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**KENNESAW STATE**  
UNIVERSITY  
BAGWELL COLLEGE  
OF EDUCATION

# Changing the Narrative Strategies to Address STEM Teacher Shortage

**Brian R. Lawler**

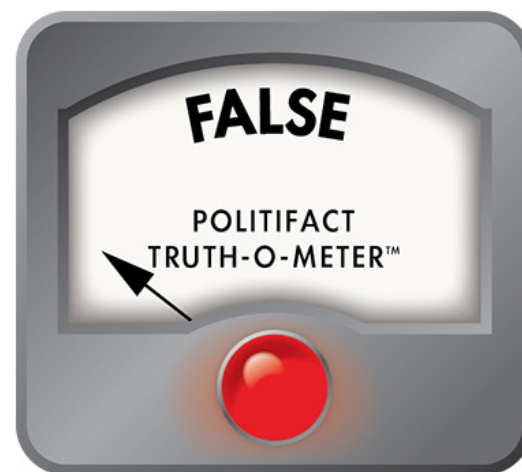
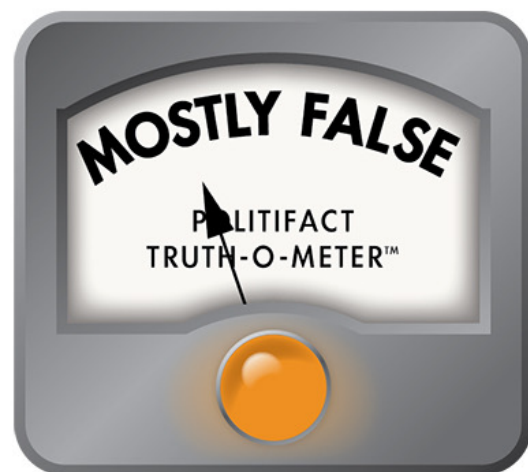
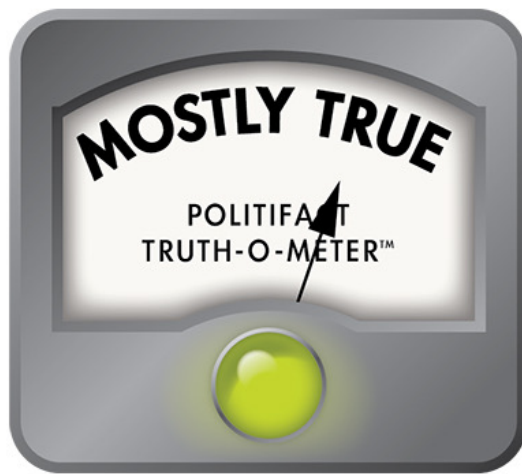
Associate Professor Math Education  
Interim Director CiSTEMer

Sept. 29, 2022  
Metro P-20 Collaborative



# Changing the Narrative

- “Teachers are fleeing the field”
- “Teachers are burnt out”
- “Teachers are underpaid”
- “Districts have severe teacher shortages”
- “Highly qualified STEM teachers are desperately needed”
- “Teaching is a miserable job.”
- “No one in their right mind wants to be a teacher.”



# Changing the Narrative

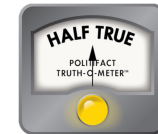


- “Teachers are fleeing the field”
- “Teachers are burnt out”



- “Teachers are underpaid”

- “Districts have severe teacher shortages”



- “Highly qualified STEM teachers are desperately needed”

- “Teaching is a miserable job.”



- “No one in their right mind wants to be a teacher.”





# Teaching: The Best Kept Secret!

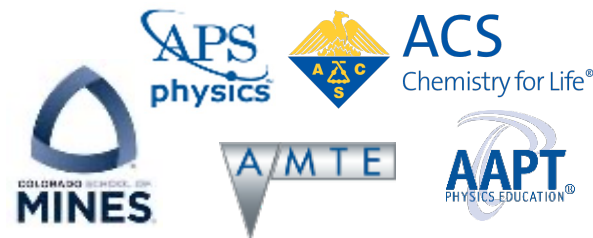
Your Name

Your  
LOGO

## Get the Facts Out



Repairing the reputation of  
the teaching profession



Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. NSF DUE #1557254 (Noyce) and #1821710 & 1821462 (IUSE).



# Purpose for today

- I will provide some empirical data that related to some of this narrative about the teaching profession.
- The ***Get The Facts Out*** project has refined the presentation of this data in response to what seems to have positive impact on students, parents, and adults in terms of considering STEM teaching for a career.
- It is my hope you will find some use for these resources in your own efforts to recruit STEM teachers.
- You can find all of these at [getthefactsout.org](https://getthefactsout.org)

# Rate your life

On **which step of the ladder** would you say you personally feel you stand at this time?

Best possible  
life (10)



Worst possible  
life (0)



# National Survey

The Cantril Self-Anchoring Scale†

Q1

On **which step of the ladder** would you say you personally feel you stand at this time?

Q2

On which step do you think you will stand about **five years from now**?

Best possible life (10)



Worst possible life (0)

*Top*

7 or greater for Q1 & 8  
or greater on Q2

*Middle*

4 or less for Q1 &  
Q2

*Bottom*

# What factors go into a person's rating of their life?

## Gallup-Healthways measured:

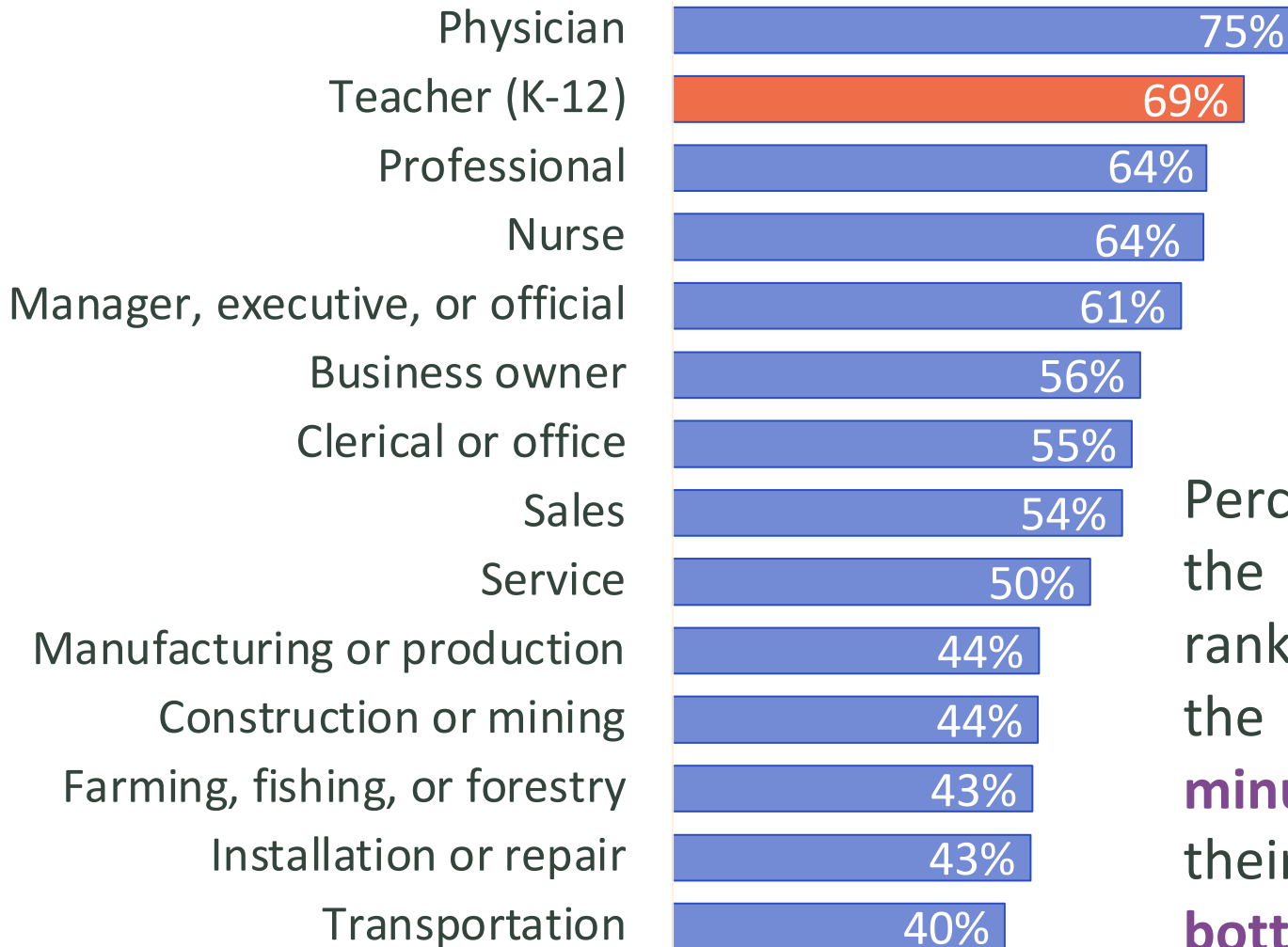
- Emotional Health
- Healthy behaviors
- Access to basic necessities
- Physical health
- Work environment

## Might also include

- Financial stability
- Leisure time
- Intellectual and emotionally stimulating work
- Schedule (quality of it and the predictability of it)
- Opportunity to learn new skills/knowledge
- Relationships
- ...

# Did you know...

*Teachers in the United States rate their lives better than all other occupation groups, trailing only physicians.*



Percentage shown is the % of respondents ranking their lives at the **top** of the ladder **minus** the % ranking their lives at the **bottom** of the ladder.

**These slides added after Metro P-20**

# Gallup Healtyways Well-Being data

The data presented in the slide above was from a study conducted from Jan. 2-Dec. 30, 2012 using a random sample of 172,286 workers.

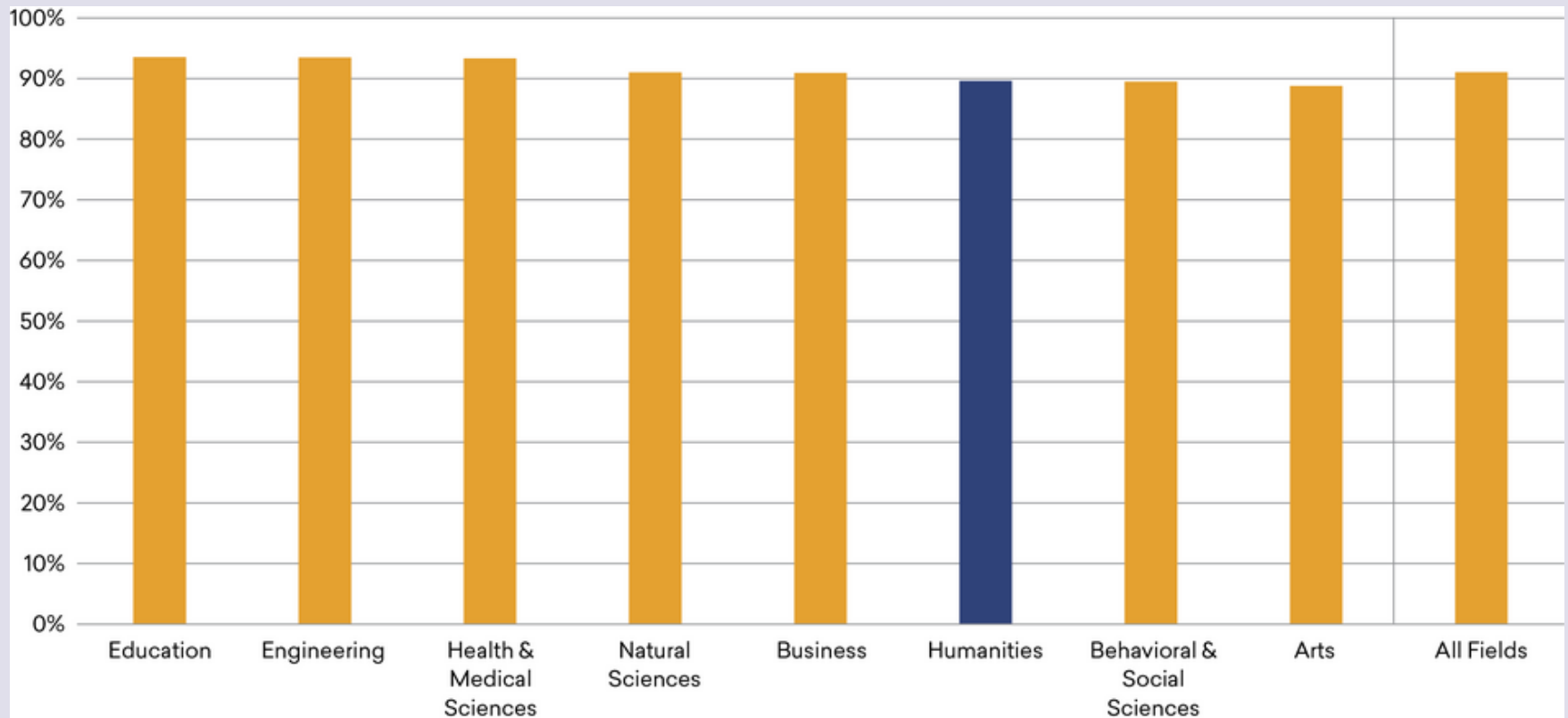
Gallup continues to collect data for the Healthways Well-Being Index, but apparently use it to provide consulting services for business and industry.

The data still is available for higher education and researchers. See how to access at their [website](#).

The next slide is a Gallup study from 2019. And the two studies that follow from [American Academy of Arts and Sciences](#) and [Upbeat](#) continue to provide further evidence regarding teacher well-being (excerpts in slides 17–19).

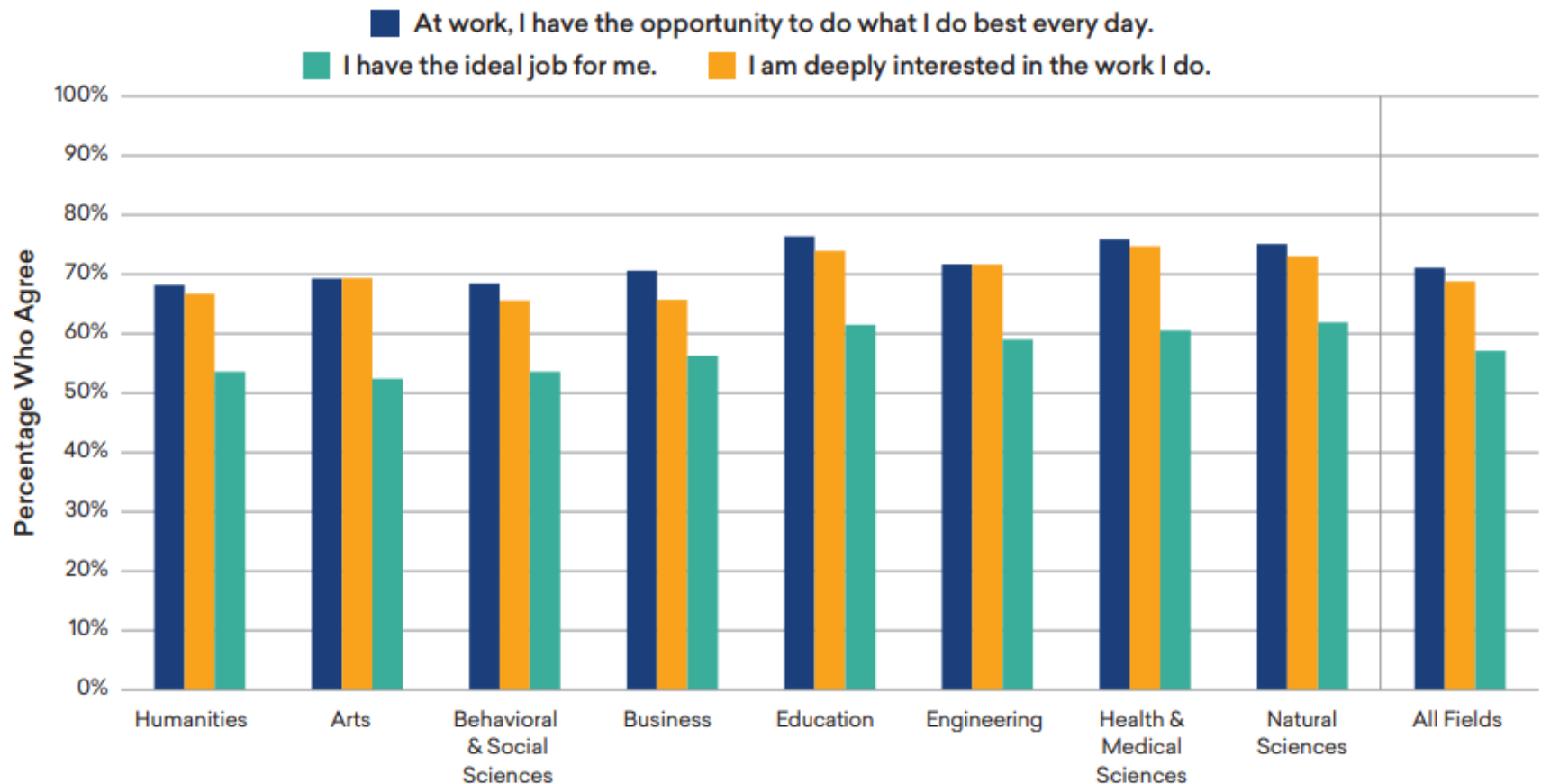
# Gallup – 2019

Share of College Graduates Who Are Satisfied with Their Life, by Field of Bachelor's Degree



# American Academy of Arts & Sciences – 2021

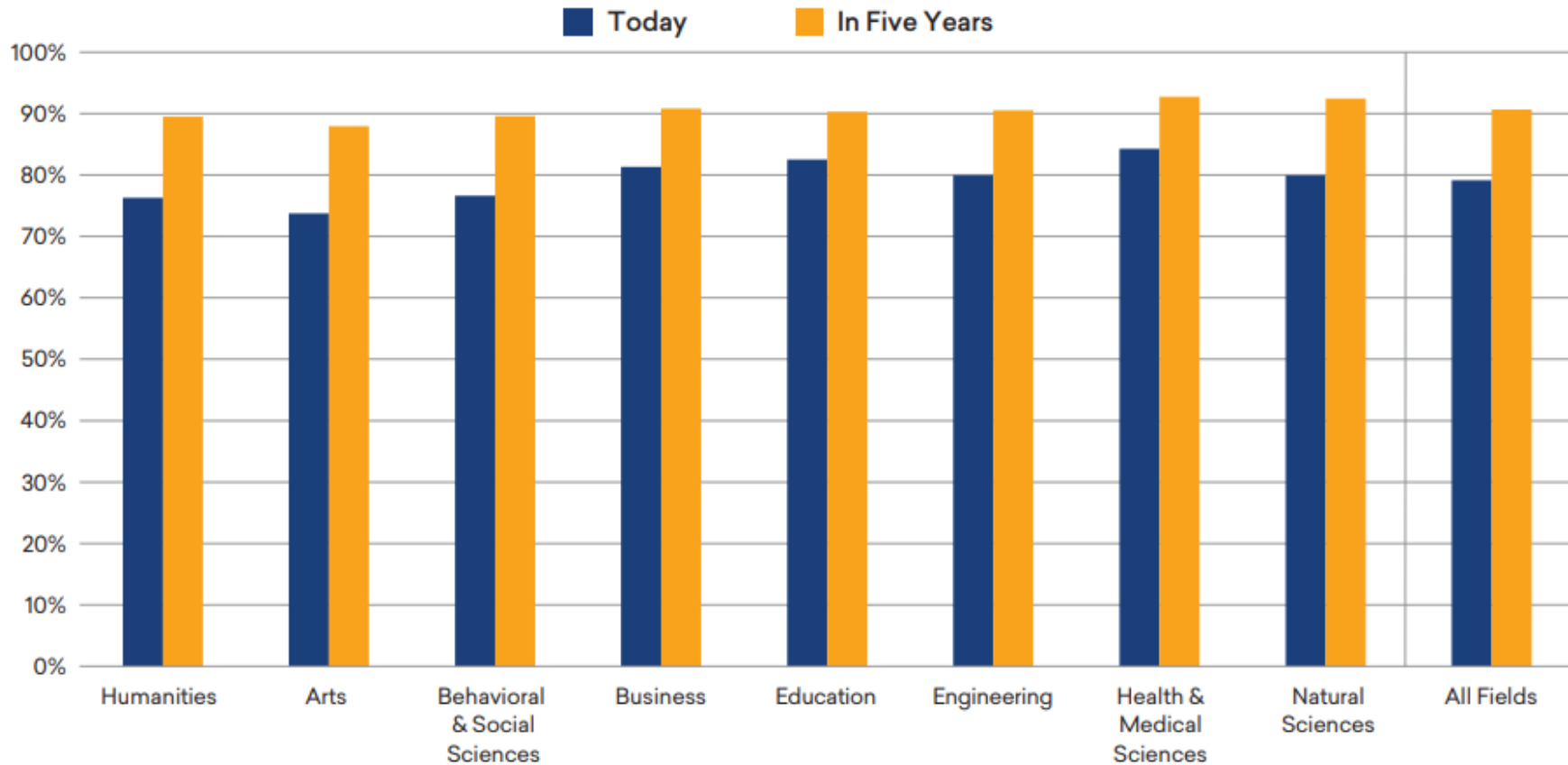
## Share of College Graduates with Positive Perceptions of Their Job, by Field of Bachelor's Degree, 2019



# American Academy of Arts & Sciences – 2021

## College Graduates' Assessment of Their Current and Future Progress Toward "My Best Possible Life," by Field of Degree, 2019

Share Believing that They Are/Will Be at Least 70% of the Way to Their "Best Possible Life"

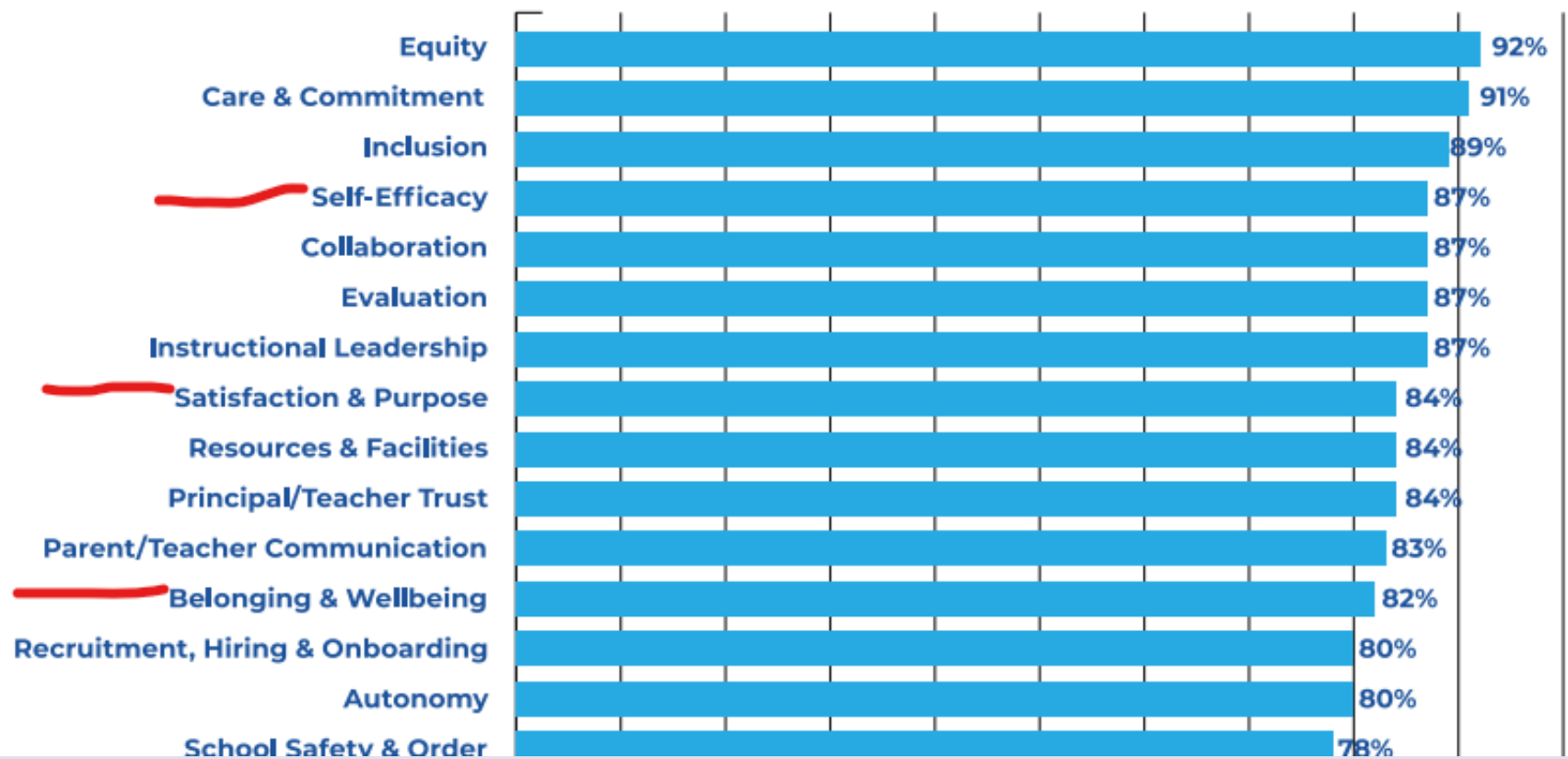




# Upbeat – 2021

working conditions. The figure below shows the percent positive responses in each working conditions category for teachers in the fall of 2021.

Figure 3. Percent Positive Responses by Category, Fall 2021



# Teacher Well-being

- **Work-life balance**
- **Student and colleague relationships**
- **Financial stability**



# Day-to-Day Satisfaction

**Students: relationships and Learning**

**Work schedule**

**Teaching is challenging/scientific**

**Colleagues**

**Learning new content**

**Autonomy of the Classroom**

- What provides you with day-to-day satisfaction?
- A listing of 60 total items were compiled by STEM teachers.
- These 60 items fell into six categories.

# Starting salaries

Which is closest to the typical starting salary for K-12 teachers in the Metro Atlanta area?

- A. \$25,000
- B. \$34,000
- C. \$47,000
- D. \$54,000
- E. \$67,000

# Mid-career salaries

After 15 years of teaching and earning a master's degree, which is closest to the typical Metro Atlanta K-12 teacher salary?

- A. \$48,000
- B. \$65,000
- C. \$75,000
- D. \$85,000
- E. \$110,000

# Teacher Salaries

school-year contracts



	<b>BA yr 1</b>
<b>Prince George's County Public Schools</b>	\$49,963 - \$54,034
<b>Denver Public Schools (+\$2K math, \$6K student loans, +other) (21-22)</b>	\$47,291- \$51,083
<b>Mustang Public Schools (Oklahoma City)</b>	\$45,397
<b>Garden City Union Free School District, NY</b>	\$63,030 - \$65,082

186-day contract -> \$50,000 = \$33.60/hr

+ Extra Pay for coaching, clubs, etc..

# Teacher Salaries

## school-year contracts



	BA yr 1	BA yr 5	MA yr5
<b>Prince George's County Public Schools</b>	\$49,963 - \$54,034	\$60,816 - \$65,773	\$63,857 - \$69,063
<b>Denver Public Schools (+\$2K math, \$6K student loans, +other) (21-22)</b>	\$47,291- \$51,083	\$57,953- \$62,252	\$63,685- \$68,287
<b>Mustang Public Schools (Oklahoma City)</b>	\$45,397	\$47,415	\$49,003- \$50,591
<b>Garden City Union Free School District, NY</b>	\$63,030 - \$65,082	\$74,384 - \$76,705	\$88,050 - \$93,853

186-day contract -> \$50,000 = \$33.60/hr

+ Extra Pay for coaching, clubs, etc..

# Teacher Salaries

## school-year contracts



	BA yr 1	BA yr 5	MA yr5	MA yr 15
<b>Prince George's County Public Schools</b>	\$49,963 - \$54,034	\$60,816 - \$65,773	\$63,857 - \$69,063	\$94,615 - \$97,454
<b>Denver Public Schools (+\$2K math, \$6K student loans, +other) (21-22)</b>	\$47,291- \$51,083	\$57,953- \$62,252	\$63,685- \$68,287	\$87,160- \$88,945
<b>Mustang Public Schools (Oklahoma City)</b>	\$45,397	\$47,415	\$49,003- \$50,591	\$55,871- \$57,672
<b>Garden City Union Free School District, NY</b>	\$63,030 - \$65,082	\$74,384 - \$76,705	\$88,050 - \$93,853	\$131,030 - \$134,334

186-day contract -> \$50,000 = \$33.60/hr

+ Extra Pay for coaching, clubs, etc..



# Did you Know...

At year 15, the middle 50% of teacher salaries ranges between **\$64,000 and \$102,000**, nationally.

(Range shown is IQR: 25<sup>th</sup> – 75<sup>th</sup> percentile.)



# A Teacher's Life by the Numbers!

Marion County, IN



Teacher Salaries

1<sup>st</sup> Year Teacher with a B.A.

\$50,400-  
\$53,400\*

15<sup>th</sup> Year Teacher with a M.A.

\$83,000-  
\$86,000\*

\*Data from 2022-2023

Plus extra duty pay for coaching and club sponsorship

## What does that mean for professionals in this area?

The average annual wage is \$51,558



Median home value is \$228,356



Average rent for a two-bedroom apartment is \$911



A salary of \$50,000 can buy a home like this\*:



\$211,000

A salary of \$85,000 can buy a house like this\*:



\$425,000

\*With a 5% down payment for 1<sup>st</sup> year teachers and 20% down for mid-career and while spending 50% of their income on housing

Get the Facts Out  
Changing the conversation around STEM teacher recruitment



Visit our Website!  
[GettheFactsOut.org](http://GettheFactsOut.org)

This material is based upon work supported by the National Science Foundation under Grant Nos. 1821710 & 1821462. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of NSF.



Created by WA 7.29.22

Teachers should be paid more, but they are squarely middle-class

# A Teacher's Life by the Numbers!

Nassau and Suffolk County, NY



Teacher Salaries

1<sup>st</sup> Year Teacher with a B.A.

\$57,623-  
\$65,082\*

15<sup>th</sup> Year Teacher with a M.A.

\$123,704-  
\$134,334\*

\*Data from 2021-2022

Plus extra duty pay for coaching and club sponsorship

## What does this mean for a professional in this area?

The average annual wage is  
**\$68,042**



Median home value is  
**\$644,553**



Average rent for a  
**two-bedroom** apartment is **\$2,035**



A salary of \$60,000 can buy a home like this\*:



\$269,900

A salary of \$130,000 can buy home like this\*:



\$699,000

\*With a 5% down payment for 1<sup>st</sup> year teachers and 20% down for mid-career and while spending 56% of their income on housing

Get the Facts Out  
Changing the conversation around STEM teacher recruitment



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Created by BA 11.09.21

# Teacher Salaries

+ Extra Pay → Stipends/bonuses

Did you know...

*Teachers get additional pay of **\$1,000-\$8,000 per year** for optional activities like coaching, running after-school clubs, and tutoring.*



# Administrator Salaries

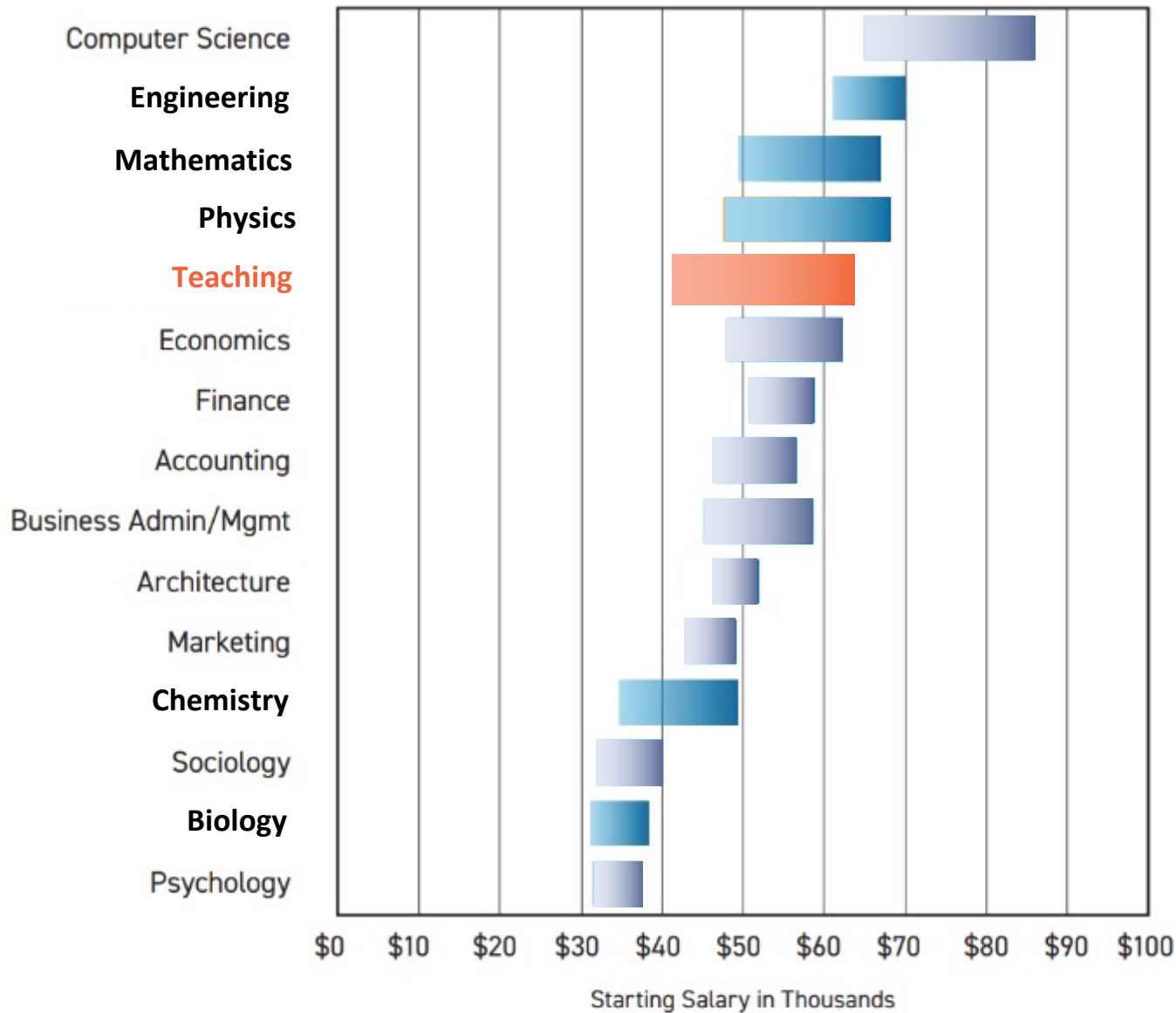


## St. Vrain Valley Schools

	<b>Calendar*</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Asst. Principal - High</b>	215 Days	\$92,697	\$128,009
<b>Director – Innovation Programs</b>	248 Days	\$103,325	\$142,687
<b>Principal - High</b>	225 Days	\$113,954	\$157,365
<b>Asst Superintendent – Innovation Center</b>	248 Days	\$145,851	\$201,400
<b>Deputy Superintendent</b>	248 Days	\$175,819	\$242,798

\* Classroom Teacher Calendar: 186 days

# Typical salaries of bachelor degree recipients, Class of 2018

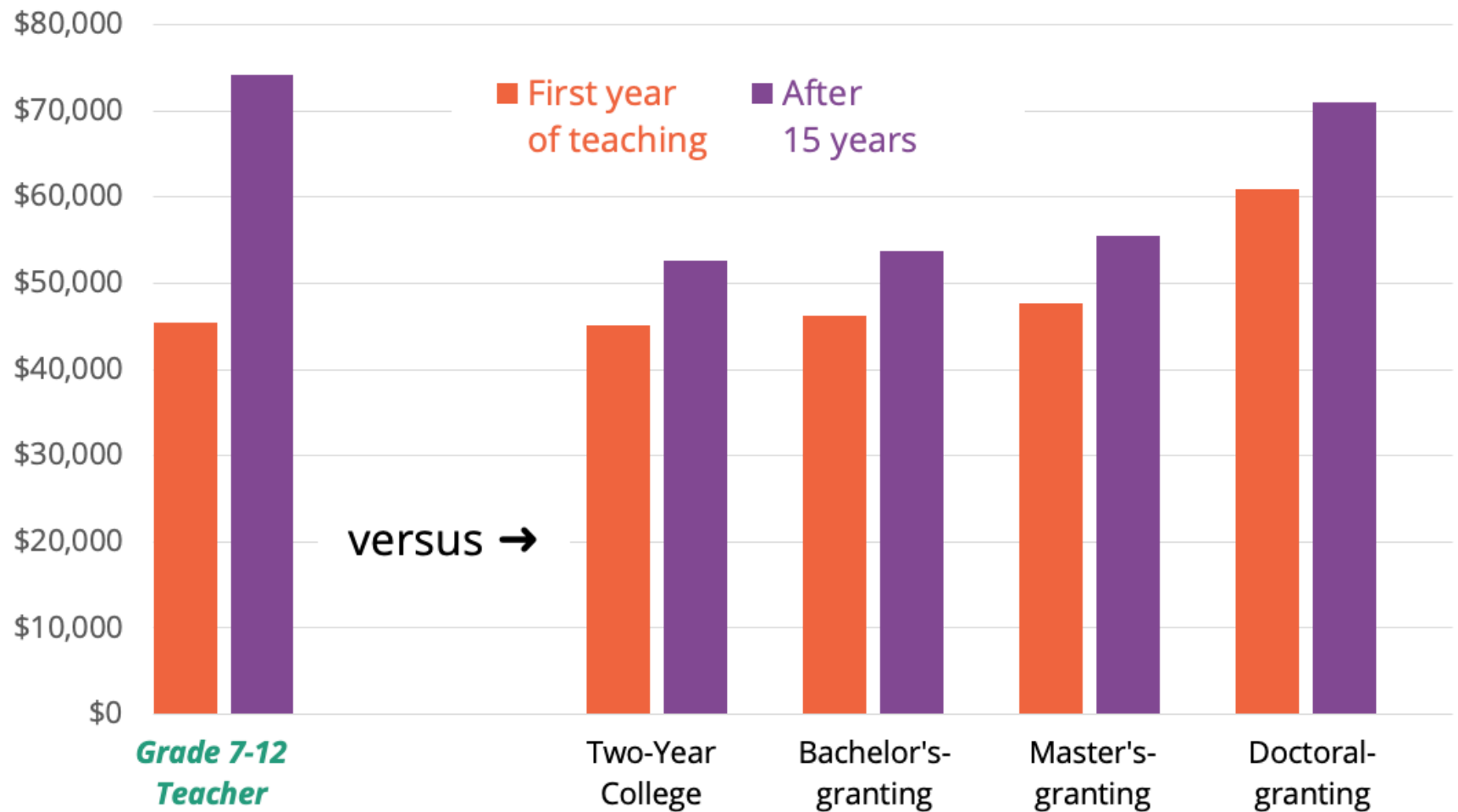


*Note:* Teaching is a **school-year position**, all others are 12-month

Bars represent the middle 50% of salaries, i.e. between the 25th and the 75th percentiles.

Reprinted from the Summer 2019 Salary Survey, with permission of the National Association of Colleges and Employers, copyright holder.

**Did you know...** *Grade 7-12 science and math teachers get paid more than most college teaching faculty?*



# Respect

What fraction of teachers somewhat agree or strongly agree with the statement “I am treated with respect by students and parents.”

- A. 27%
- B. 39%
- C. 57%
- D. 65%
- E. 87%



# Respect

What fraction of teachers somewhat agree or strongly agree with the statement “I am treated with respect by students and parents.”

- A. 27%
- B. 39%
- C. 57%
- D. 65%
- E. **87%**

2017 Educator Quality of Work Life Survey by aft the American Federation of Teachers - A Union of Professionals and BATs the Badass Teachers Association ~5,000 teachers responding.

# Teacher Retention

What fraction of grade 7-12 teachers remain in the profession at year 5?

- A. 28%
- B. 41%
- C. 59%
- D. 78%
- E. 90%

# Teacher Retention

What fraction of grade 7-12 teachers remain in the profession at year 5?

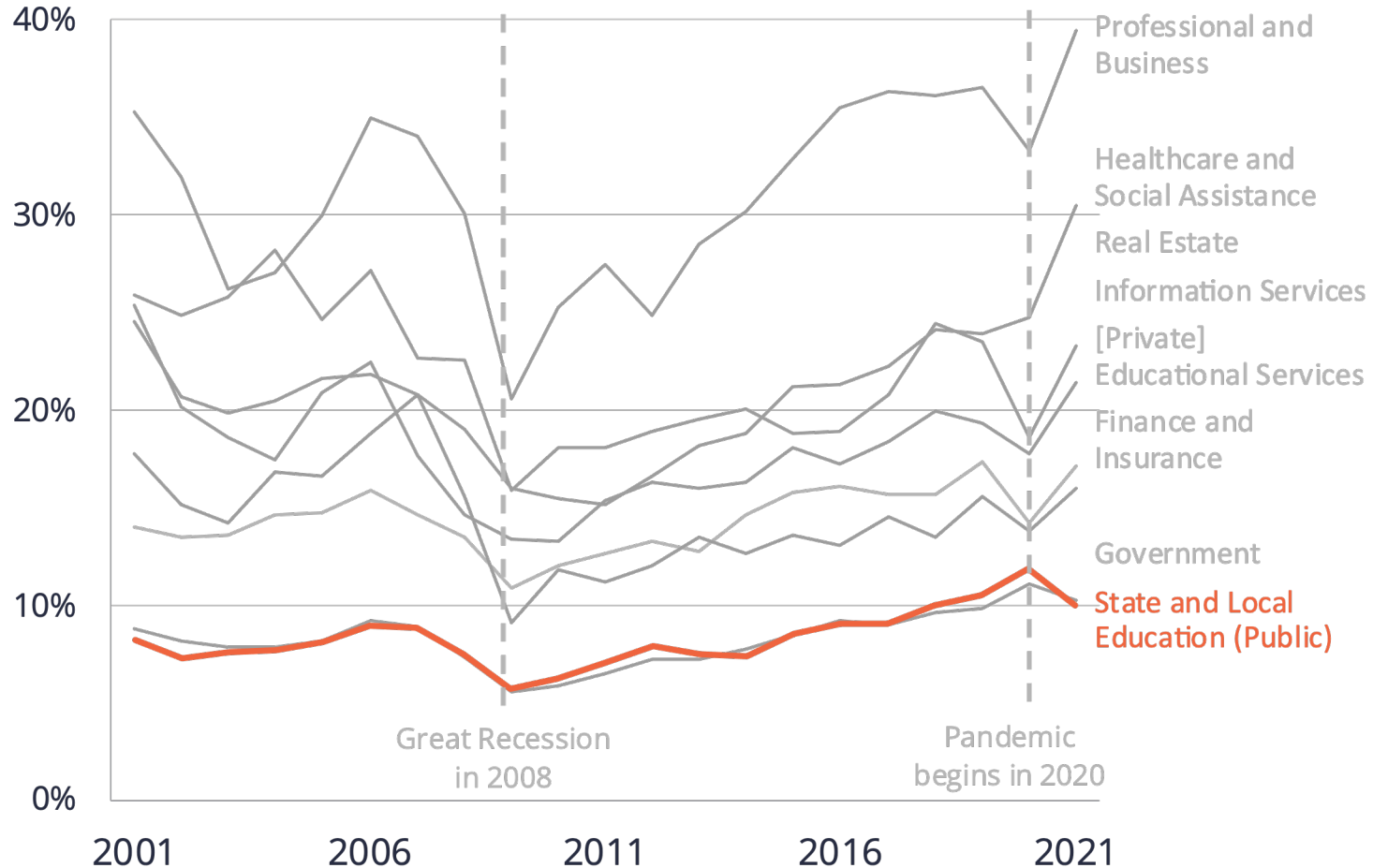
- A. 28%
- B. 41%
- C. 59%
- D. 78%**
- E. 90%

†2015 U.S. Dept. of Ed  
Public School Teacher Attrition and Mobility in the First Five  
Years: Results From the First Through Fifth Waves of the  
2007–08 Beginning Teacher Longitudinal Study



# Teacher retention is better than most other occupations

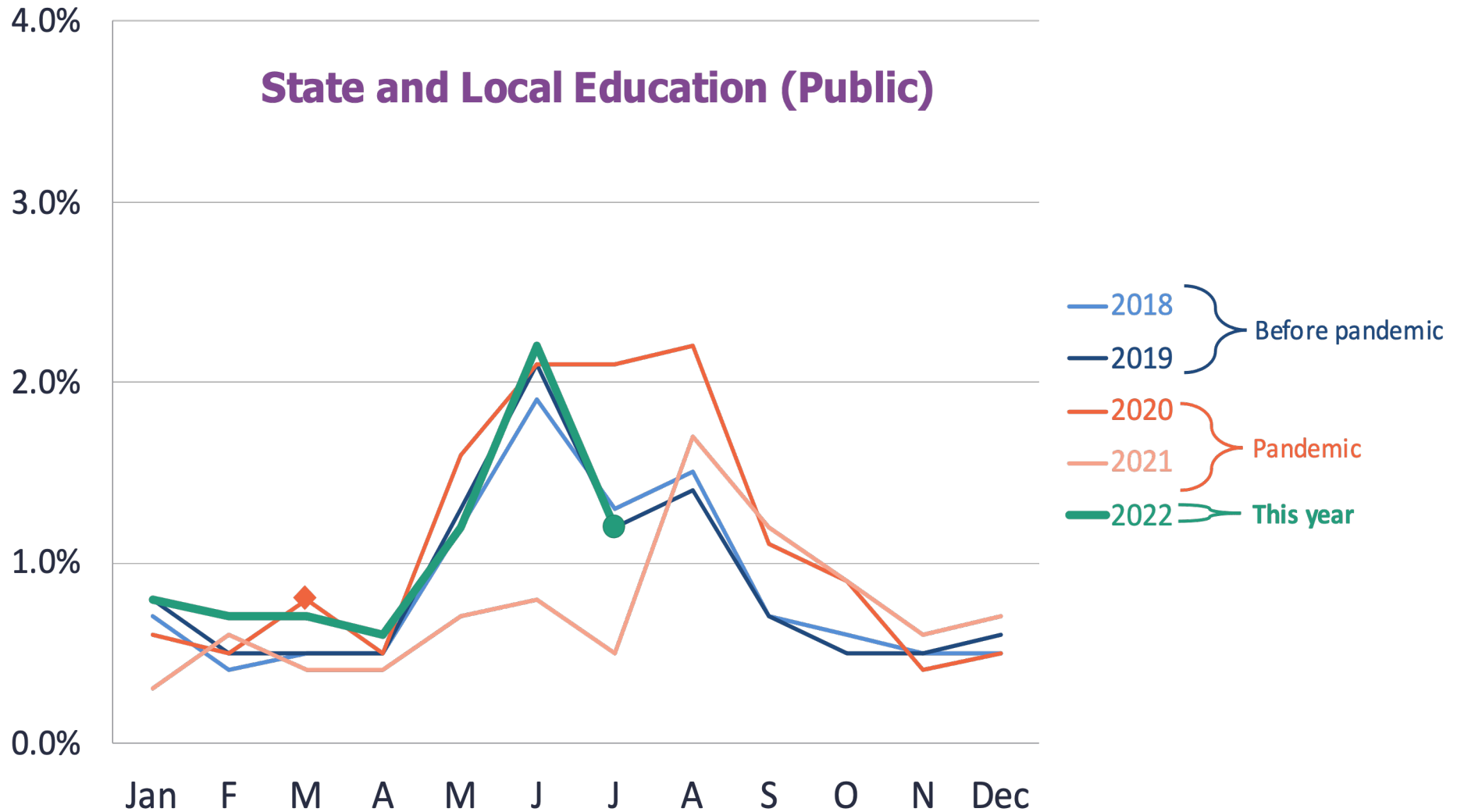
## Annual quit rates by industry, 2001-2021





# Monthly quit rates 2018-2022

## State and Local Education (Public)



**Did you  
know...**

*You can get a job almost anywhere in  
the U.S. or abroad as a science or math  
teacher.*



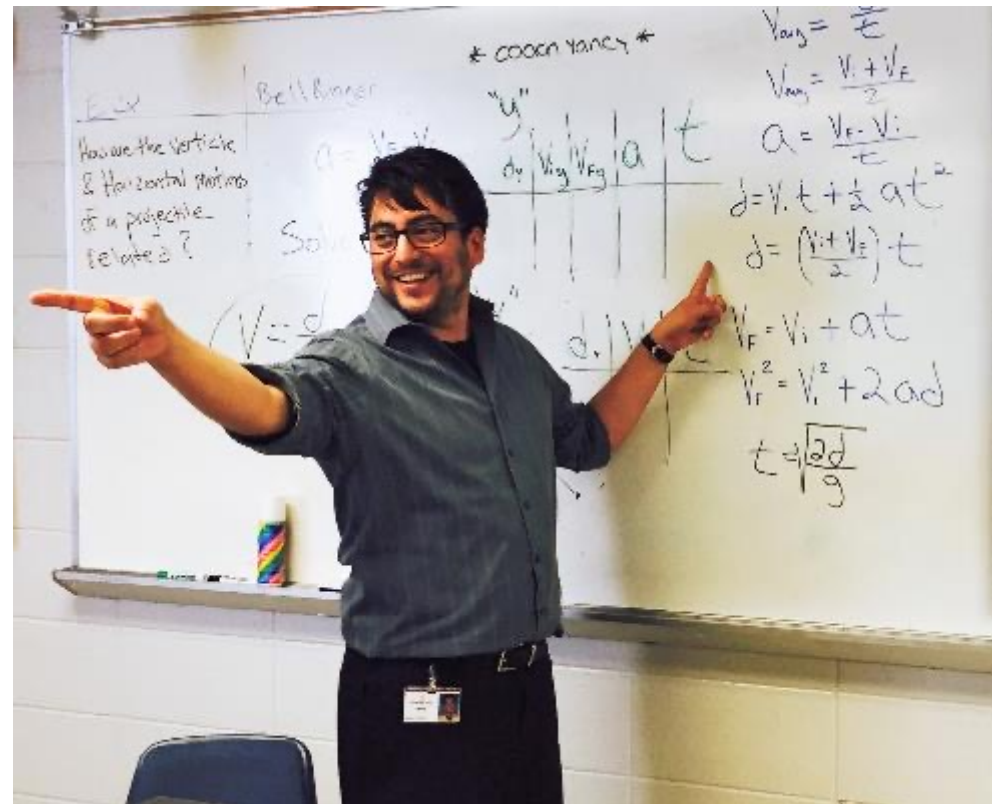
## Did you know...

*There are **student loan forgiveness programs** and **scholarships** for math and science teachers.*

Federal loan forgiveness  
**\$17,500**

Indiana has

- Student teaching stipend for High-need fields
- Several scholarship/stipend opportunities for minority students pursuing teaching



**Did you know...**

*Most teaching jobs have **better retirement benefits** than other jobs you can get with the same degree.*

Teachers in the U.S. retire at **age 59** compared to age 63 for all occupations.





# Retirement Benefits



## Georgia Teachers Retirement System

- Begin teaching at 22 years old, eligible to receive full retirement benefits at 52
- Receive 60% of highest annual income (e.g. a *pension*)

# Retirement Benefits

Colorado schools offer PERA retirement benefits



- Begin teaching at 22 years old, full retirement benefits at 57
  - pension = 87.5% of highest earned income (e.g. earned \$100,000 before pension will be \$87,500)
- Other jobs: Yearly Savings required (Annuity Value) of \$21,600/year or \$1800/month

# Math and Science Teaching

## Student Interest

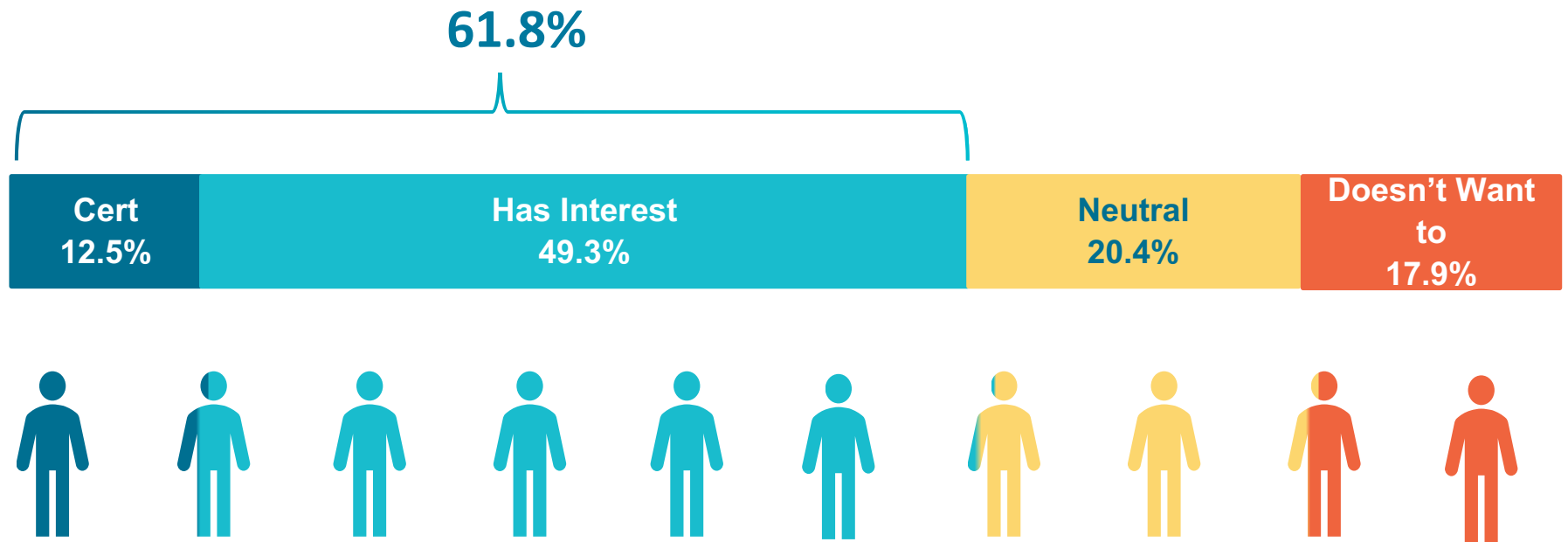
What fraction of U.S. students indicate some level of interest when asked:

*How interested are you in being a middle or high school teacher?*

- A. 0% - 10%
- B. 10% - 25%
- C. 25% - 40%
- D. 40% - 60%
- E. >60%



# Pictogram of Prospective Teachers (n=2358)



# Math and Science Teaching

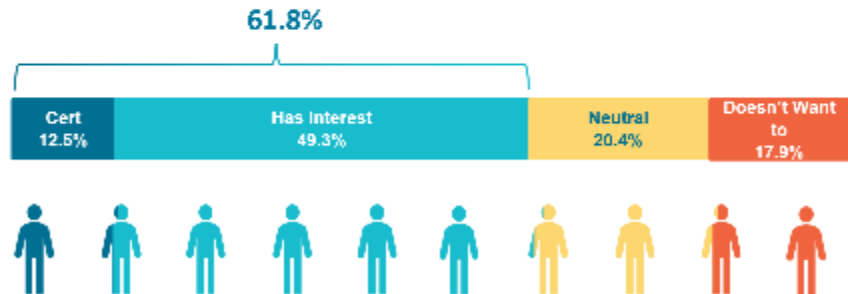
## Student Interest

Do you believe these diagrams will vary by race/ethnicity?

- A. No, the distribution of interest is likely consistent
- B. Yes, White STEM students are more interested in teaching compared to other groups
- C. Yes, White STEM students are less interested in teaching compared to other groups



### Pictogram of Prospective Teachers (n=2358)



# Pictogram of Prospective Teachers

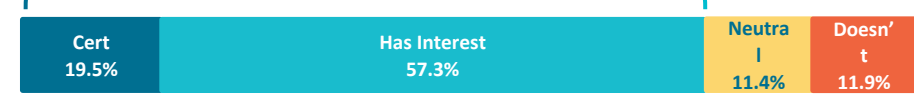
59.8%

2020 White (n=1531)



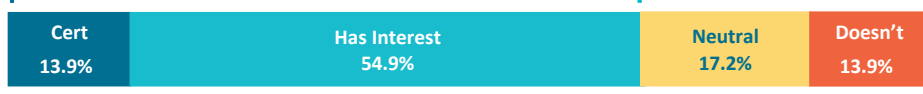
76.8%

2020 Hispanic (n=185)



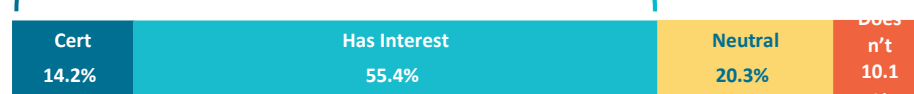
68.9%

2020 Black (n=122)



69.6%

2020 Asian (n=148)



# Summary

- *Teachers in the United States rate their lives better than all other occupation groups, trailing only physicians.*
- Starting pay ~\$50K (9-month, base salary)
- At year 15, the middle 50% of teachers earn \$64K - \$100K (9-month salary)
- Retire at age 59 on average with a pension.
- There are **student loan forgiveness** programs for math and science teachers.
- You can get a **job almost anywhere** in the **U.S. or abroad** as a science or math teacher.



# Changing the Narrative

- “Teachers are fleeing the field”

“Attrition is definitely up, but it’s not a mass exodus of teachers.”

– Dan Goldhaber, a labor economist at the American Institutes for Research





# Changing the Narrative

- “Teachers are fleeing the field”

There has not been a significant change in number of teachers leaving the field over some number of years, even in light of COVID and other horrible treatment of teachers.

<https://hechingerreport.org/proof-points-researchers-say-cries-of-teacher-shortages-are-overblown/>



# Changing the Narrative

- “Teachers are fleeing the field”

The numbers of people leaving teaching may be less than those leaving other professions.

Look at Table A, halfway down for “rates,” the last three columns for “Total Separations.”  
<https://www.bls.gov/news.release/pdf/jolts.pdf>

<https://www.the74million.org/article/aldeman-there-is-no-big-quit-in-k-12-education-but-schools-have-specific-labor-challenges-that-need-targeted-solutions/>



# Changing the Narrative

- “Teachers are burnt out”

It does seem true that in very recent years more teachers are feeling burnout and are considering leaving the field. Again, the data I noted above seems to suggest they are not leaving.

<https://www.nea.org/sites/default/files/2022-02/NEA%20Member%20COVID-19%20Survey%20Summary.pdf>

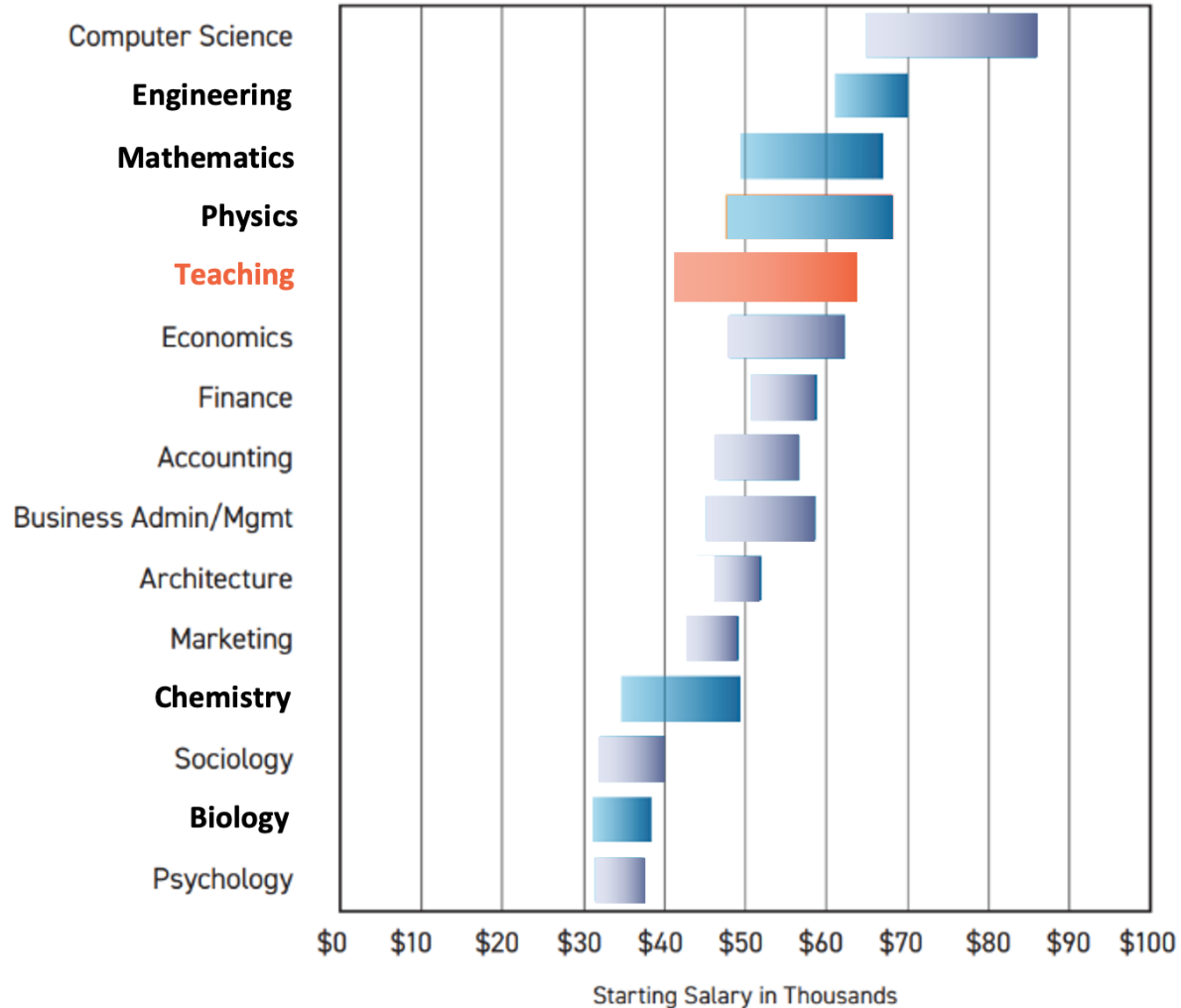


# Changing the Narrative

- “Teachers are underpaid”

Teachers starting 190-day salary compares well to 250-day starting salaries.

Teacher retirement systems are often better than other professions.





# Changing the Narrative

- “Districts have severe teacher shortages”

U.S. Department of Education released a national survey of more than 800 schools on Aug. 4, 2022.

Each school, on average, had about three unfilled teaching openings in June 2022.

<https://hechingerreport.org/proof-points-researchers-say-cries-of-teacher-shortages-are-overblown/>

There is a large number of teaching jobs unfilled, but that is due in large part to the number of positions opened by COVID relief money.

<https://www.the74million.org/article/analysis-teacher-shortage-a-history-told-in-numbers-and-decades%EF%BF%BC/>



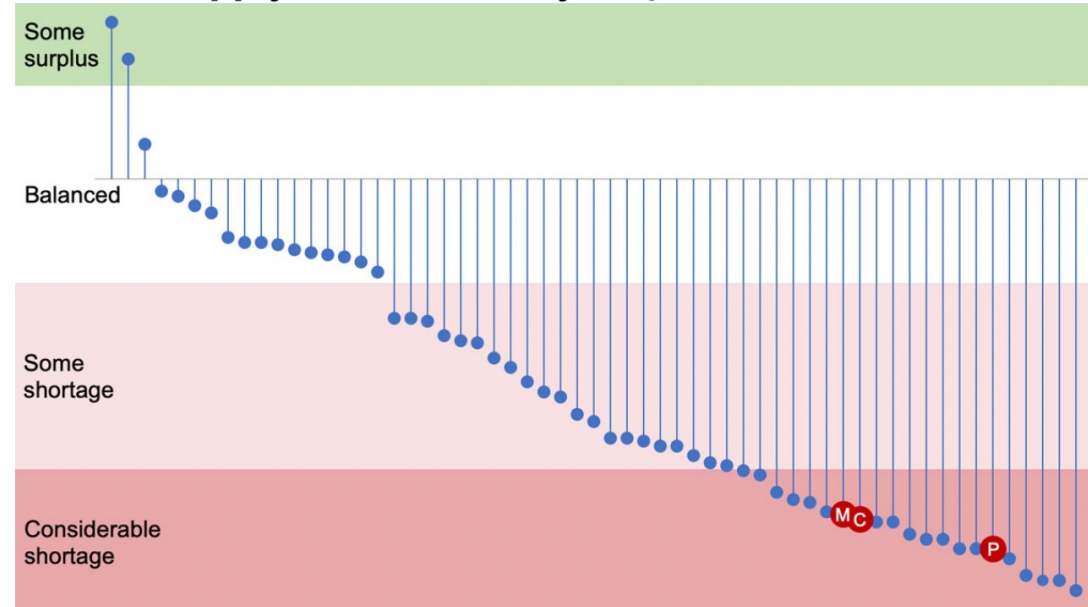
# Changing the Narrative

- “Highly qualified STEM teachers are desperately needed”

The 2018 American Association of Employment in Education Educator Supply and Demand in the US Report – top five highest shortage areas in our nation.

- SPED – Severe/Profound Disability 4.68
- SPED – Visually Impaired 4.64
- **Physics 4.51**
- **Mathematics 4.39**
- **Chemistry 4.37**

## Teacher supply and demand by subject area



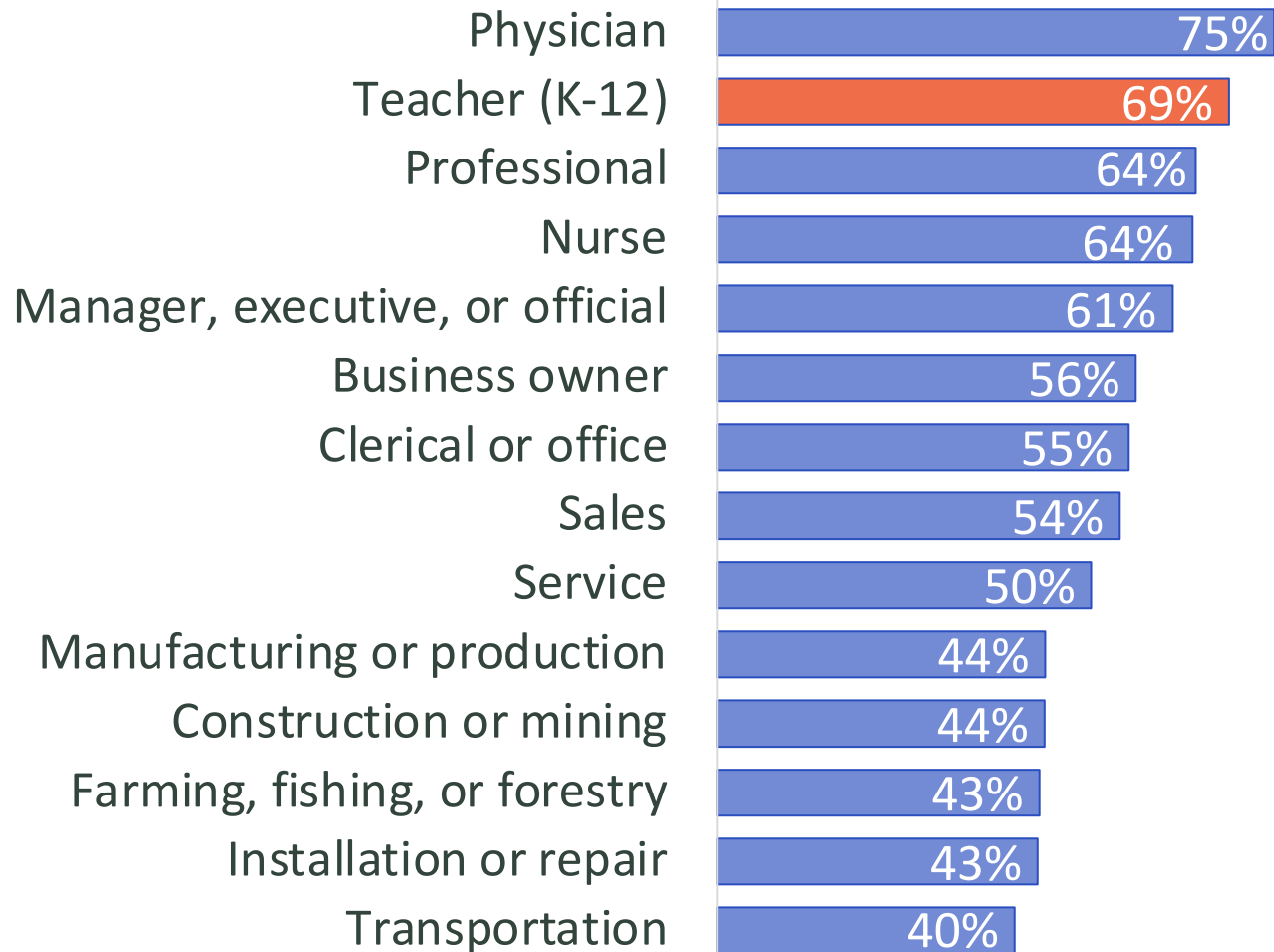
Each dot on this graph represents a teaching profession with (M) Math, (C) Chemistry, and (P) Physics highlighted in red.



# Changing the Narrative

- “Teaching is a miserable job.”

Teachers in the United States rate their lives better than all other occupation groups, trailing only physicians.

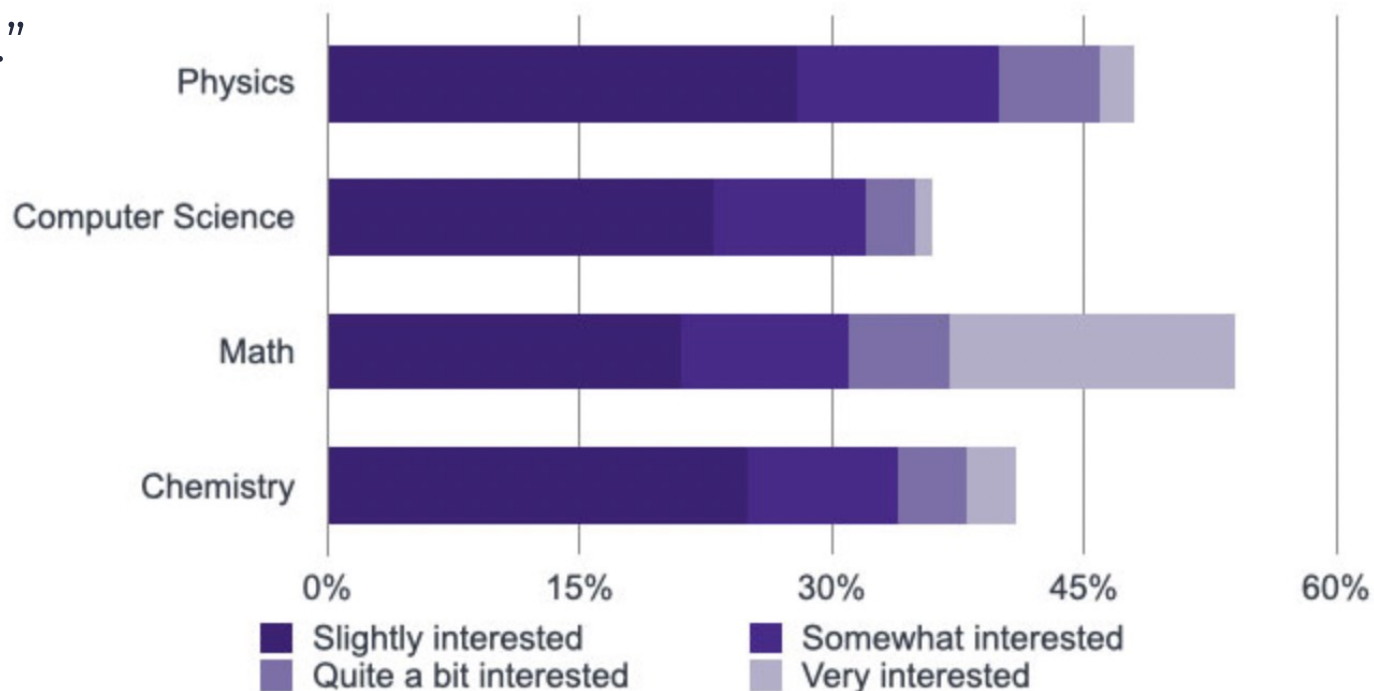




# Changing the Narrative

- “No one in their right mind wants to be a teacher.”

Nearly half of all STEM majors have an interest in teaching.



2017 POPA report – Recruiting teachers in high needs....





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THANK YOU!