



Lawrence King, Editor

Special points of interest:

- Engineers Week 2016
• Black Female Pioneer in Science
• Biotech lacks diversity
• Reader Feedback

In this issue:

Table listing contents: Hidden Talent (1), Latino Students Needed (2), NSTA Conference (3), King's Blog (4)

STEM NEWS

Online Charter School Students Lag Behind Peers in Math and Reading

Outcomes for students attending online public charter schools are failing to keep pace with those of their peers in traditional public schools, according to a new three-volume report released Tuesday.

The report — from Mathematica Policy Research, the Center on Reinventing Public Education (CRPE) and Stanford University's Center for Research on Education Outcomes (CREDO) — identified outcomes in math and reading as trouble spots.

The report also found that:

- A full third of online charter schools offer only self-paced instruction;
• 76 percent offer some courses that are self-paced, with "individualized, student-driven independent study" the dominant instructional method; and
Students attending online spend less time in a week with their teachers than students at traditional schools spend in a day with them;

The report noted that a number of policies may be hindering the potential of online charters, including open admission policies that prevent schools from "screening for students who are most likely to be successful in an online" setting.

Talent Hidden in Plain Sight: Addressing the Gaps in Computer Science

The fact that African Americans, Latinos, and American Indians are far too scarce in the computing professions is well known. Still, it boggles the mind to consider the enormous price our nation pays in lost innovation and economic growth by leaving so much potential talent on the table.

The fact is that even students of color who perform well in high school aren't entering computer science pathways. For example, tens of thousands excel in math, an important prerequisite for computer science, but less than 5,000 took the computer science Advanced Placement test in 2014:

Global Day of the Engineer set for February 24, 2016 during Engineers week Feb. 21 – 27, 2016

Global Day of the Engineer brings together the international community to:

- Celebrate the accomplishments of engineers
• Give students around the world a chance to experience engineering

Share the amazing innovations engineers create every day. Be part of the movement that celebrates this amazing group of people and helps grow our next generation innovations. It is increasingly important that more women and underrepresented minority engineers are groomed and educated to fill America's STEM workforce pipeline.

African America Students not taking AP exam for Computer Science

The pool of test-takers for the Advanced Placement computer science exam is still overwhelmingly white and male, according to data from the College Board, which administers the AP tests.

The [number of students taking the AP computer science exam increased by about 24 percent](#) from last year, up to 46,000 U.S. students, according to numbers released this fall. That's less growth than the exam showed the year before (it was up about 26 percent then), but still more growth than any other AP course except physics. Maryland was the state with the most test-takers overall by population.



Overall participation rates for [Advanced Placement science exams](#)—specifically physics and computer science—have risen sharply over the last year, according to data released last week by the College Board.

The number of students taking the physics test doubled between 2014 and 2015. The College Board, which administers the AP program, said that represents the largest annual growth in any AP course in the history of the program.

Latino Students Needed

Leaders of Hispanic organizations are focusing attention on getting more minority students involved with coding and computers. **Antonion Tijerino**, president and **CEO of the Hispanic Heritage Foundation**, has lamented the rhetoric around Latinos as the 2016 presidential race ramps up with bruising anti-immigrant language.

"I think the situation has gotten worse in terms of rhetoric about Latinos," Tijerino said, adding that intolerant invective "undervalues" the Hispanic community. He said Hispanics need to help fill a different kind of gap in the workforce. We clean hotel rooms, serve your food," he said. "In this case, we need to shift that into areas of coding and computer programming."

Nine out of 10 schools do not offer coding classes, and in 33 of 50 states, computer science classes are not counted as high school math or science graduation requirements, according to statistics from **Code.org**. That's just as 1.4 million new computer jobs will need to be filled over the next five years, according to the Bureau of Labor Statistics.

The Hispanic Heritage Foundation, a Virginia-based non-profit advocating for Latinos in the U.S., started a program called [Code as a Second Language](#) to try to raise awareness among Latino communities about computer programming. Partnering with Google, the organization brought the program to eight cities using CS-First curriculum in middle and high schools in cities including New York, Chicago, Los Angeles, San Jose, Austin, Atlanta, Miami and Washington, D.C.

What is the secret to recruiting women and girls to your STEM classrooms?

It's no secret at all.

Women and girls need to see female role models in the workplace that look like them—over and over and over again. They need to receive the message that women can work in STEM careers and be successful and fulfilled in their work life while still having a personal life, and they need to receive this message repeatedly.

Reach Out To Counselors/Advisors

Reaching out to the counselors/advisors is critical because they can provide a pipeline for female students to STEM programs so that instructors and administrators do not have to do all the recruiting directly. Instructors and administrators can provide counselors at their own schools and at feeder schools with career information and marketing materials featuring female role models on the job. Also, it's important to inform counselors that increasing the number of female students is a key goal for targeted programs so that they can help do some of the recruiting.

Appeal to Female Interests in STEM When You Recruit

Males and females—overall as a group—have different learning styles, and what appeals to them and what engages them in STEM is different. For example, research shows that, as a group, women care most about how STEM will be used to make a difference in the world, such as using engineering to make prostheses, while men are often fascinated with the technology itself, such as how big a hard drive is and how fast a processor works. These differences have implications for outreach materials and strategies. The best way to attract women and girls to STEM classes is to emphasize how the program helps others, and also focus on teamwork and collaboration, another area that research shows is appealing to women.

Want to Learn More?

These are just 2 of the 8 required recruitment elements in the WomenTech Educator's system I've developed in my over 30 years helping schools increase female enrollment in STEM and improve female and male retention. To learn more, attend my free Women and STEM Success Blueprint Webinar

<http://www.iwitts.org/free-blueprint-webinar.html>.

By Donna Milgram, Executive Director of the Institute for Women in Trades, Technology & Science

Upcoming Conference Information

National Science Teachers Association (NSTA) will hold its 2016 National Conference in Nashville, Tennessee March 31 – April 3, 2016. Upcoming Regional Conferences include Philadelphia November 12-14 and Kansas City December 3-5.

For more information see: <http://www.nsta.org/conferences/>

NSTA Journals are peer-reviewed publications that provide support for teachers, instructors of teachers, and preservice secondary education students. Features are articles written by educators for educators. Please consider writing for one of these NSTA Journals – you are more than qualified and this is a great opportunity to share the great ideas you have and are implementing in your classrooms. You don't have to be member to be a published author in an NSTA Journal! Editors are currently calling for submissions on the following topics:

Science & Children (<http://www.nsta.org/elementaryschool/>):

The Speaking, Reading, and Writing Connection to Science – April 1

Energy – May 1

Development Fund for Black Students in Science and Technology

The **Development Fund for Black Students in Science and Technology** (DFBSST) was founded in 1983. Since its inception, **DFBSST** has provided over \$385,000 in scholarships to more than 149 students pursuing an education in science and technology. One hundred thirty (130) of these students have already graduated. **DFBSST** scholars cover a broad spectrum of technical disciplines (i.e., aerospace, civil, chemical, mechanical, electrical engineering; architecture, astrophysics, biology, chemistry, computer science, mathematics and physics).

Contact the fund for information on scholarships.
2705 Bladensburg Road, NE, Washington, DC 20018, Tel:
(202) 635-3604

Where are Black males in STEM?

Advocates consistently beat the drum to find ways to engage more female and minority students in STEM fields, which are still largely dominated by men. But within that group is perhaps one of the most underrepresented demographics: African-American men.

Among U.S. citizens and permanent residents, the number of black men who earn science and engineering doctorates grew by more than 25 percent in 10 years, according to data from the National Science Foundation. While that appears to be a large growth, the absolute numbers barely budged between 2003 and 2013 – inching up from just 631 of 13,921 recipients to 798 of 16,542 recipients – and the representation has stayed essentially flat, between 4.5 percent and 4.8 percent of all science and engineering doctorates.

The number of science and engineering bachelor's degrees awarded to black men increased 45 percent, from 12,484 in 2002 to 18,102 in 2012. But similarly, black men as a proportion of all science and engineering bachelor's degree recipients has remained essentially unchanged, at 6.1 percent in 2002 and 6.2 percent in 2012.

Many of the roadblocks that prevent young, African-American men from pursuing careers in STEM fields sound familiar: a lack of resources, role models and "relatability." The solutions, too, mirror those used to entice more women to work toward STEM careers: Start teaching and engaging students sooner, and work to dispel the curse of self-doubt.

Salute to a Black Female Pioneer in Science

Dr. Marie Maynard Daley overcame dual hurdles of racial and gender bias to pursue chemistry. Daley was educated at Hunter College High School, an all-female institution, where her ambition to become a chemist was supported and encouraged.



She enrolled in Queens College in Flushing, New York, as a commuting student, and graduated magna cum laude in 1942 with a bachelor's degree in chemistry. Daley researched how compounds produced in the body affect and participate in digestion. The title of her dissertation was *"A Study of the Products Formed by the Action of Pancreatic Amylase on Corn Starch."* She was awarded her doctoral degree in 1947, only three years after enrolling in the program, and was the first African American woman to obtain a Ph.D. in chemistry in the United States.

In 1960 she became a professor at the Albert Einstein College of Medicine, where she remained until her retirement in 1986. In addition to her research Daley was committed to developing programs to increase the enrollment of minority students in medical school and graduate science programs.

America's ability to use technology and innovation to solve problems has been the foundation for our nation's quality of life, security, and prosperity, yet as recent studies show, the decline in young people's interest, especially among underrepresented youth in science, technology, engineering, and math (STEM) education and careers threatens that foundation.



P.O. Box 1547
 Mableton Georgia 30126
 Tel: 770.319-8189
 E-mail: info@deblarassoc.com

**“FRESH APPROACH TO
 PROFESSIONAL CONSULTING”**

Society and Schools - Richer, Poorer and Racially Apart

I read the report again issued by the Milton S. Eisenhower Foundation in 1988 and looked at the relationships between what was found to be true about education then and the reality across America today.

Since 1976

The top 1 percent of Americans has more wealth than the bottom 90 percent. In terms of wealth and income, the U.S. is the most unequal industrialized country in the world, and is growing more unequal faster than any other industrialized country.

America's neighborhoods and schools are re-segregating. Two-thirds of African-American students and three-fourths of Hispanic students now attend predominantly minority schools -- one third of each group in intensely segregated schools.

In urban public schools in poor neighborhoods, more than two-thirds of children fail to reach even the "basic" level of national tests.

States spent more per year on prisons than on higher education

State spending on corrections is growing six times faster than state spending on higher education

For the first time ever, U.S. public schools are projected this fall to have more minority students than whites enrolled

The wealthiest 1 percent of families owns roughly 35% of the nation's net worth, the top 10% of families owns over 71%, the top 20% owns about 85%, and the bottom 40% of the population owns way less than 1%.

Lawrence King, Editor

Biotech Firms Acknowledge Minority Underrepresentation

"Minorities in general are really nowhere to be found in the biotech industry in the United States," agrees John F. Alderete, a professor of microbiology at the University of Texas Health Science Center at San Antonio and president of the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS).

Reader's Feedback

"Thank you for the opportunity to share in the development of our future leaders. Meanwhile, stay encouraged as you endeavor to continue leading the charge to empower our youth in STEM."

Dr. Angelia Michelle Griffin, Associate Professor, NonProfit Agency Management Consultant

"I really look forward to your newsletter. **Tyrone D Taborn, Career Communications Group**

"Larry: So good to hear from you and thank you for your newsletter. I always share it with my STEM staff. Thank you again for visiting with us during our 2015 STEAM Symposium." Please mark your calendar for the 2016 Wheeler STEAM Symposium on April 14, 2016. **Dr. Cheryl Crooks, Center for Advanced Studies, Wheeler HS**

