

STEM NEWS

DEBLAR & Associates, Inc.

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Lawrence King, Editor

Special points of interest:

- BEYA Awards
- National Technical Association (NTA)
- NACME Scholarships
- Native Americans and STEM
- Identifying STEM Talent

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Nominate a Black Engineer or Scientist

It is no secret that people of color are underrepresented in STEM professions. A *Diverse Education* survey reveals that 40 percent of underrepresented STEM professionals report that they have been subjected to discouragement throughout their STEM career. Show your colleagues that their dedication to STEM is valued and nominate them for a STEM achievement award. Only 18.5 percent of Black college students and 17.3 percent of Hispanic college students plan on pursuing a STEM major, according to a study by the Higher Education Research Institute at UCLA. Unfortunately, only 25 percent of underrepresented students who declare a STEM major earn undergraduate degrees in STEM, compared to 50 percent for all undergraduate students. Black and Hispanic students are more than twice as likely to switch to other majors as Caucasian and Asian students are.

When you nominate a STEM professional of color or his or her mentor or champion, you create role models for tomorrow's work force to emulate and draw inspiration. You help to build the pipeline of tomorrow's STEM work force by providing exposure and shared experiences of achievement, which encourages your colleagues and students from underrepresented groups to seek opportunities confidently. STEM Achievement awards will be presented at the [BEYA STEM Conference](#), February 18-20, 2016, in Philadelphia, PA.

Get a nomination packet at:

<https://custom.cvent.com/FC8C873728F4410AAB5D682BAD064B44/files/3d74632a85c044fb88a5f802a80d270c.pdf>

Most Teachers Aren't Very Enthusiastic About Their Profession

When schools implement new initiatives, teachers want to have thoughtful professional development as support.

"If we don't do something about this, we will lose a generation of teachers," AFT president **Randi Weingarten** said on a press call recently. "And if we do that, we will lose a generation of students." Among the most major on-the-job stressors the surveyed teachers cited are improper professional development around new initiatives, negative media portrayals, and uncertain job expectations:

By "new initiatives," I'd guess at some least percentage of respondents are thinking of Common Core State Standards, which have been implemented [in an uneven manner](#) across the several dozen states that adopted them. Roughly half of teachers aren't enthusiastic about teaching.

NTA RE-BIRTH

The National Technical Association, NTA was founded in Chicago in 1925 by Charles S. Duke, who became the first African American to receive an engineering degree from Harvard University. The NTA is America's first professional organization of Black scientists and engineers. NTA since then has provided African American scientists, architects, engineers, technicians, mathematicians, and educators a platform of organizing around common interests and motivating youth to follow in their footsteps.

In 1986 then NTA became the first professional technical organization composed of African Americans to join the selection committee for the National Inventor's Hall of fame and in 1990 led the way for the induction of Dr. George Washington Carver and Dr. Percy L Julian as the first Blacks to be inducted. Members of the NTA include leaders of technical development, engineering, and science at some of our nation's premier corporations and federal agencies as well as at school systems and universities. The membership drive currently underway is targeted at millennials and recent graduates.

For more information, contact National President Lancet Foster, Lancet.e.foster@nasa.gov; or President Elect Dr. Ambrose



Women Engineers at MSU

The **Michigan State University College of Engineering** has more than 1,000 female undergraduate students for the first time as administrators try to recruit more women to the field.

College officials estimate that more than 300 female students are among the more than 1,400 freshmen starting the academic year at Michigan State on Wednesday. The College of Engineering currently has roughly 5,000 undergraduate students and more than 800 graduate students.

Women made up about 18 percent of undergraduate enrollment in the college last year. The college aims to have women make up 25 percent of its undergraduate population by 2020.



A look at Investing in STEM Education

A dear friend of ours, **Dr. Eugene Deloatch, Dean of the Clarence Mitchell School of Engineering at Morgan State University** commented recently on a subject dear to my heart concerning the recipients of our STEM investment. Morgan State University currently enrolls nearly 850 undergrads and grad students as one of our leading HBCU institutions producing minority engineers and scientists.

"We have some real challenges in terms of technical personnel, prepared personnel, people who need to work. Our nation and businesses dependent on technical talent are spending a lot of money supposedly developing technical talent. We are funding research, education, and a host of related programs, yet the data indicates that at the highest levels of degree attainment, half of the degrees awarded are going to folks who cannot even work here and be hired by businesses conforming to security guidelines. "

I have long been an advocate of restructuring our H1B program so that a company or industry appealing to hire foreign nationals must demonstrate tangible evidence of hiring African Americans and other underrepresented minorities. This program, while originally well intentioned, has been corrupted into a continuing avenue of escape for politicians, corporate executives, and educators to ignore the failure of our American system of education in the education and preparation of sufficient numbers of Latino and African American students for entry in the K-12 pipeline in science and math. Our position against continued expansions and extensions of the H-1B program is shared by the **National Technical Association (NTA)**, the **American Engineering Association (AEA)**, and the **National Action Committee for Minorities in Engineering, (NACME)** and a host of other technical organizations.

Apple reports that it's making progress in hiring women and underrepresented minorities, recruiting more diverse candidates in the past 12 months than in any previous year, but overall there was little change.

Apple hired 65% more women, 50% more African-Americans and 66% more Latinos last year than it did the previous year, the company says. In the first half of 2015, nearly half of new hires were women, African-Americans, Latinos or Native Americans, according to Apple.

"This represents the largest group of employees we've ever hired from underrepresented groups in a single year" including 11,000 women", Apple CEO Tim Cook wrote in a letter that accompanied the report.

But like other major technology companies, Apple is still overwhelmingly male and white. Some 69% of the company is male and 54% is white. Leadership of the company is 72% male and 63% white. Technical employees are 53% white. Those percentages barely budged since last year.



Its More Than Math

Much of what is being stressed in STEM education is about math. We agree, it is the foundation of science and technical education, but a comprehensive study regimen should also include the mastery of skills supportive of the application of math to practical problem solving.

Comprehension of what a student reads and his or her ability to communicate it to others verbally or in written form cannot be under emphasized. According to **Dr. Lisa M. Tittle, Hartford Community College**, "*The science, technology, engineering, and math degree and career emphasis of the past several years has cast a shadow over the importance of effective reading and writing skills as they pertain to academics and the workplace. College educators and administrators in charge of program development should remain conscientious of student's need for adept reading and writing skills to comprehend not only STEM concepts, but also for increased comprehension of all academic subjects.*

STEM students must be able to complete extensive reading in textbooks and scholarly articles for research. In addition, students must analyze text by identifying the main idea and supporting details making inferences and thinking critically about the information in the text. Also, students have to apply what they have learned from the reading section to their studies, project, or research as may be expressed in any work related correspondence."

We are seeing an increasingly amount of students who enter 2 year colleges having to take remedial or developmental courses because they are under prepared to function and compete at the higher level. It is our expectation that a student's K-12 experience in a school or system with a STEM emphasis does not fail to include critical thinking exercises, reading for understanding, and communication in written or verbal form, and utilization of media in presentations.



PLANNING AHEAD

Educators with students planning to attend college and study engineering should start now to help them qualify for scholarships. The **NACME Pre-Engineering Scholarship Program** recognizes the nation's highest achieving African American, American Indian, and Latino high school seniors who have demonstrated academic excellence, leadership skills, and a commitment to science and engineering as a career goal. Each NACME Pre-Engineering Scholarship winner receives a \$2,500 award to be used toward the cost of attendance at a university.

Applicants must be:

African American, American Indian, or Latino high school graduating seniors; U.S. citizens or permanent residents;

Participants in an Academy of Engineering (a National Academy Foundation national network of career-themed academies) or a pre-college or high school program focused on math, science, and engineering;

Outstanding academic achievers earning a minimum cumulative 3.0 GPA or "B" average; Have a preferred combined SAT score of 1650 for critical reading, writing, and math, and a preferred math score of 550; or preferred composite ACT score of 24 and a preferred score from the math section of 24; and

Admitted into an engineering program as a full-time student.

Student entering their junior year as well should factor these qualifications into their academic course work over the next two years.

American Institute of Aeronautics and Astronautics (AIAA)

"We are at a unique place in time where STEM initiatives are influencing the future economy; however, these initiatives are widening the gap between what students are being taught in school and the skills required for them to thrive in a new digital and hyper-connected economy. Education should not only provide knowledge of STEM content but also provide awareness of global trends that inspire students to learn more. To resolve this skills gap educators should seek to foster student engagement with an educational strategy where project management, creativity, interpersonal, global competency and leadership skills can be learned through open-ended projects that connect students to the evolving digital ecosystem. Our educational goal should be to develop student explorers, who have a mindful eye toward problem finding not just problem solving."

Dr. Chuck Cadle, CEO of Destination Imagination

How to Identify a Talent for STEM

These characteristics may not all be present in a student simultaneously, but along with the guidance of parents, a caring teacher or mentor to nurture them, they can be just the ticket to achievement.



A set of capabilities what can lead to success in a career of science, math, or engineering or in a student's personal life. They consist of a sound education, determination, curiosity, individual initiative, and ability to understand and solve problems.

About DEBLAR & Associates, Inc.

Our principals have a combined record of 60 years of comprehensive growth oriented achievement in post-secondary academic program design, administration, and evaluation. Our field of specialization is to develop strategies to increase the number of underrepresented students majoring in science and engineering programs. The signposts of our record in education include:

- Development and operation of secondary & college level engineering and science programs for underrepresented ethnic groups
- Evaluation of statewide, regional, and national mathematics, engineering and science education programs for National Science Foundation, US Department of Energy, NASA and numerous universities and school systems
- Facilitation of local industry/school system collaborations to expand diversity, and academic achievement.

Indigenous Research & STEM Education

Some interesting work is being done out west to recruit students and expand participation of original Americans.

Indigenous Research and STEM Education (IRSE) is dedicated to the advancement of Native American, Alaskan Native, Native Hawaiian, and First Nation students in science, technology, engineering, and mathematics (STEM) academic disciplines and professions.



The contact information is below.

Aaron Thomas, Ph.D., **University of Montana,**

Give a Boost to STEM

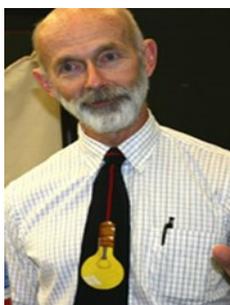
According to the **STEM** (Science Technology, Engineering and Math) **Coalition**, there are 26 million STEM jobs in the U.S., comprising 20 percent of all jobs. By 2020, there will be 9.2 million STEM jobs in the U.S. Despite the need for these workers, only 45 percent and 30 percent of high school seniors are prepared for college-level math and science courses, respectively.

Because of this, a greater focus on science, technology, engineering and math (STEM) learning has been a "trend" for at least the better part of a decade. It is no longer enough for American students to just get by in comparison to each other in STEM subjects; global competition is proving that students in the U.S. need more focus in these subjects to lead the worldwide marketplace as adults.



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

**“FRESH APPROACH TO
 PROFESSIONAL CONSULTING”**



Kids Invent

Several years ago, I had the opportunity to work with a most interesting and creative educator by the name of **Dr. Ed Sobey**. Ed is the inspiration and Education Ambassador for Kids Invent.

<http://www.kidsinvent.com/index.asp>

The creative learning activities of Kids Invent, stimulate the creative abilities of children by having them design and build projects that involve solving of science and engineering problems, preparing simple business plans, and developing presentation materials.

As they develop their projects, kids learn to present their concepts to other students, demonstrate their ideas, and think through the practical issues of design, performance, and functionality. With KI! Creative Learning Activities, kids may also address the issues of market pricing, and manufacturing cost of their concept. All KI! Learning Activities emphasize important principles in math and science while fostering the development of social skills that help kids learn to work with other kids in a variety of tasks.

In my career of assisting school systems re-direct their technical career education approaches to attract more underrepresented minority students into science and engineering learning, project learning of the type and quality provided by **Kids Invent** are engaging ways to tap into a child's natural inquisitiveness and self-confidence by doing stuff.

Next Generation Science Standards

The Next Generation Science Standards (or NGSS) represent a movement to transform K-12 science education into the 21st century. The Next Generation Science Standards come at a time of upheaval in education, when change is certainly necessary, but the structure and content of this change remains unclear.

The Next Generation Science Standards are young, and their precise use in American classrooms is not yet known and effect on outcome undefined. Despite this fact, now is an ideal time for students and teachers to familiarize themselves on the future of education. After all, preparation is the requisite to a smooth transition and continuing success, and with that in mind, I feel there is one thing we all need to know and appreciate about the Next Generation Science Standards.

Simply stated, NGSS are only a series of goals and best practices that are intended to inform teachers' science instruction. When discussed along with Common Core things can easily become confusing because change is confusing. On this, I am preaching not only to the choir, but the congregation as well. It will take all of us (*educators and STEM professionals*) to reconcile local practices, media and political rhetoric, and what is really best for the students we interact with in both rural and urban districts.

