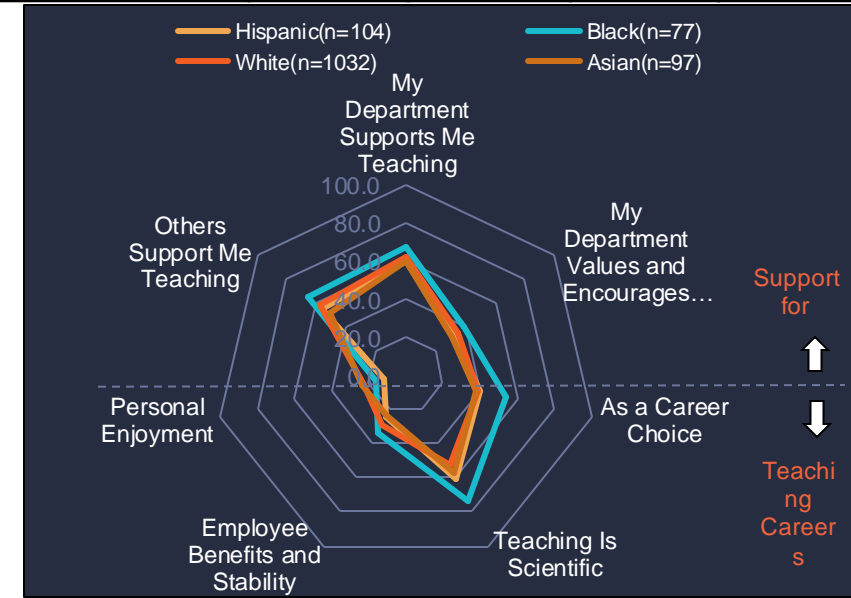


Perceptions vary by group for those who do not want to teach.

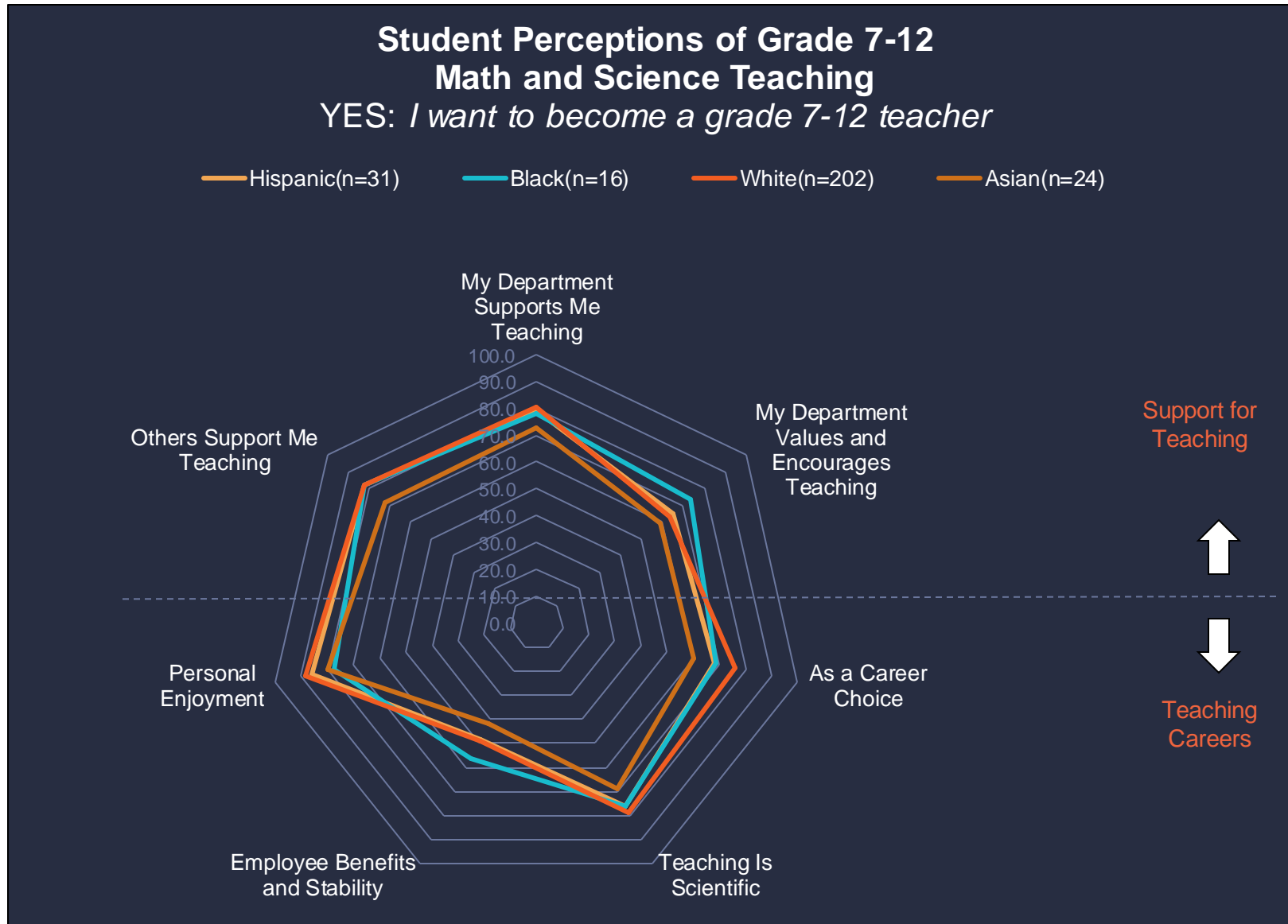
- There is a significant difference by race for average scores in *As a career choice*
 - Black students have significantly higher scores than White, Hispanic, and Asian students in *As a Career Choice* ($p=0.000$, 0.001 , 0.000)
- There is a significant difference by race for average scores in *Others Support Me Teaching*
 - Black students have significantly higher scores than Asian students in *Others Support Me Teaching* ($p=0.009$)
 - White students have higher scores than Asian students in *Others Support Me Teaching* ($p=0.104$)
- There is a significant difference by race for average scores in the *Employee Benefits and Stability*
 - Black students have higher scores than Asian students in *Employee Benefits and Stability* ($p=0.109$)
- There is a significant difference by race for average scores in the *Teaching is Scientific*
 - Black students have significantly higher scores than White, Asian, and Hispanic students. ($p=0.000$, $p=0.001$, $p=0.012$)
 - Hispanic students also have significantly higher scores than White students. ($p=0.04$)

I want to become a grade 7-12 teacher: **NO**

	White or Caucasian (1032)	Black or African American (77)	Hispanic or Latino (104)	Asian or American (97)
<i>I want to become a grade 7-12 teacher. NO</i>				
Overall	40.8(0.4)	43.8(1.4)*	38.6(1.2)*	37.8(1.4)*
My Department Supports Me Teaching	62.1(1.0)	66.6(2.94)	59.1(3.2)	60.1(3.4)
My Department Values and Encourages Teaching	34.5(0.9)	39.5(3.3)*	32.3(2.5)	31.6(3.0)
As a Career Choice	38.8(0.8)	54.5(2.8)*	40.4(2.4)	37.8(3.6)
Teaching Is Scientific	53.1(0.9)	74.3(3.2)*	61.0(2.7)*	57.3(2.8)*
Employee Benefits and Stability	29.8(0.9)	33.9(3.1)	24.5(2.9)*	24.0(2.8)*
Personal Enjoyment	22.8(0.4)	15.8(1.9)*	11.6(1.5)*	23.5(1.4)
Others Support Me Teaching	58.3(0.9)	65.4(2.9)*	55.8(3.2)	51.2(3.1)
All Students Can Learn	63%	47%	44%	50%



I want to become a grade 7-12 teacher: **YES**

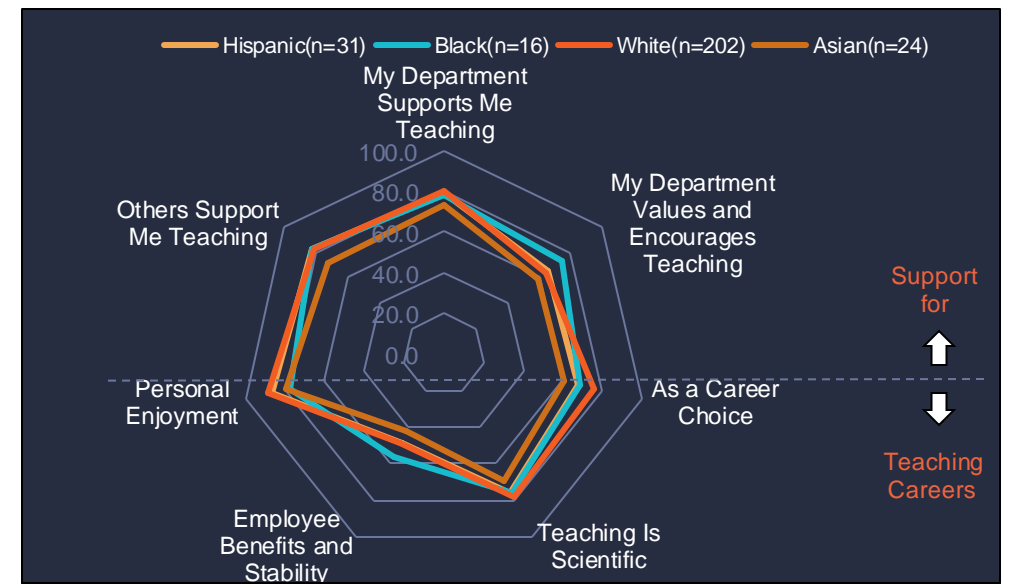


I want to become a grade 7-12 teacher: **YES**

Perceptions vary by group for those who want to teach

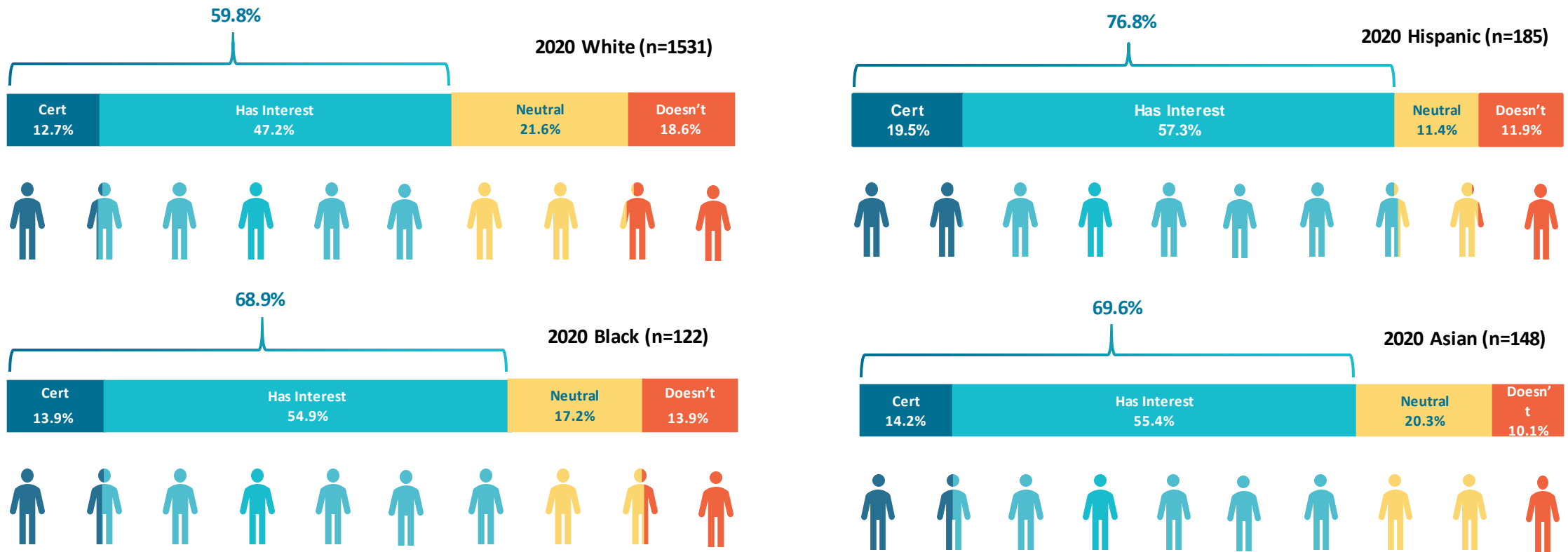
- There is a significant difference by race for average scores in *Personal Enjoyment*
 - White students have significantly higher scores than Asian students in *Personal Enjoyment* ($p=0.06$)
- There is a significant difference by race for average scores in *As a Career Choice*
 - White students have significantly higher scores than Asian students in *As a Career Choice* ($p=0.007$)

<i>I want to become a grade 7-12 teacher. YES</i>	White or Caucasian (202)	Black or African American (16)	Hispanic or Latino (31)	Asian or Asian American (24)
Overall	68.5(0.8)	66.0(3.5)	66.7(2.0)	61.5(2.7)
My Department Supports Me Teaching	80.3(2.1)	78.1(5.6)	79.0(7.2)	72.9(6.0)
My Department Values and Encourages Teaching	63.7(2.4)	73.8(7.7)	65.2(5.8)	59.4(7.1)
As a Career Choice*	76.0(1.5)	68.8(6.9)	68.1(6.9)	60.2(5.1)*
Teaching Is Scientific	78.7(1.6)	76.3(6.9)	76.1(4.8)	69.2(5.1)
Employee Benefits and Stability	48.9(2.3)	56.3(9.3)	48.4(4.8)	41.7(3.9)
Personal Enjoyment**	88.3(1.0)	77.5(6.2)	86.2(3.1)	79.8(4.4)*
Others Support Me Teaching	82.0(1.8)	82.3(5.6)	82.3(4.2)	72.2(5.3)
All Students Can Learn	77%	50%	81%	79%



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Need more diverse STEM majors!

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% U.S. STEM degrees**	63%	8.8%	10.3%	9.7%	0.6%				
% U.S. College students	52%	15.2%	19.8%	5.7%	0.8%	0.4%			3.3%

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Recruitment and Retention Argument

Physics Example:

- 750 physics departments and 600 have stable or declining enrollment
- Are you interested in increasing the number of majors in your department?
- Data shows that mentioning teaching as a career option is attractive to 60 - 75% of majors.
- Some of those students will decide to pursue a different career within the field/major, but not talking about teaching means some of them will pursue a different major
- The 20% or so of your majors that decide to become teachers, will go into classrooms with an affinity towards your department and institution and send you new well-prepared majors every year.

Both a recruitment strategy for next year and for five years down the road. Also a good retention strategy.

Advice from AAEE meeting

- Attend AAEE conference
- Messaging about joining your program. (school ideas: come home or be a part of our family, make a difference with the next generation, be an innovator - inspire the next generation, find your home – how to have the greatest colleagues)
- Place students with teachers of color
- Share the fact that Black students of color who have had just one Black teacher by 3rd grade are 13% more likely to enroll in college and those who have two teachers of color 32% more likely to go to college.
- Be straight forward and honest that you're wanting to help teachers of color become teachers because our students deserve the opportunity to experience a teacher of color "I am looking for black males because 1% is not enough"
- Ask your students of color how you can support them
- Data shows that students of color who attend non-MSI's are more likely to pass the praxis exam.
- SCHOOL FIT is critical – place students strategically in schools that fit their comfort
- Image is critical. Need to see yourself in that role. People want to be somewhere they fit. Need students of color in your program (chicken and egg) teachers (TIR) of color.
- You're looking for a cultural addition (not trying to add numbers)
- Create a video showing students and each one says "I need you"