



This publication gives our readers and supporters in education, research, science, and technology opportunities to have articles published on issues not included in our series of article requests. Articles selected are of high interest to our community of technical professionals, high education administrators, and business executives.

We hope **Reader's Platform** connects more across our global audiences that have interests in common.

Larry King



Aussie Inroads

For the last several months, Dr Morley Muse and I have been working tirelessly day and night on our new project to improve the visibility and employment of women in STEM, particularly women of colour (WoC) as well as women from culturally and linguistically diverse (CALD) backgrounds in STEM.

We have identified a huge problem, which has been acknowledged by several organisations including the Office of the Chief Scientist of Australia report (2020) which shows that women born overseas face more than four times higher unemployment rates in STEM even though 56% of females in the labour force with University STEM qualifications were born overseas.

Despite these alarming statistics, there is no work actively addressing the unemployment situation for WoC in STEM.

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This is surprising as Australia currently has over 10,000 vacant STEM jobs and research has also shown that the Australian economy would grow by \$25 billion if more women are supported into STEM careers.

We are pleased to introduce you to our new company, iSTEM Co.

iSTEM Co. www.iSTEMco.com

You can reach us directly via email at inquiry@iSTEMco.com



Dr. Muse and Dr. Fernando

History Made In Brownsville! First Ever Event In NYC

In partnership with hyperlocal organizations in Brownsville, the Brooklyn Mobile Tech Coalition (BMTC) has developed a series of “on-site” field trip experiences for students as a part of New York City’s Department of Education’s Summer Rising programming in August.

The BMTC is a consortium of organizations joined together to provide a mobile K-12 educational resource for Brooklyn. To develop the first stages of a “proof of concept” model, the BMTC implemented a two-day pilot pop-up technology event (mobile drone lab and launch site) on August 3rd to 4th at P.S./I.S. 323, located at 210 Chester Street, to expose students to entertaining technology innovations and activities this summer.

BMTC’s mission is to attract some of Brooklyn’s most promising teens and propel them toward a bright future with increased skills, knowledge and connection.

While creating opportunities for STEM (Science, Technology, Engineering and Math) exploration in multiple disciplines to meet the needs of a wide range of student interests, BMTC anticipates gains in school attendance, high school graduation rates and attainment of valuable skills and experiences, such as real-world work experience through internships and client projects, life lessons through community services and networking and the critical 21st century skills of cooperation, creativity, critical thinking/problem-solving and communication.

What if students knew right out of the gate what employers wanted? What if they could start exploring those careers as early as middle school – possibly 10 years or so before they would even be looking for work?

What if industries could secure a future pipeline of workers simply by connecting with educational organizations and saying, “Here are the necessary skills needed to become a certified drone operator.”?

When business and industry work together with information education sySTEMs, these “what if” questions become reality. Workforce development –

building a pipeline of knowledgeable, capable workers for the future – really can be as simple as combining the efforts of those at the beginning of the pipeline (schools) with those at the other end of the pipeline (business and industry).

By immersing students early in STEM and CTE (Career and Technical Education) pathways, BMTC solutions show them the relevancy and real-world connections behind their learning, setting them up for early success. Additionally, students are exposed to various careers, learning exactly what it takes to become successful in different career paths.

Equally as important as the hands-on, technical skills students will need are the soft skills necessary to accept and engage with changes caused by the fast-paced growth of technology. The solutions create learning opportunities that build the collaboration and problem-solving skills needed for a lifetime of learning and working, the soft skills all employers want, but few have time to ingrain in their employees.

The future requires problem solvers, collaborators and innovators. Working together, schools, business and industry, and BMTC can prepare students with the mindset, skill set and tool set needed to thrive in tomorrow’s workforce.

Courtesy of Brooklyn Mobile Tech C and Scott Krivitsky , Teacher at Department of Education, Brooklyn, New York



Scott Krivitsky

We are including this mention of the abstract below in our Reader’s Platform issue of our newsletter. The lead in narrative might include rationale examples in various sectors.

The Integration of Hybrid Lean-Agile Six Sigma in Manufacturing and Service Industries

Lean Six Sigma was originally introduced in the auto-manufacturing industry. The concept increasingly found a home in other manufacturing and service industries to eliminate waste and improve manufacturing/service quality. Likewise, surviving and prospering in a competitive environment of continuous and unpredictable change calls for an agile strategic process to react quickly and effectively to changing markets. However, as the popularity of the two paradigms—leanness and agility—grows, so can the disappointing and undesirable results unless the progression and integration of the two occur hand-in-hand and not in isolation. As prior studies indicate, the key differences between the two paradigms relate them to the positioning of the decoupling point where the order-driven and the forecast-driven functions can merge in such a fashion to favor the need for responding to a fluctuating demand downstream while allowing a static level of schedule in the upstream. Understanding this can establish a better confidence upfront in deploying the Lean-Agile (Leagile) Six Sigma experts to prioritize improvements and take appropriate measures for various problems, big and small, resulting in a more effective solution. Our research and faculty team at the Department of Industrial and SySTEMs Engineering at Kennesaw State University can offer a strategy to perform such Leagile Analysis for your business. Our background reflects our diverse experiences in Mechanical Engineering, Electronics Engineering Technology, Business Administration, Project Management, and Patent Law.

Parisa Pooyan, PhD., MBA and Rebet Jones, PhD., PMP , Department of Industrial and SySTEMs Engineering, Kennesaw State University

The network of groups receiving promotion for this October newsletter includes;

Regional Center for Next Generation Manufacturing
Excellence in Manufacturing Consortium, Canada

Northeast Advanced Mfg Consortium, NAMC

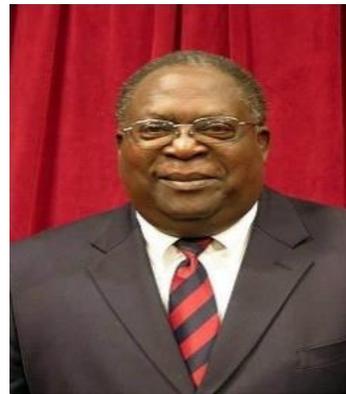
National Digital Engineering & Mfg Consortium

National Assoc Mfg,
Society Manufacturing Engrs
ASME, Ashley Huderson.....

“The Bond Impact”

A Compilation of 11 Tribute Letters

Dr. Arthur J. Bond’s story is told here through the Tribute Letters written by 10 Black Engineering Students he mentored at Purdue University during the 1970’s. The 11th Bonus article is a Letter of Recommendation written in 1994 by Professor Richard Schwartz. At the time Dr. Schwartz was Head of Purdue’s School of Electrical Engineering. He later became the Dean of all Schools of Engineering. Dean Schwartz letter is historically significant because he includes excerpts from 4 circa 1978 letters of praise for Dr. Bond’s work on the National Academy of Engineering’s initiatives to expand opportunities for minorities in engineering. Minorities at the time, were defined as Black, Mexican American, Puerto Rican, and American Indian.



Dr. Arthur J. Bond

In other words, Dr. Bond is the unsung superhero of America’s Minority Engineering Program (MEP) Movement. In the history of our country, he was the 42nd Black to earn a PhD in Engineering and the 12th to earn a PhD in Electrical Engineering. Dr. Bond is unquestionably The Architect of NSBE, The Architect of Purdue’s MEP, and a major influencer of our Nation’s effort to expand opportunities for minorities in engineering.

<https://www.facebook.com/DrArthurBondPage/>

How STEM Educators Teach Data Science (And Why)



Liz Gallo of WhyMaker and Robert Grover of databot™ hosted a webinar on August 31st discussing a topic of particular importance for educators today - K12 Data Science.

Why is data science so important to students entering the work force? Data powers our world - it's in the motion of our walk, the air we breathe, the web pages we browse, and embedded in nearly every part of our day to day lives. Being able to understand data, how to collect it, visualize it, and interpret it properly are critical life skills. Regardless of your career or interests, data is impacting your life daily. In this webinar Liz and Robert showed how fun and easy it can be to incorporate data science into the classroom.

They introduced participants to some incredible resources that are out there to help, and in the grand finale, Liz gave away a Sphero RVR and a databot™ to a lucky attendee.

<https://whymaker.kartra.com/page/jNY21>

What Can Parents and Teachers Do to Make the Best of Virtual STEM Learning?



Adapting to virtual learning, especially for STEM subjects that demand more interaction in the

classroom, is tough for everyone involved. Students are asking more of their parents and teachers in terms of support. Here are some ideas on how to better support STEM learners as they continue to navigate virtual learning.

Get Feedback from Students

Teachers are experts at managing classroom culture. In the absence of a physical classroom, gauging what's working and what's not becomes more difficult. Teachers often don't have enough time with students to understand what challenges they experience, and virtual learning demands more active outreach.

Teachers need to get students to "buy-into" the virtual learning process through student-teacher conferences, formal and in informal settings. Solicit feedback during these sessions with students and use that time to address any classroom culture issues a student might be experiencing. Giving students this outlet can help them feel heard in a process they ultimately don't have control over.

Utilize Time with the Teacher Effectively

With hybrid learning, the time in the classroom with students is valuable. It's even more critical with STEM subjects. STEM lends itself best to hands-on learning, and educators and support staff have a bit of a responsibility to maximize that time with students.

Classroom time should be devoted to lessons that require heavy teacher input, such as labs and demonstrations whenever available. Virtual sessions can then be focused on more independent learning or lectures.

Continue Hands-On Experiments

Depending on the subject and age level, experimentation can be done at home on a limited basis. Teachers can assign safe experiments that utilize home staples and parents can supervise the experiment with their children. Classics like the baking soda volcano or soda bottle rocket can breathe new life into virtual lessons.

Tap Into the STEM Community

A slower economy means that work may be slow for many other professionals. Students and teachers can capitalize on the opportunity to reach out to professionals who can share their knowledge and connect the lessons being taught in the classroom with

real world application. Our video provides tips to use.
<https://www.youtube.com/watch?v=1ITx1Dglad4>



Parents: Get Involved!

Classrooms aren't the only places to go virtual during the pandemic. With offices closed and parents furloughed, many parents are also working from home. This offers a golden opportunity for them to take a more active role in their child's education. STEM degrees are not required here. Teachers can handle the content. Parents can support and coach on the study skills and habits needed to succeed in the classroom.

IOScholarships Support Black, Native American, and Latinx students

IOScholarships, a digital platform and ecosySTEM for underrepresented diverse students in STEM founded by Maria Fernanda Trochimezuk is based in Playa del Rey, CA. One of their recent scholarship recipients is Matthew Rada. Matt is a student at Exceptional Minds school in Sherman Oaks, CA.

Exceptional Minds is an academy and studio preparing young adults on the autism spectrum for careers in animation, visual effects, 3D gaming and other related fields in the entertainment industry. The scholarship Matthew won is the L. Ron Hubbard's Illustrators of the Future Contest



Matthew's hope is to inspire and motivate students alike, especially the one with disabilities to take part in opportunities such as educational scholarships and take advantage of other opportunities that I may be offered or qualified for.

I am an incoming third year animation student at Exceptional Minds School. My special school accomplishments included being awarded EM's "Best of Awards" Certificate of Achievement for Introduction to Photoshop.

To earn my scholarship, I submitted an autobiography letter sharing my childhood artist journey, stating my accomplishments and reasons why I can be chosen. I also conveyed the challenges that I had to overcome to be where I am now in my academic endeavors. My future Plans are that someday, I would like to create my own brand of comics/manga/anime featuring my own characters that may inspire future audiences. I am also an aspiring artist with dreams of becoming an actor, performer and entertainer.

Matthew

Men outnumber women by more than 2 to 1 in US federal science jobs

Women hold just 29% of the 335,412 jobs in science, technology, engineering and mathematics (STEM) in the US federal government, according to a report published by the US Equal Employment Opportunity Commission (EEOC). The report is based on data from 2019. The gender disparity is even greater in supervisory and leadership roles, in which women occupy just 26% of positions.

The under-representation of women among leaders has contributed to a gender-based pay gap. On average, women in federal research jobs earned just

over US\$84,600 per year — about \$4,300 less than men earned. Men averaged higher salaries than did women in science, engineering and maths. In technology, women out-earned men by about \$2,000 (just under \$86,600 annually, compared with men’s pay of just under \$84,600), partly because the relatively few women in that field hold a disproportionate number of senior positions.

Collection: Diversity and scientific careers

“There were significantly fewer women in technology and engineering than we expected,” said Carlton Hadden, director of the EEOC’s office of federal operations, in a published statement. “Clearly, the federal government shares the same challenges as the private sector in improving representation of women in STEM occupations. We hope this report helps federal agencies better understand the challenges facing women in STEM so they can continue to foster an even more welcoming and diverse work environment.” The study did not report any data on non-binary federal employees.

Widespread problem

Although substantial, the gender pay gap in federal STEM positions is markedly smaller than in other sectors in the United States. The US National Science Foundation’s annual Survey of Earned Doctorates tracked 55,283 researchers who received a PhD during the 2020 academic year; those who had specific employment plans (that did not include postdoctoral study) for the following year reported a gender pay gap of about \$25,000. Men reported an average expected salary of \$100,000, whereas women reported \$75,000.

Overall, the US government has been more successful than other sectors at promoting wage parity, but there is clearly more work to be done, says Mary Theofanos, a computer scientist at the National Institute of Standards and Technology (NIST), a division of the US Department of Commerce based in Gaithersburg, Maryland.



Theofanos

Theofanos is a co-author of a 2021 report that examined potential bias in salaries of scientists at NIST. Even after controlling for job titles, that study found that male scientists and engineers, on average, enjoyed a roughly \$1,000 annual pay advantage. “We were careful to make an apples-to-apples comparison,” Theofanos says.

The NIST pay gap has narrowed over time, Theofanos says. A similar, unpublished analysis in 2011 found a gap of about \$4,500. “Salaries for our STEM staff generally favour men but appear to be trending toward gender parity,” she says. Equity is lacking in other metrics, however. Theofanos and her colleagues found that women were promoted more slowly than were men with similar education levels. Women were also less likely to reach the highest leadership positions at NIST.

Complaints filed

The EEOC report notes that 14% of women in the federal STEM workforce filed formal complaints on equality issues in fiscal year 2019, including 1,986 concerning general harassment and 358 about sexual harassment. In a 2019 Federal Employee Viewpoint Survey, conducted by the US Office of Policy and Management, about one-third of the 227,506 female respondents said they planned to leave their current position, either for another job in government, a job elsewhere or another reason, such as retirement. The EEOC report found that women who had filed complaints were especially likely to plan to leave.

The under-representation of women identified by the EEOC report underscores a continued need for action, Theofanos says. “Recruitment and retention of women in STEM is important for us to stay competitive,” she says. “It’s well documented that we still have difficulties encouraging young girls who are interested in science and math to pursue STEM careers. If they survive the educational process, they face scientific cultural environments for which they are ill prepared.”

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