

Accepting Portfolios for Admission: Lessons from Early Adopters

- Dale Dougherty, Maker Media
- Chris Peterson. MIT
- Daragh Byrne, Carnegie Mellon, Make School Alliance
- Natalie Smolenski, Learning Machine
- Chris Jagers, Learning Machine (Moderator)

MIT Maker Portfolios

Dale Dougherty, Maker Media



Maker Faire[®]

★
GREATEST
Show ★
& TELL
ON *Earth*
★

WE'RE GLOBAL



2016 = **190** MAKER FAIRES
40 COUNTRIES

“EMPOWERING STUDENTS AND ADULTS TO CREATE, INNOVATE, TINKER,
AND MAKE THEIR IDEAS AND SOLUTIONS INTO REALITY IS AT THE
HEART OF THE MAKER MOVEMENT.”



Maker Faire
★ GREATEST
Show ★
& **TELL**
ON
★ *Earth*

- Hands-on learning
- Agency
- Creative confidence



TIME

Why 'Maker Faires' Are So Important For Our Kids: They help interest children in the fields of the future

- Published May 2016

The Atlantic

Why the Maker Movement Matters:

Just like the internet before it, the Maker Movement is revolutionizing manufacturing, with implications for startups and jobs.

- Published June 2016

TECH THE BIG PICTURE

How Maker Faires Are Inspiring Young 'Makers' All Over the World

Tim Bjarin @bjarin | May 18, 2015

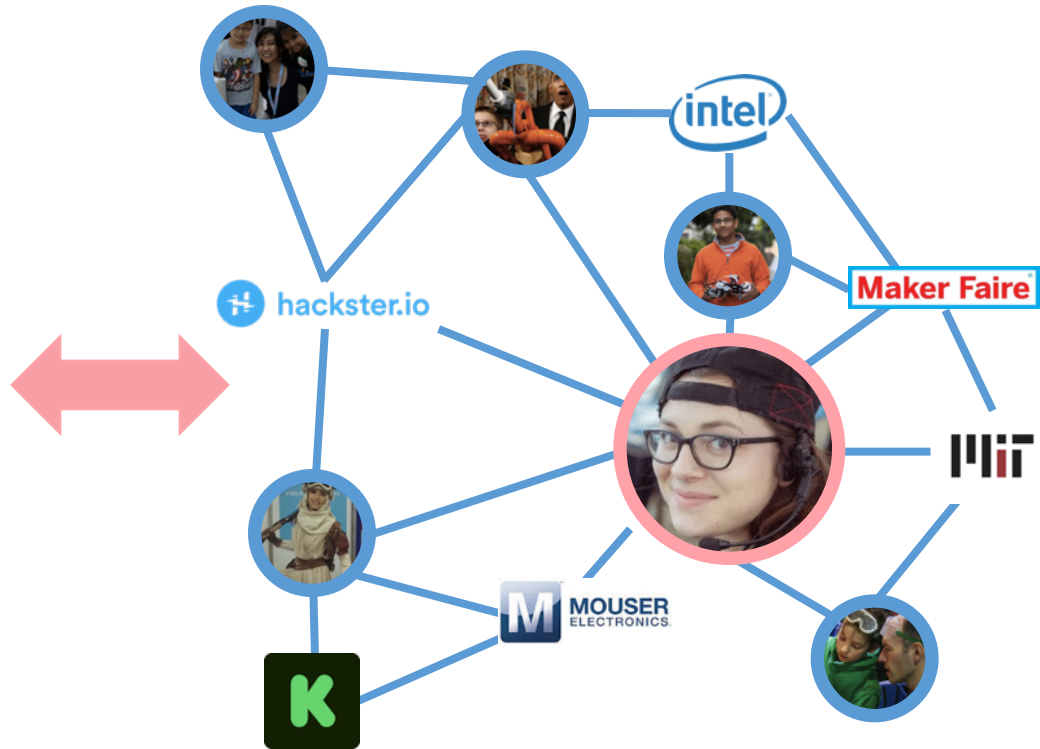
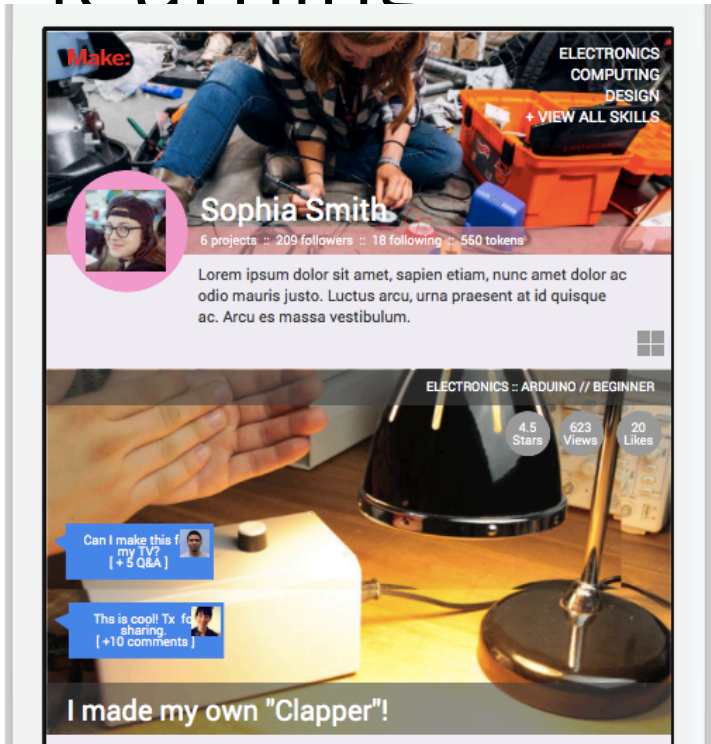


Young children and their parents flock to Maker's Faires to get hands-on tech time

One of the truly bright lights in tech education is the [Maker Faire](#). The granddaddy of the Maker Faires celebrated its tenth anniversary this weekend at



Making creates evidence of learning



Maker portfolio reflects participation and identity.



Broaden participation in innovation

New career opportunities

Entrepreneurship

School placement

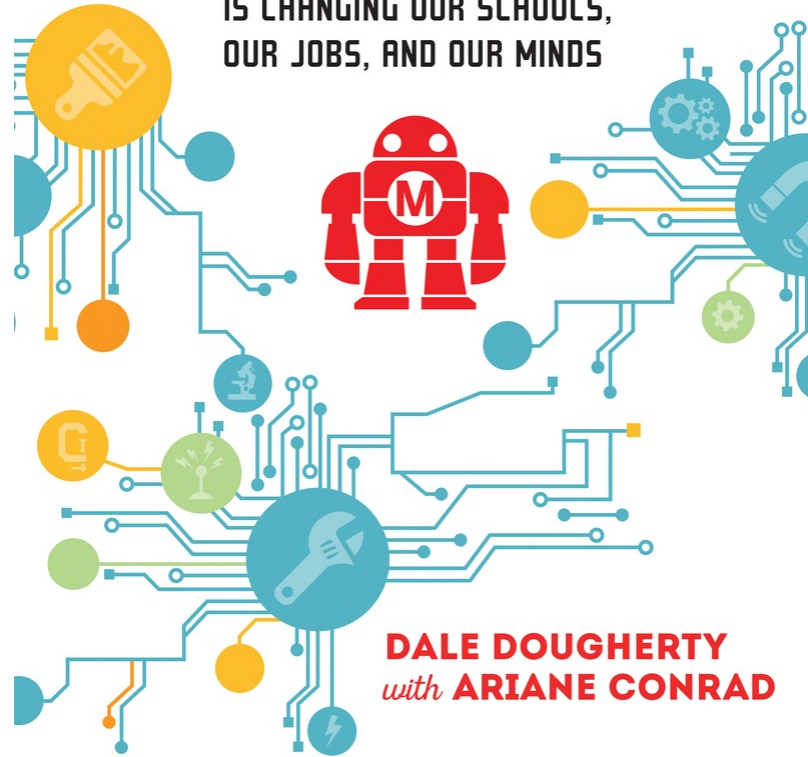
Recognition in workplace



Free to Make



HOW THE MAKER MOVEMENT
IS CHANGING OUR SCHOOLS,
OUR JOBS, AND OUR MINDS



DALE DOUGHERTY
with **ARIANE CONRAD**

MIT Maker Portfolios

Chris Peterson, MIT







Maker Portfolio

Reviewers can view the answers on this form.

The Maker Portfolio is an opportunity for students to showcase their technical creativity. Members of the MIT Engineering Advisory Board — faculty, instructional staff, and recent alumni with notable experience and expertise in hands-on work — review all Maker Portfolios, and evaluate them on the basis of creative ingenuity, technical skill, and potential impact on the maker community at MIT.

Version 6 (active) ▼

☰ 1. What kinds of things do you make?*

Maker Portfolios are reviewed by the EAB, composed of MIT community volunteers with technical expertise in different modes of making. We use the answer to this question to help route your portfolio to the people best equipped to assess it. Please select, from the alphabetical list below, the primary material or modality in which you make stuff. You may make different things, and/or your projects may involve several kinds of materials; if so, just try to pick the category where another person who works in that category would most 'get' what you do. Many members of our EAB have broad experience with making, and we will reassign you to a different evaluator if necessary.

- Animation
- Biomaterials
- Chemicals
- Code

4.33

Average Scale 1-5



Technical: One of the rare times I'll give a 5 here -- the level of board design/layout here is practically something you'd expect from a professional engineer. I'm impressed everything works -- there are a lot of subsystems to debug, a lot of op amps to keep stable, etc. Like, wow.

Creativity: [REDACTED] had a problem that he wanted to solve, and went insanely off the deep end to solve it. He's been working on this for 1.5 years -- seriously awesome.

Impact: I could go for a 4 or 5 here. I think [REDACTED] might be *too* good for random fun projects, but he'd make an amazing UROP for sure.

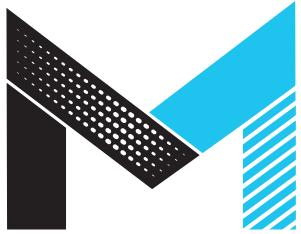
Data (EY2016)

- **1,355 Maker Portfolios submitted EY2016, evaluated by ~21 volunteers**
 - Growing ~20% annually since EY2014, as against ~2.5% annual application growth
- **122 'star makers' identified**
 - ~10% of the Maker Portfolio pool
 - 'star makers' analogous to recruited athlete, top musician, etc, for potential talent/contribution
- **142 admits submitted a Maker Portfolio**
 - About 10% of the class (1511 total)
 - Slightly higher admit rate (~10% vs ~8%)
- **Lower cross-admit with peers == private talent signal**
 - Comparably accomplished students identified by public competitions & programs (e.g. won an award at ISEF, FIRST Robotics, etc) cross-admitted to peers at 61% rate
 - 20% of 'star makers' cross-admitted to peers
- **Higher yield on maker applicants overall; highest on 'star makers'**
 - Class overall: 73%
 - Submitted maker portfolio: 85%
 - Identified 'star maker': 90%

Higher Education Maker Alliance and Maker Portfolios

Daragh Byrne, Carnegie Mellon University, PA

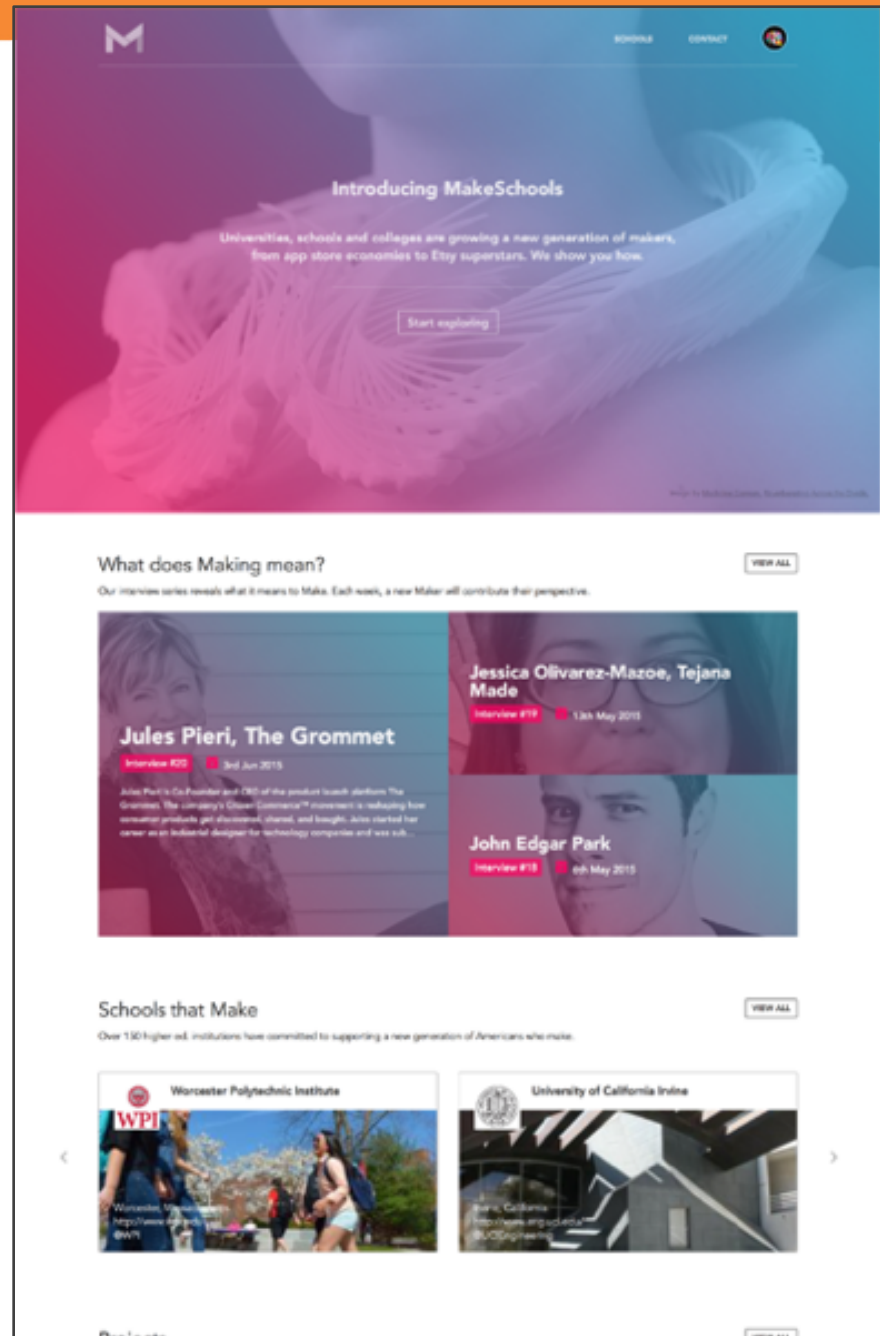




make**schools**

Alliance of Higher Ed. Institutions supporting Making

- Increasing understanding
- Illustrate tangible gains
- Sharing best practices
- Developing resources
- Foster student opportunities
- Support learning pathways

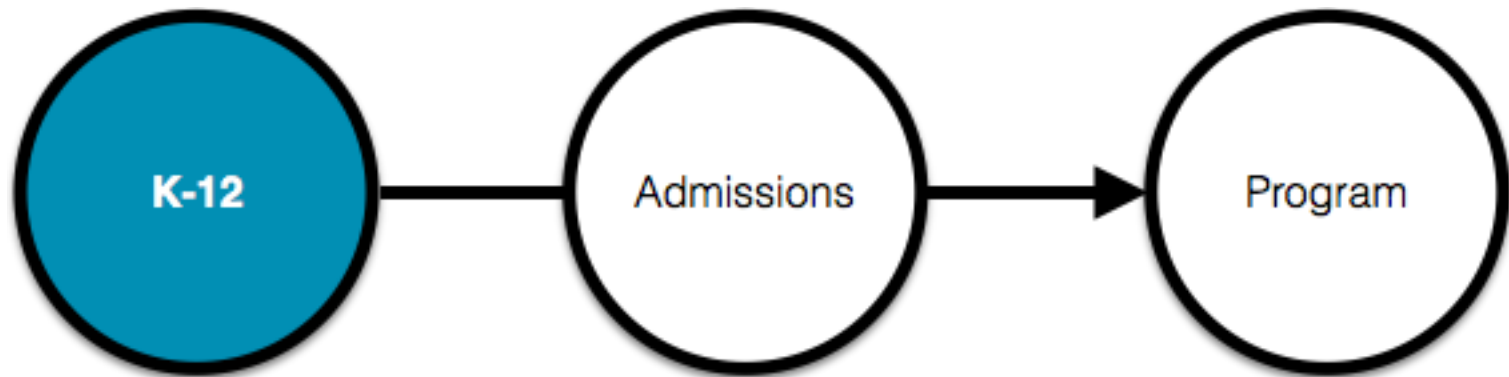


Commitments to Making

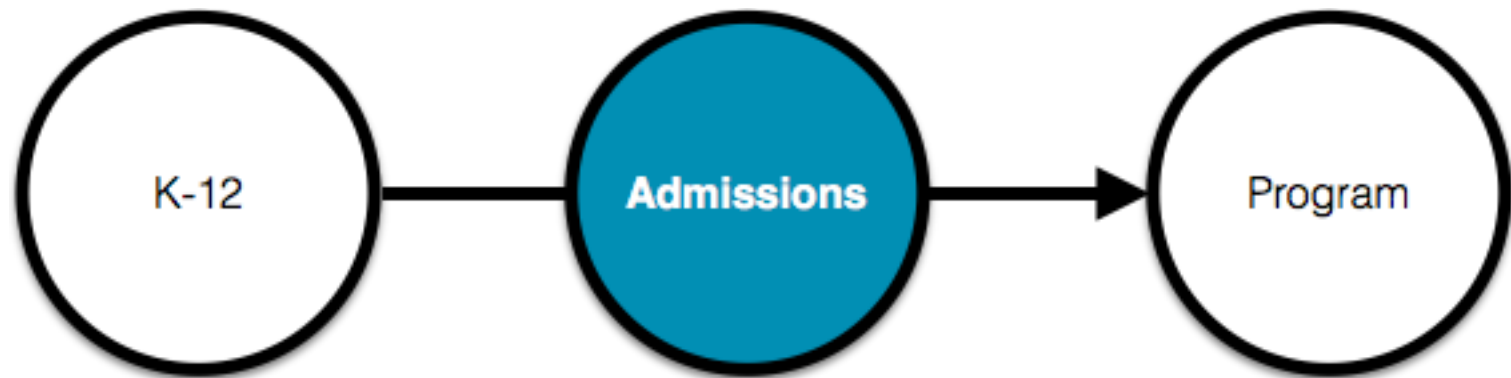
In 2016, 78 signatories

1. Introducing Maker portfolio as part of Admissions 28% - 22 of 78
2. Investing in Makerspaces accessible to students across the campus 83% - 65 of 78
3. Supporting education, outreach and service-learning 88% - 69 of 78
4. Supporting research that advances Making technologies 65% - 51 of 78
5. Expanding access to university shared facilities 64% - 50 of 78
6. Encouraging senior design projects to experiment with Making 69% - 54 of 78
7. Providing scholarships to students for excellence in Making 23% - 18 of 78
8. Participating in regional efforts to create a vibrant Maker ecosystem 80% - 63 of 78

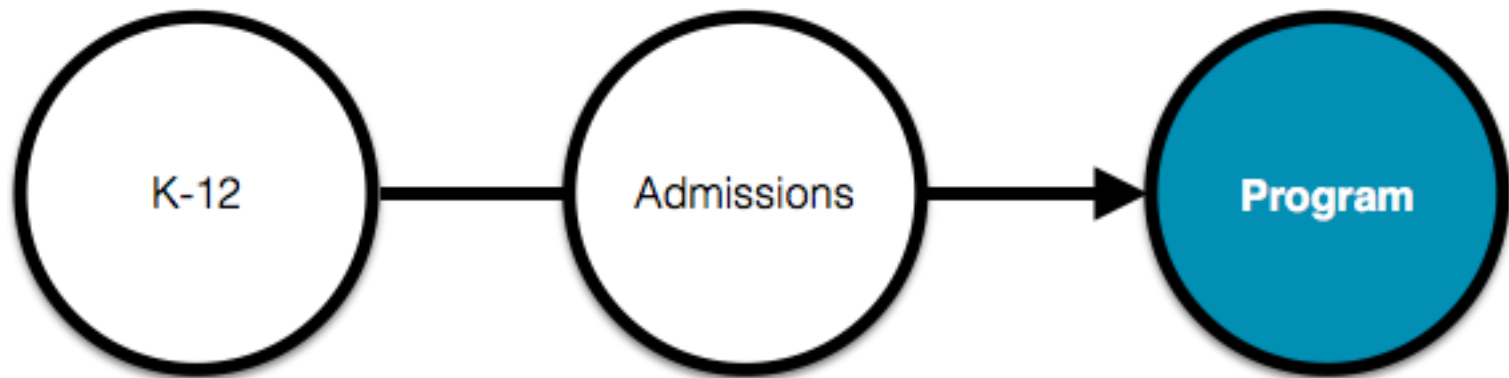
Higher Ed And the Maker Portfolio



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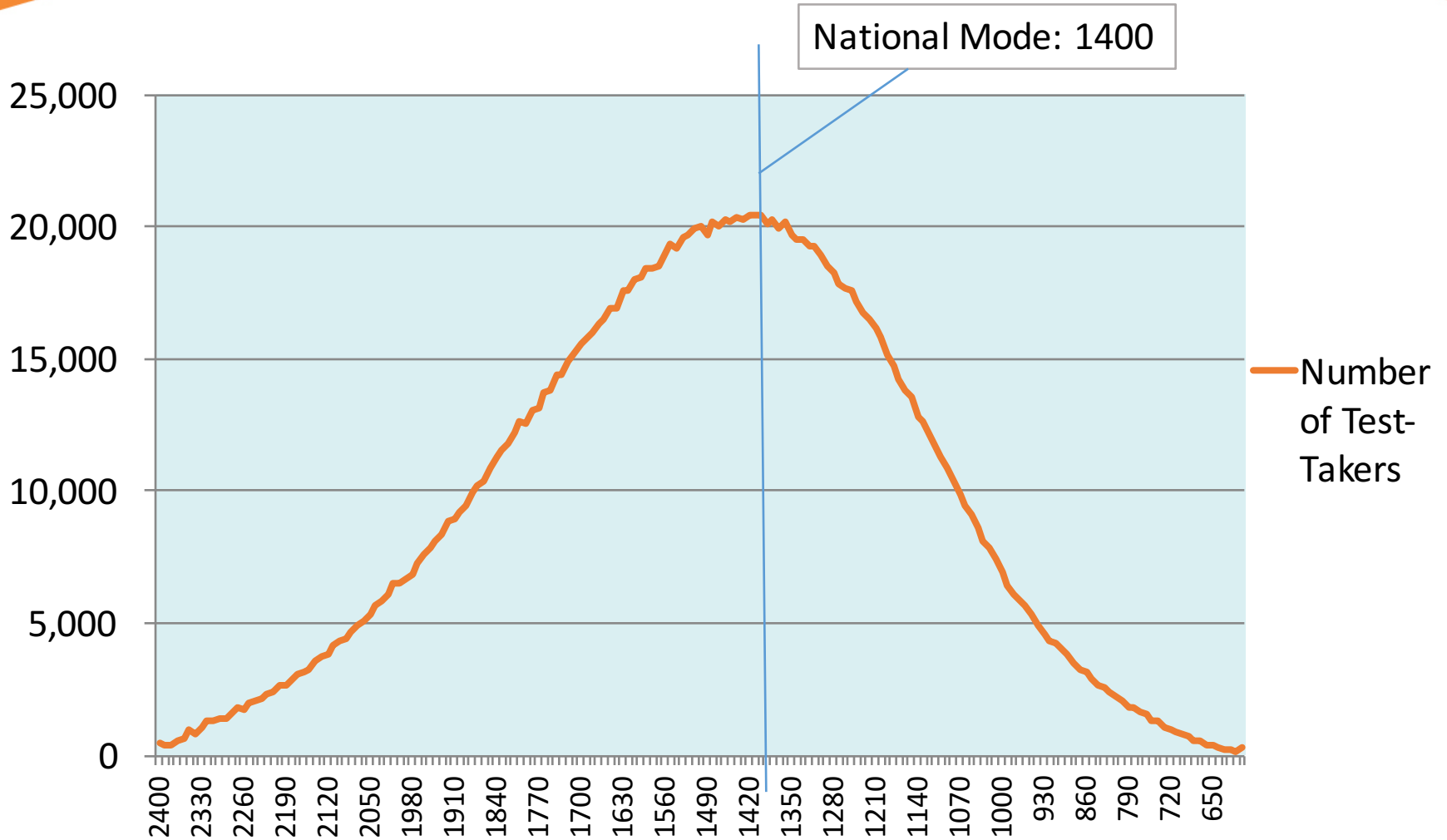


Portfolios: Increasing College Access at Both Ends of the Spectrum

Natalie Smolenski, Learning Machine



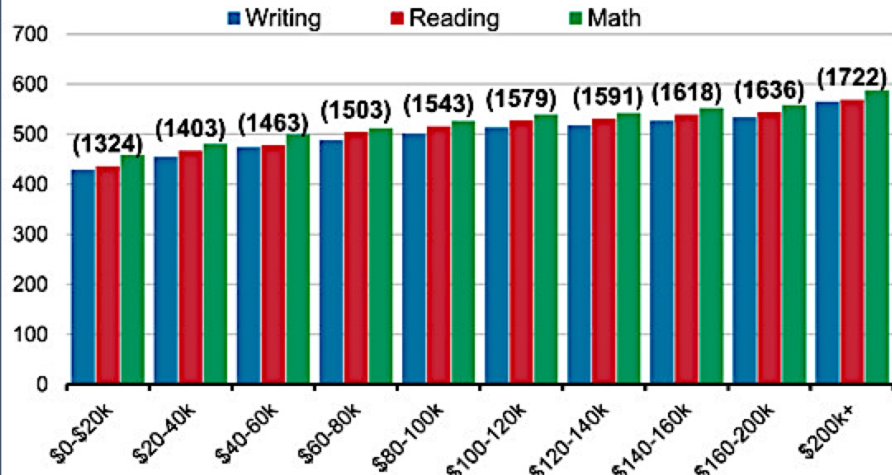
2015 National SAT Scores



Impact of SES on SAT Scores

SAT: Student Affluence Test

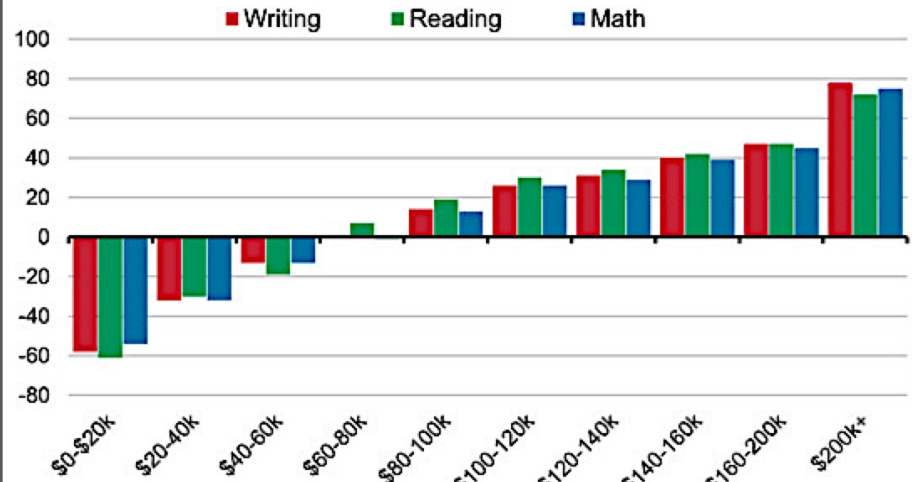
Average scores on each section of SAT (and combined) by parental income



Source: FairTest, College Board | WSJ.com

Affluence Gaps

How much students score above or below the national average, by family income

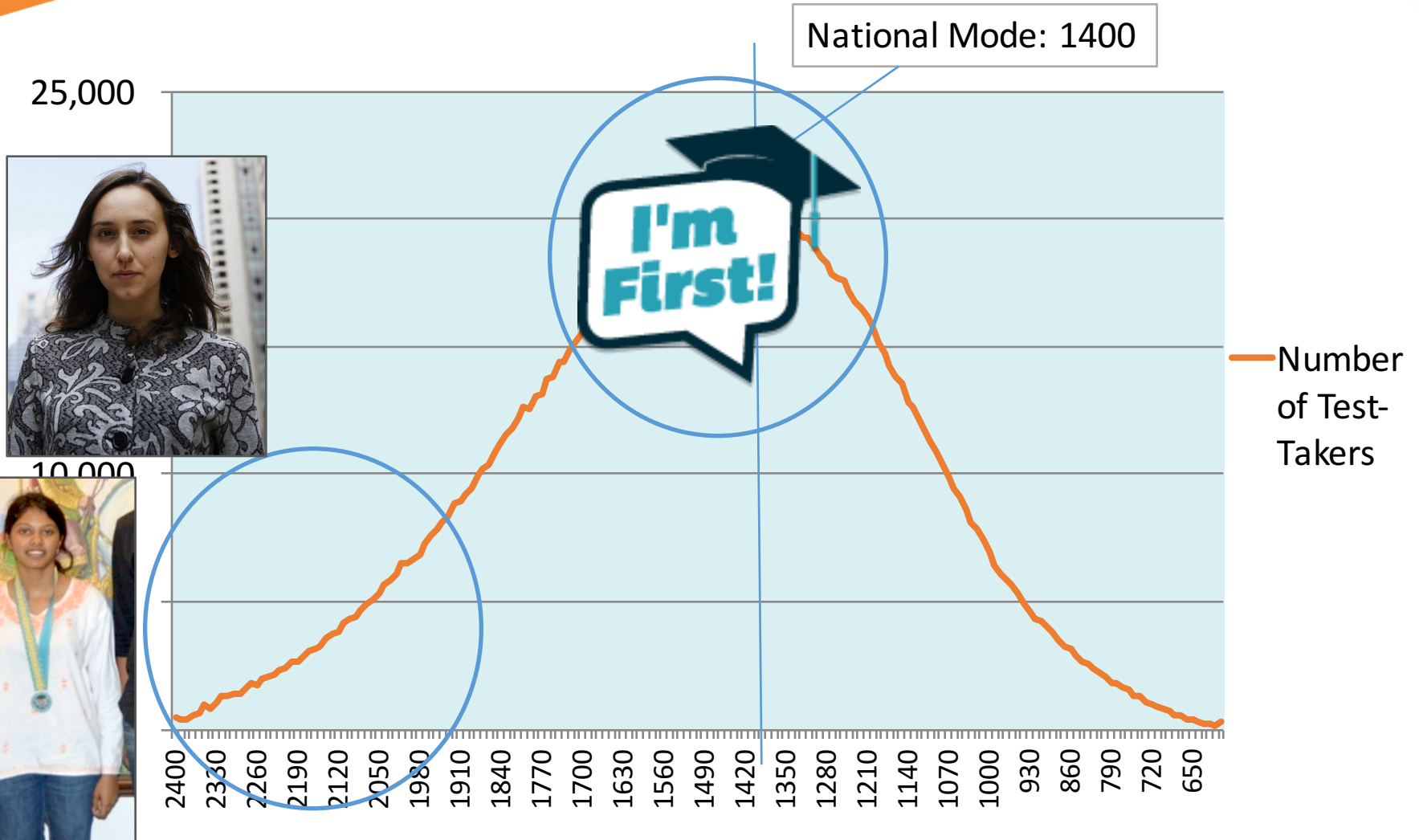


Source: FairTest, College Board | WSJ.com

Sources: National Center for Fair & Open Testing (also known as FairTest), using data provided by the College Board. Cited in Josh Zumbrun, "SAT Scores and Income Inequality: How Wealthier Kids Rank Higher." *The Wall Street Journal*. Oct. 7, 2014.

<http://blogs.wsj.com/economics/2014/10/07/sat-scores-and-income-inequality-how-wealthier-kids-rank-higher/>; "Low Income Applicants, Merit, and the Usefulness of Portfolios." *SlideRoom Blog*, May 17, 2015. http://blog.slideroom.com/low_income_applicants.

2015 National SAT Scores



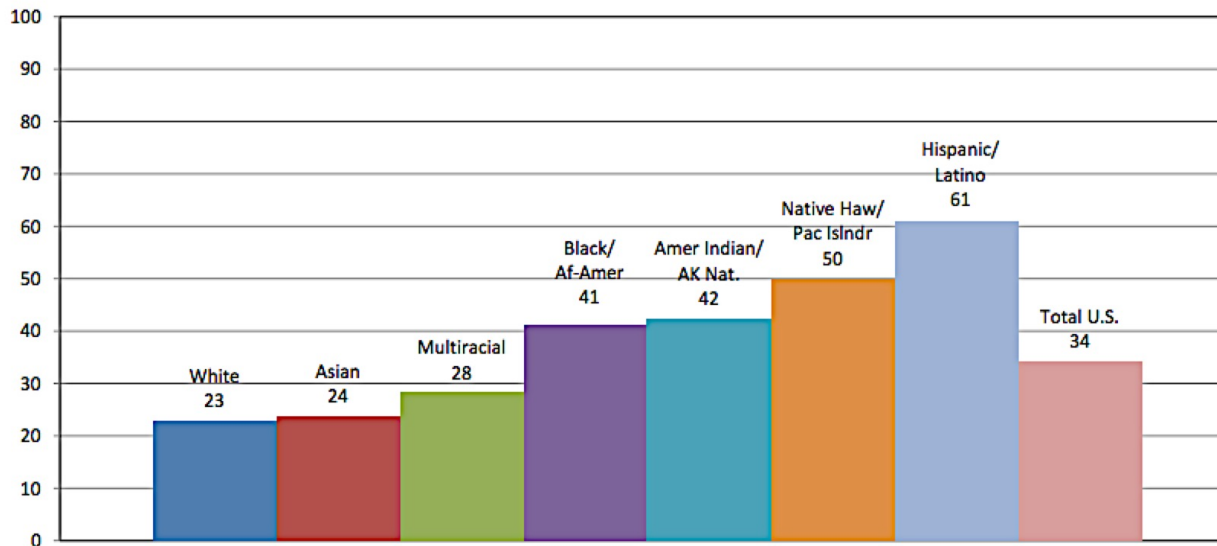
Source: The College Board, 2015. <https://secure-media.collegeboard.org/digitalServices/pdf/sat/sat-percentile-ranks-composite-crit-reading-math-writing-2015.pdf>.

Portfolios Help Meet National Education Goals

- **Are there better ways [than standardized tests] to evaluate student achievement or ability?**
- Yes. Good teacher observation, documentation of student work, and performance-based assessment, all of which involve the direct evaluation of real learning tasks, provide useful material for teachers, parents, and the public. Many nations that do the best in international comparisons, like Finland, use these techniques instead of large-scale standardized testing.

Appendix: 1st Generation College Students

Percentage Distribution of U.S. 5- to 17-Year-Olds by First-Generation Status and Race/Ethnicity, 2011

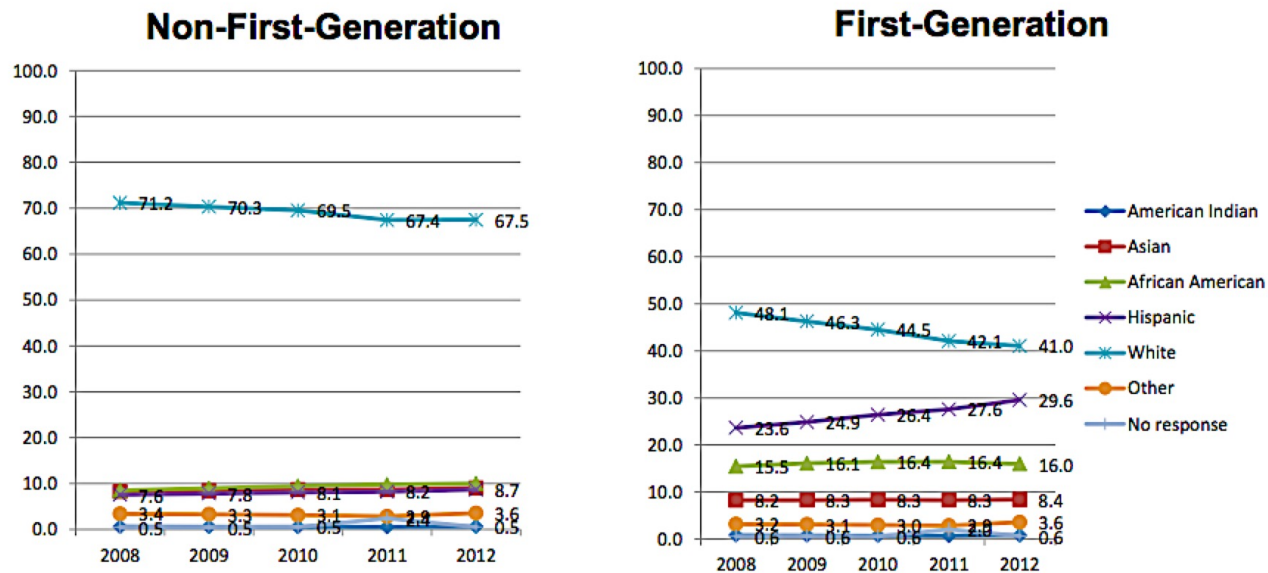


Source: *The Condition of Education 2012*, NCES

- More than 1/3 of 5-17 year-olds in the U.S. are first-generation students
- This rate is highest among underrepresented minority groups

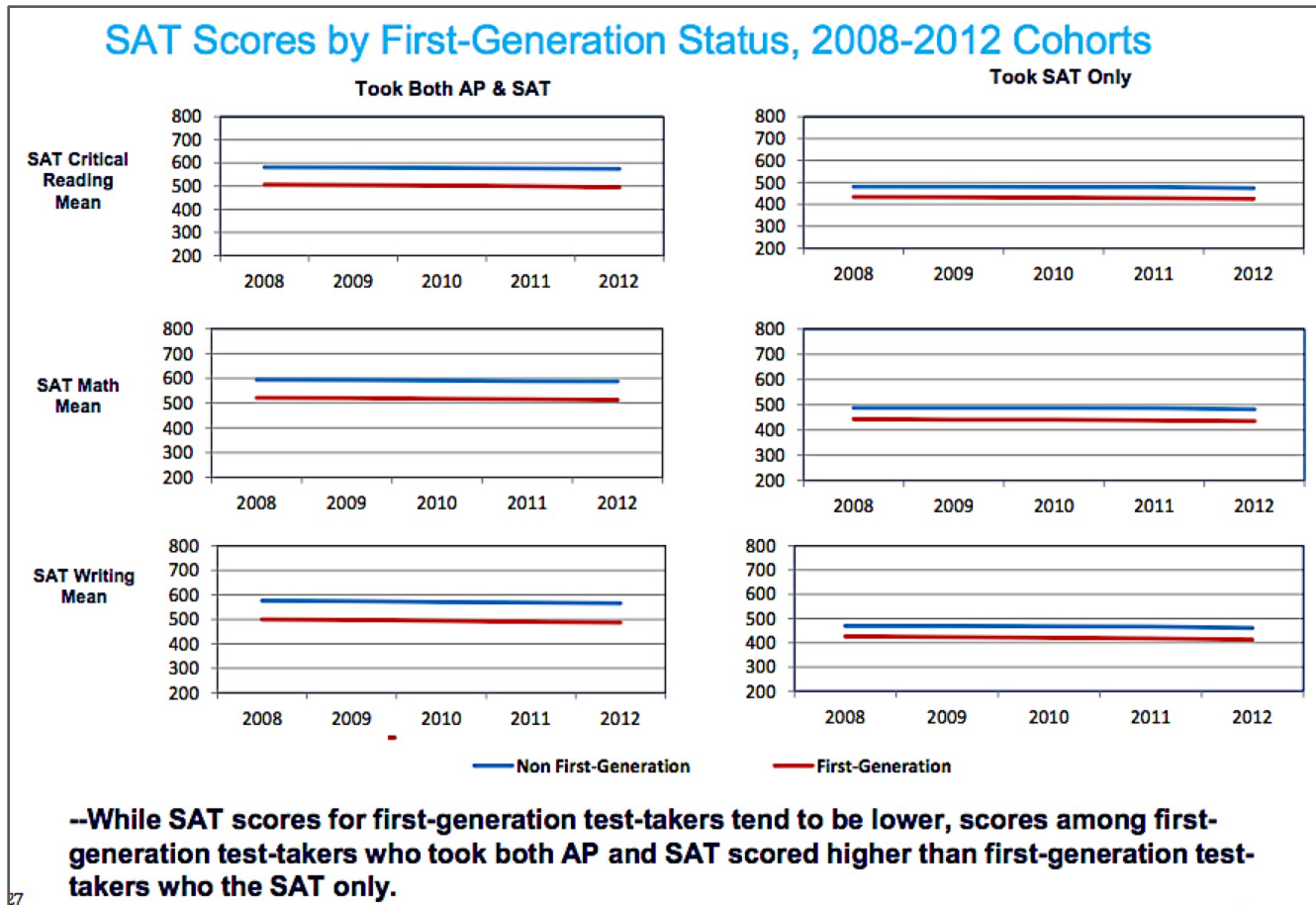
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Percent of test-takers by ethnicity and first-generation status, 2008-2012 cohort



- The first-generation test-takers were more represented by minorities
- In 2012 cohort, Hispanic test-takers accounted for nearly 30 percent of first-generation test-takers.

Appendix: 1st Generation College Students



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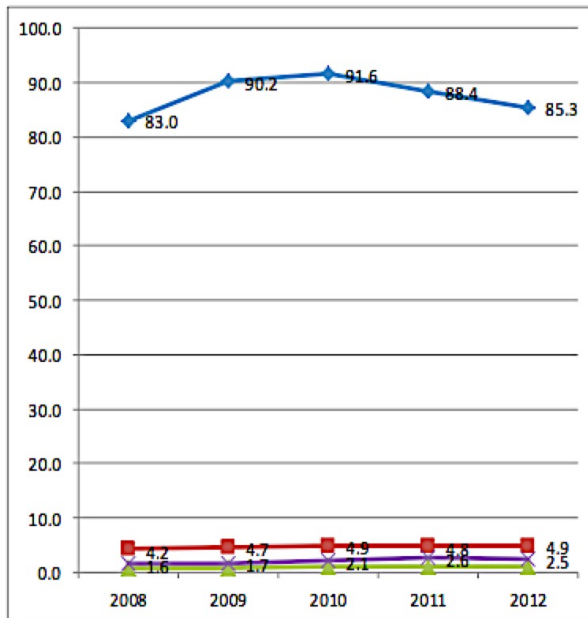
Appendix: 1st Generation College Students

What types of institution are you interested in attending?

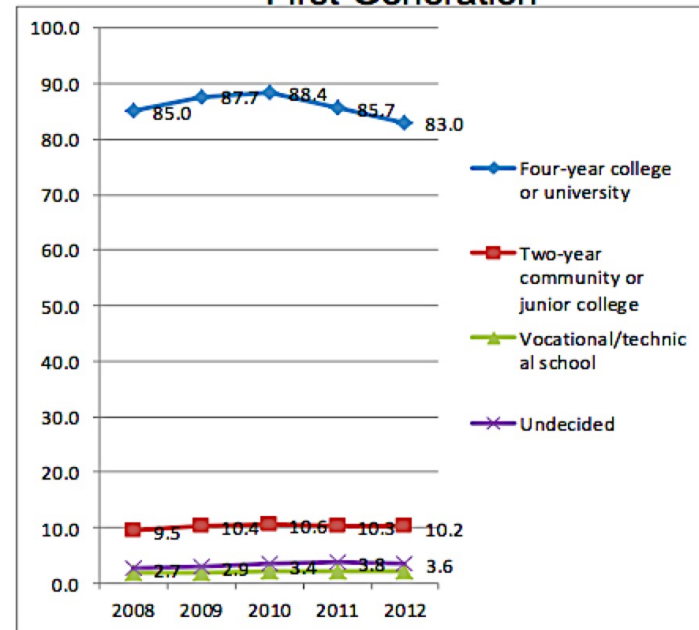
(check more than one response)

Percent of test-takers by first-generation status

Non First-Generation



First-Generation



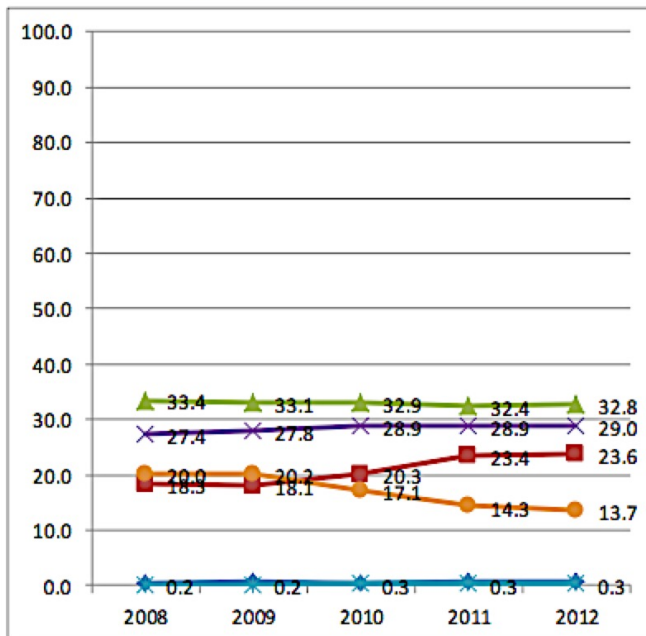
- There was a higher percent of test-takers planning to attend **two-year community college** among first-generation students than non-first-generation students.

Appendix: 1st Generation College Students

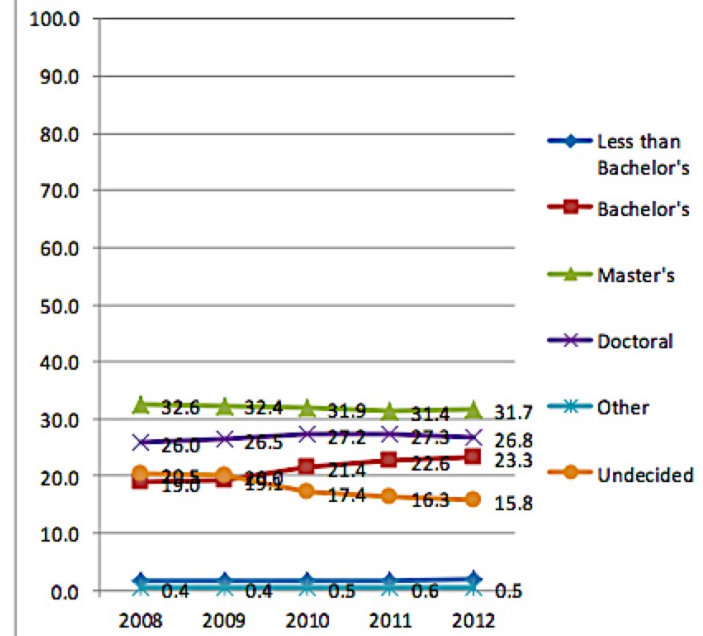
What is the highest level of education you plan to complete beyond high school?

Percent of test-takers by first-generation status

Non First-Generation



First-Generation



➤ Regardless of first-generation status, a higher percent of test-takers plan to complete **master** and **beyond** as the highest level of education.