The Long-Term Impacts of Attending a Low-Income School

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Defining Low-Income

According to the U.S. Department of Housing and Urban Development:

- "very low-income" - 50 percent of the median family income for the area
- "Low-income" - 80 percent of the median family income for the area

Low-Income School Defined:

- Low income Schools - a school with at least 50 percent of students eligible for free or reduced lunch
  a. Free lunch is given to students under the poverty line x 130%
  b. Reduced lunch is given to students under the poverty line x 185%

Hardships of Low-Income Students

01	**Cost of school supplies**	• Lab fees!
02	**Amount of sleep**	• The American Psychological Association states that low socioeconomic students sleep less
03	**Lacking Technology**	• Technology is expensive, and so is internet → older/no computer access
04	**Lack of extracurriculars**	• Due to transportation issues or needing to work
05	**Later start to education**	• 41% of low-income students were enrolled in pre-school as compared to 61% of affluent children

PreSchool is Important!

Three longitudinal studies on the long-term effects of preschool for low-income children:

- The Perry Preschool children (1962)
- The Carolina Abecedarian children (1972)
- The Chicago Child-Parent Center (1986)

Lifetime returns on the dollar for the initial program investments:

- Abecedarian → 3:1
- Perry → 17:1
- Chicago → 10:1

Perry Preschool	Preschool Group	Control Group
Schooling average	11.9 years	11 years
Graduation Rate of high school	66%	45%
Teen pregnancy	.6 per female	1.2 per female
Criminal Activity	28%	52%
Median Monthly Income	$ 2,712.00	$ 1,911.00
Government Assistance	59%	80%

Abecedarian Group	Preschool Group	Control Group
Schooling average	13.5 years	12.3 years
Graduation Rate of college	46.0%	20.4%
Age of First Child	21.8 years	20 years
Received Welfare	3.9%	20.4%
Been employed 16 of prior 24 months	75.0%	53.0%

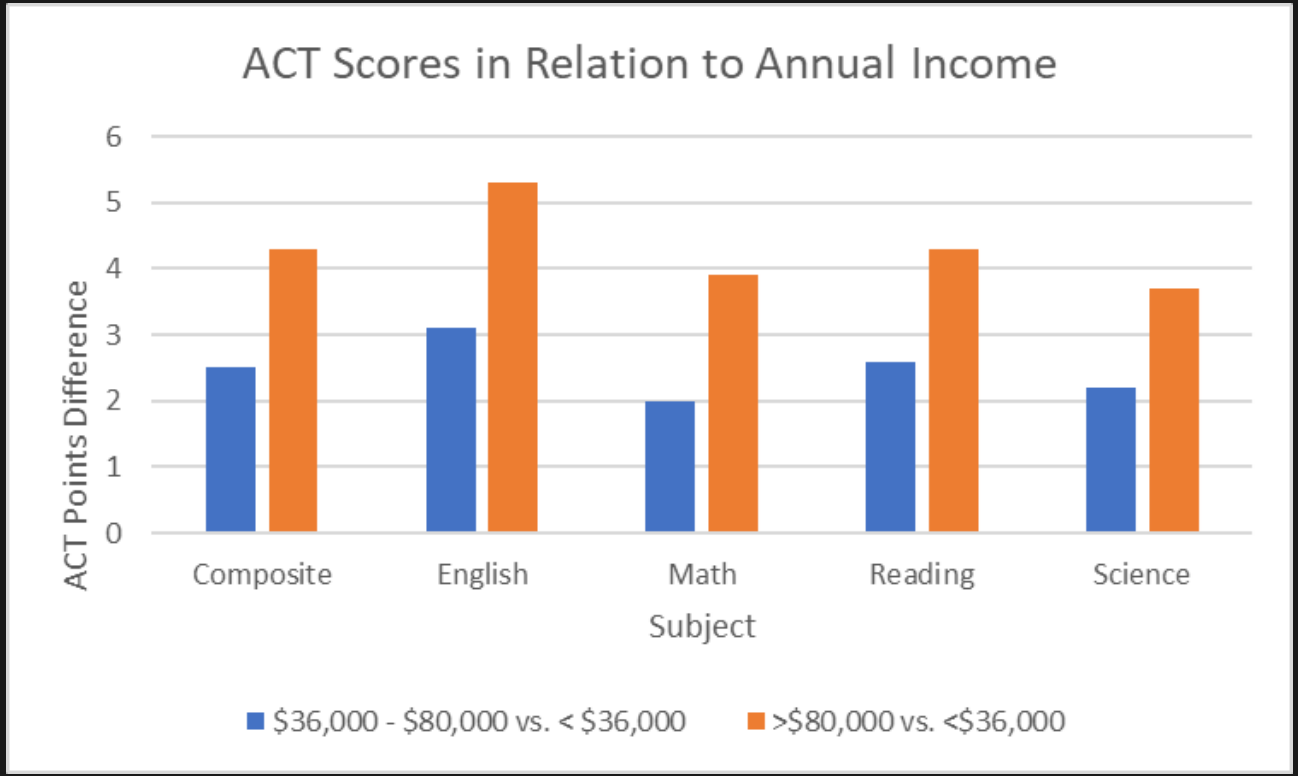
Chicago Child-Parent Program	Preschool Group	Control Group
High School Completion	79.5%	71.4%
Felony Arrest Rate	10%	14.50%
Incarceration Rate	14.8%	19.8%
Substance Misuse	14.3%	18.9%
Health Insurance	71.89%	60.95%

Data from Social Programs that Work and National Institute of Justice:

ACT Information Based on Income

Overall, the ACT average is much higher for a student that comes from a higher income family

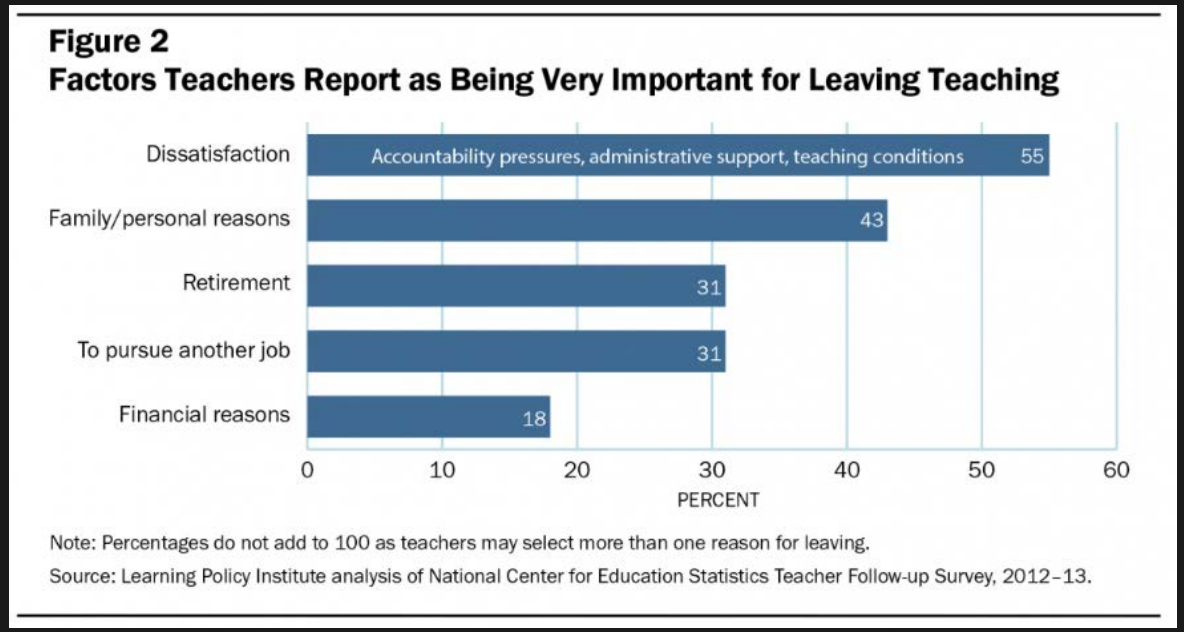
Higher scores open doors for better schooling and better scholarships



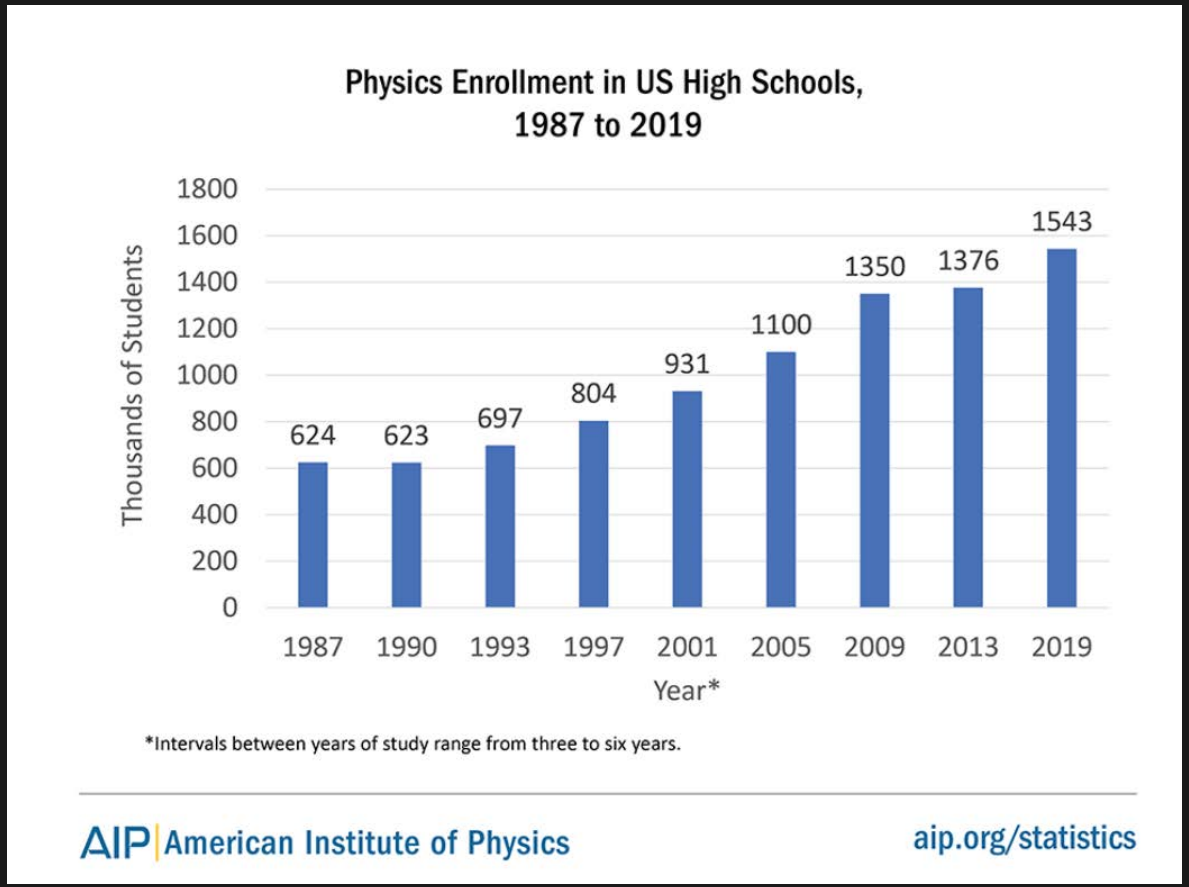
3.84/36 point gap between low-income and affluent students!

Low-Income Impact on Teacher Retention Rates

According to a study performed by the Learning Policy Institute, “Turnover rates for mathematics and science teachers are nearly 70% greater in Title I schools than in non-Title I schools.”



National Physics Trends



Based on AIP data, the amount of students that are enrolled in physics is increasing.

Upon Closer Inspection…

Physics-Taking and Physics Availability in US High Schools, 1987 to 2019

		Proportion of Seniors Attending School Where Physics is Offered…		
School Year	Physics-Taking Rate*	Every Year	Every Other Year	Rarely or Never
1986–87	20%	91%	5%	4%
1996–97	28%	94%	2%	4%
2004–05	33%	93%	3%	4%
2008–09	37%	92%	4%	4%
2012–13	39%	91%	3%	6%
2018–19	42%	84%	9%	7%

* The physics-taking rate is the proportion of seniors who will have taken at least one physics class prior to graduation.

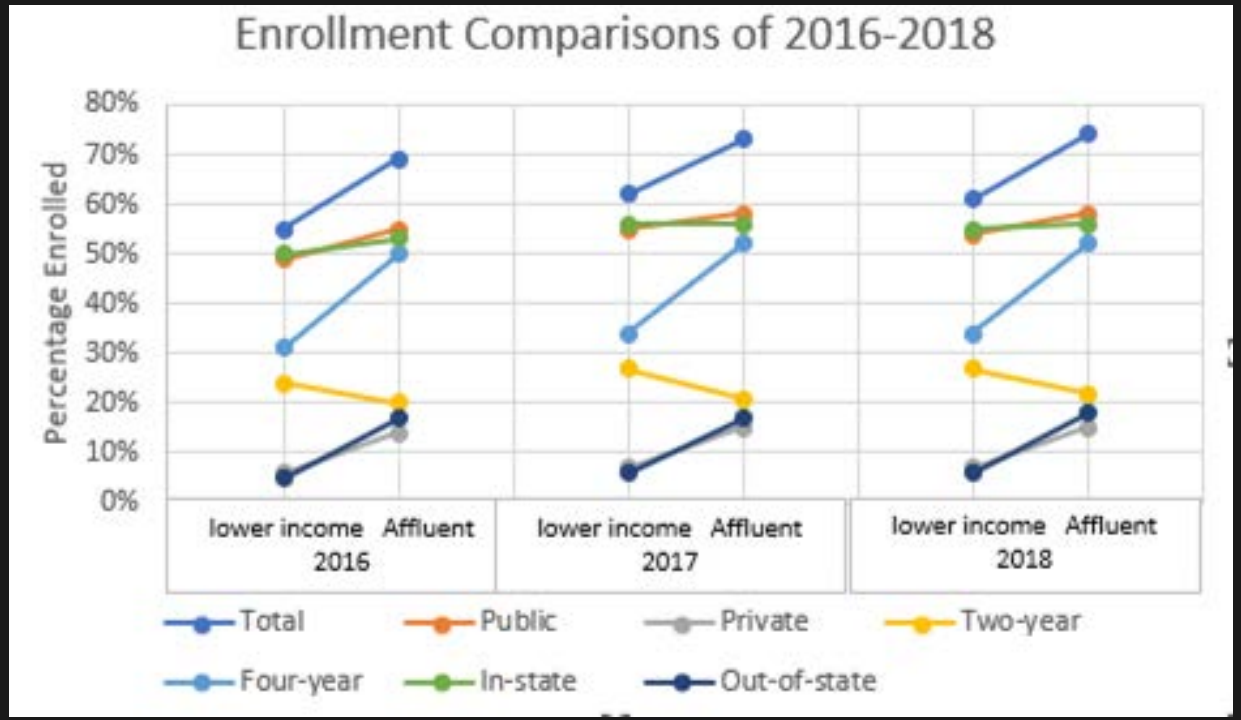
However, AIP also reports that the amount of schools offering physics is decreasing… rather drastically.

AIP reports that _____ are more likely to offer physics…

- Larger schools
- Areas with higher educated adults

Overall Enrollment in Institutions:

Comparison of lower-income to affluent enrollment rates:

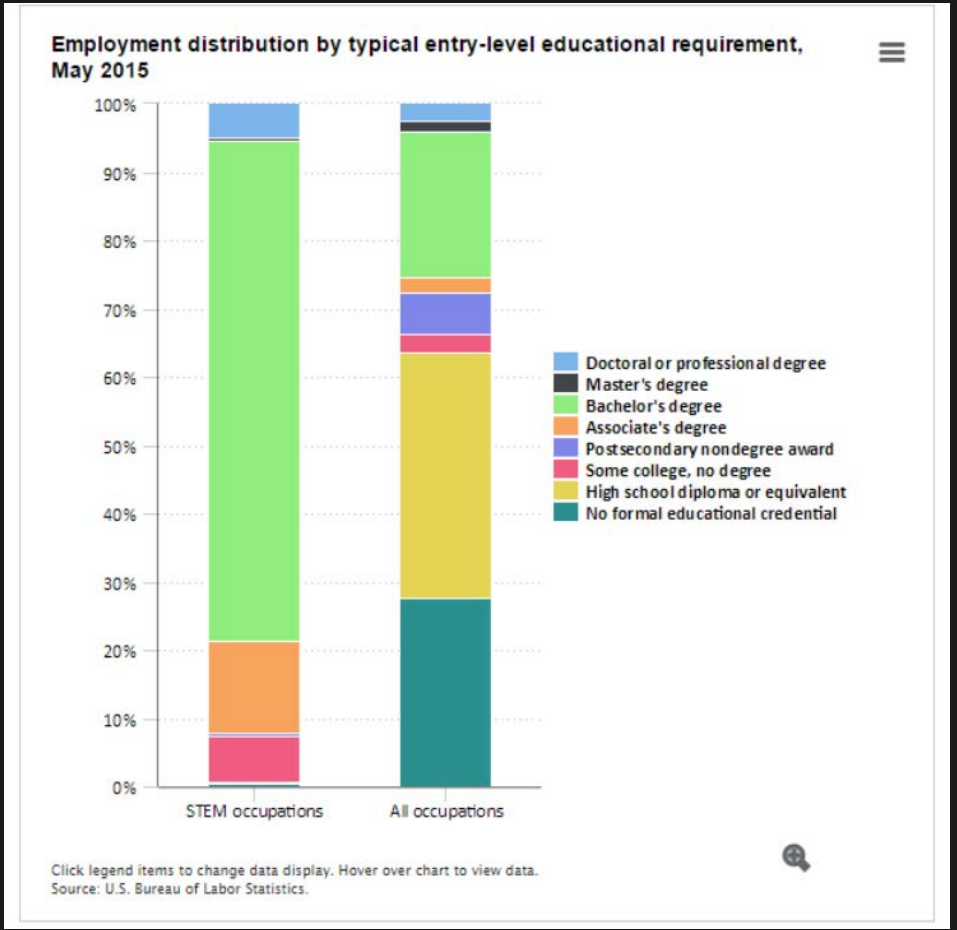


Data from National Student Clearinghouse Research Center:

What Does This Mean for STEM?

Most STEM subjects require at least a Bachelor's Degree

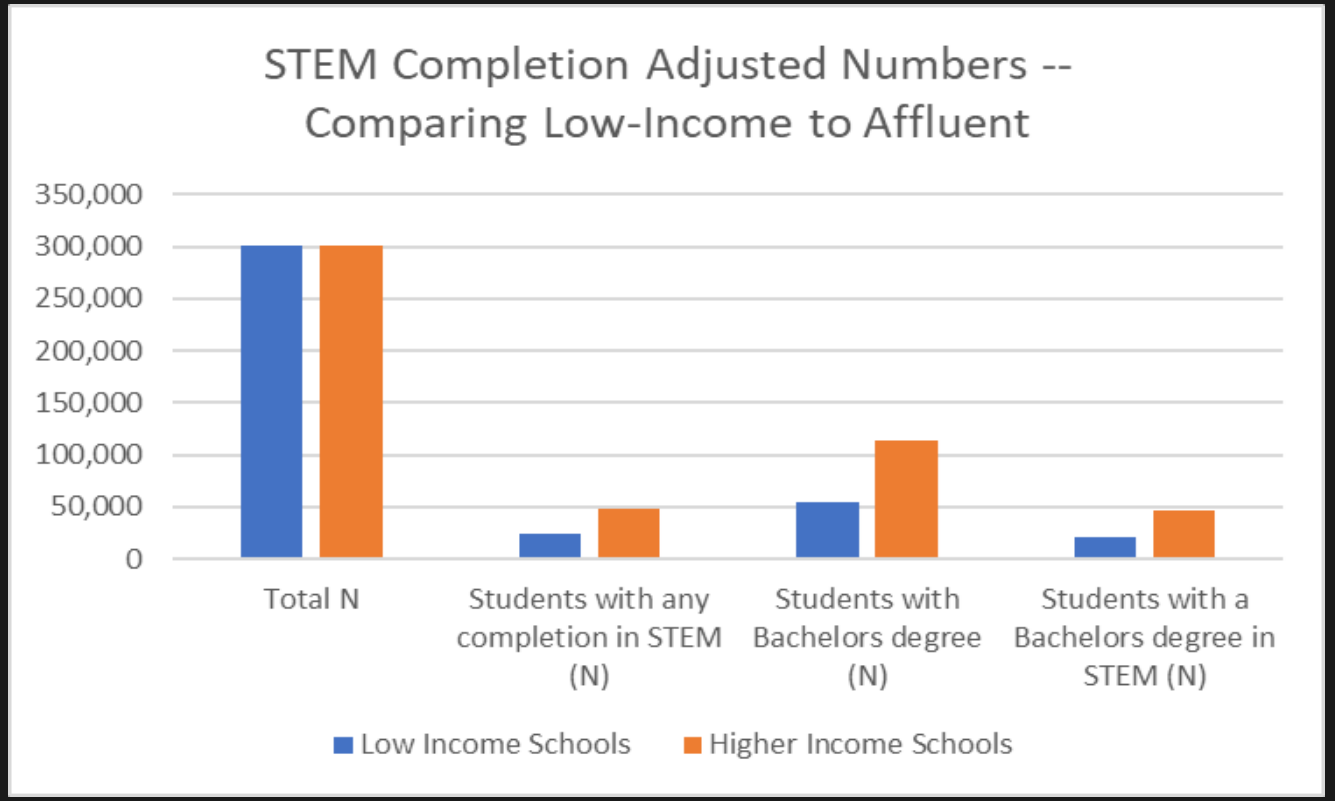
Lower-income students are less likely than their affluent peers to enter a STEM field



According to the U.S. Bureau of Labor Statistics 2015:

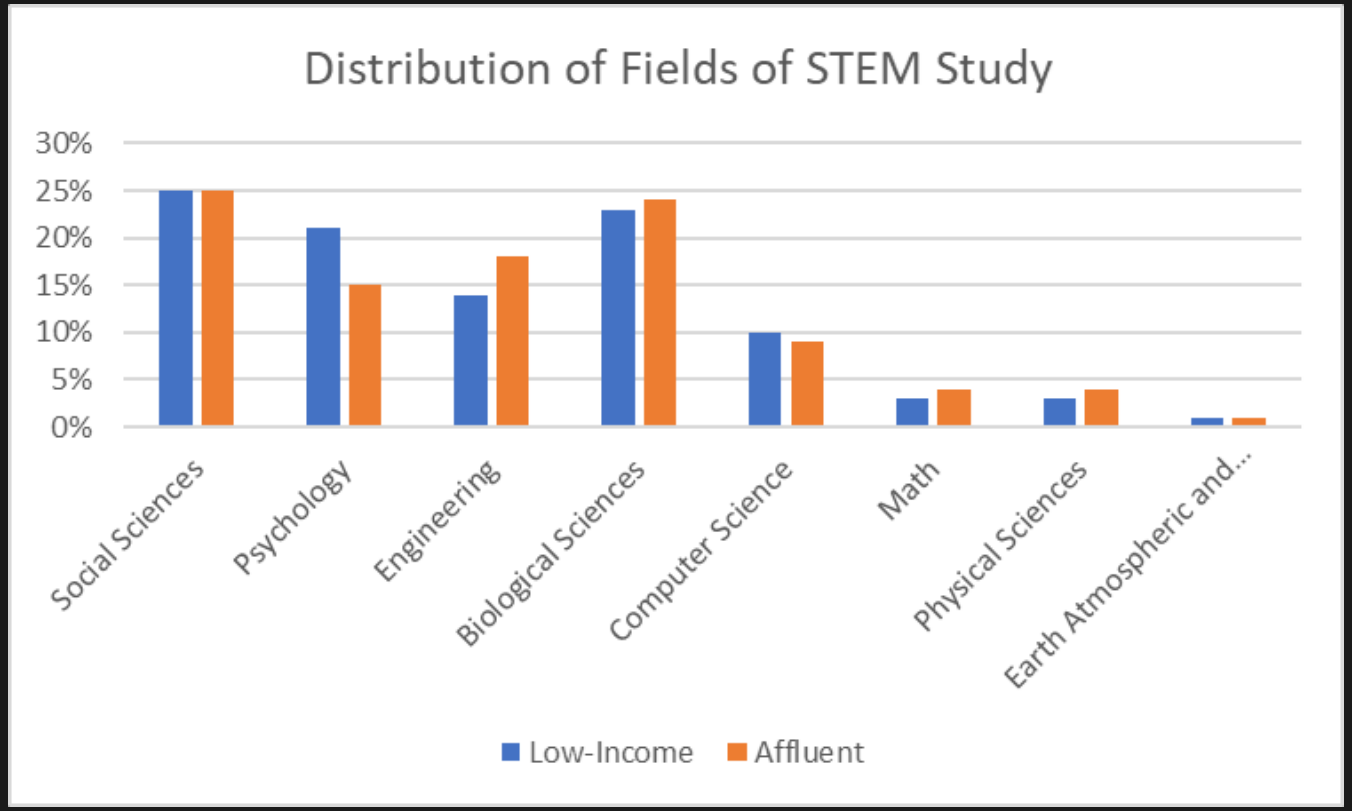
Population Adjusted STEM Completion Numbers

- Low-income students are ½ as likely to have any competition in STEM
- Low-income students get a STEM degree roughly 7% compared to 15% of affluent



Data from National Student Clearinghouse Research Center:

Specific Fields of Study



Data from National Student Clearinghouse Research Center:

In Summary…

Low-income students have several additional challenges to attend a 4-year institution, especially in a STEM discipline.

- Lack of resources

  → Experienced teachers, technology, extracurriculars, early opportunities

- Lower test scores

  → makes it harder for students to get good scholarships to high ranking schools

Thanks, Acknowledgements, Questions?

Thank you to:

- Mark Hannum
- Jack Hehn
- All SPS Staff, especially:
  - Brad Conrad
  - Kayla Stephens
  - Mikayla Cleaver
  - Andrew Zeidell
- AIP Staff and Foundation
- SPS interns

Questions or would like to see full research?

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