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STEM

National News

Honoring A Trailblazing Woman in the Area of STEM: Dr. Reagan Flowers

by Jeffrey L. Boney | March 15, 2017 | 0 comment

There has been a lot of buzz surrounding the Academy Award-nominated film *Hidden Figures*, which features an all-star cast of professionals who bring to life on the big screen the lives of three African American women (Katherine Johnson, Dorothy Vaughn and Mary Jackson). The math and STEM-related contributions of these three Black women played a significant role in helping NASA astronaut John Glenn precisely launch and land the NASA spacecraft out of space in the 1960s.

Sadly, their story had never been told until now, and there is no telling how many other young African American girls could have been inspired to get involved with math or other STEM-related areas of study, if they would have known about these three phenomenal African American women who had been hidden from them for decades.



In 2013, the National Science Foundation found that a little over 800,000 African American women were employed in science and engineering-related occupations, compared to nearly 8 million White women. While this disparity is quite noticeable by many, sadly, many young African American women tend to steer clear of STEM-related fields because of their lack of familiarity with the area, and because of the lack of role-models they see being highlighted.

In honor of National Women's History Month, the Forward Times is highlighting a bold and dedicated STEM champion, who is headquartered in Houston, Texas. This trailblazer is closing the gaps of minorities in STEM, and is making a difference in the lives of young people; especially young African American girls from all across the United States – her name is Dr. Reagan Flowers.

Every year since 1987, the U.S. Congress and various U.S. presidents have passed legislation, and issued annual proclamations designating the month of March as Women's History Month.

In celebration of National Women's History Month this year, The National Women's History Project has selected "Honoring Trailblazing Women in Labor and Business" as the theme for 2017, as a means to honor women who have successfully challenged the role of women in both business and the paid labor force.

Over the years, there has been much discussion taking place in this country about the tremendous inequalities that women have and continue to face in the workplace, particularly where their work has often been undervalued and underpaid. This disparity is accentuated, and has even more impact on women, when you talk about the area of STEM (science, technology, engineering and math) and the need for more African American women to be a part of those fields.

Dr. Flowers, founder and CEO of C-STEM Teacher and Student Support Services in Houston, used her own resources twelve years ago to build C-STEM. It has grown to become an organization that has impacted more than 100,000 students across the country, serving urban, suburban and rural communities in Texas, Maryland, Michigan, Illinois, North Carolina, Wisconsin, Oregon, Mississippi, Louisiana, and Tennessee.



Dr. Flowers has managed over \$10 million in funding for special programs to support the development of STEM instructional leaders, integration of specialized tech tools and resources, school design, community engagement, STEM public policy advocacy, increasing minority and female engagement in STEM, and scaling programs.

Her journey to become a leading voice in the area of STEM began while she was working as a science teacher and Guidance Counselor at Jack Yates High School in Houston's Third Ward. She learned about Yates after reading an extremely moving article in *Jet Magazine*, when she was a senior in high school in Cleveland, Mississippi.

"Growing up, *Jet Magazine* was the magazine of choice in my neighborhood. You looked forward to each issue," said Dr. Flowers. "While reading the *Jet* during my senior year of high school, I learned of a young lady that had earned the highest rank, Valedictorian, having the highest grade point average of her class. It became controversial and made national news on account of her being pregnant and there was a decision not to allow her to speak at graduation on account of her pregnancy. I am not certain what happened to that young lady, but when I decided on the school I wanted to work at as a teacher, I remembered that story and thought that Yates was a school that could use someone like me."

Why was that her thought?

Dr. Flowers makes no apologies about sharing her testimony of having grown up in poverty and experiencing challenges in elementary school. Those challenges and setbacks led to her being retained a grade.

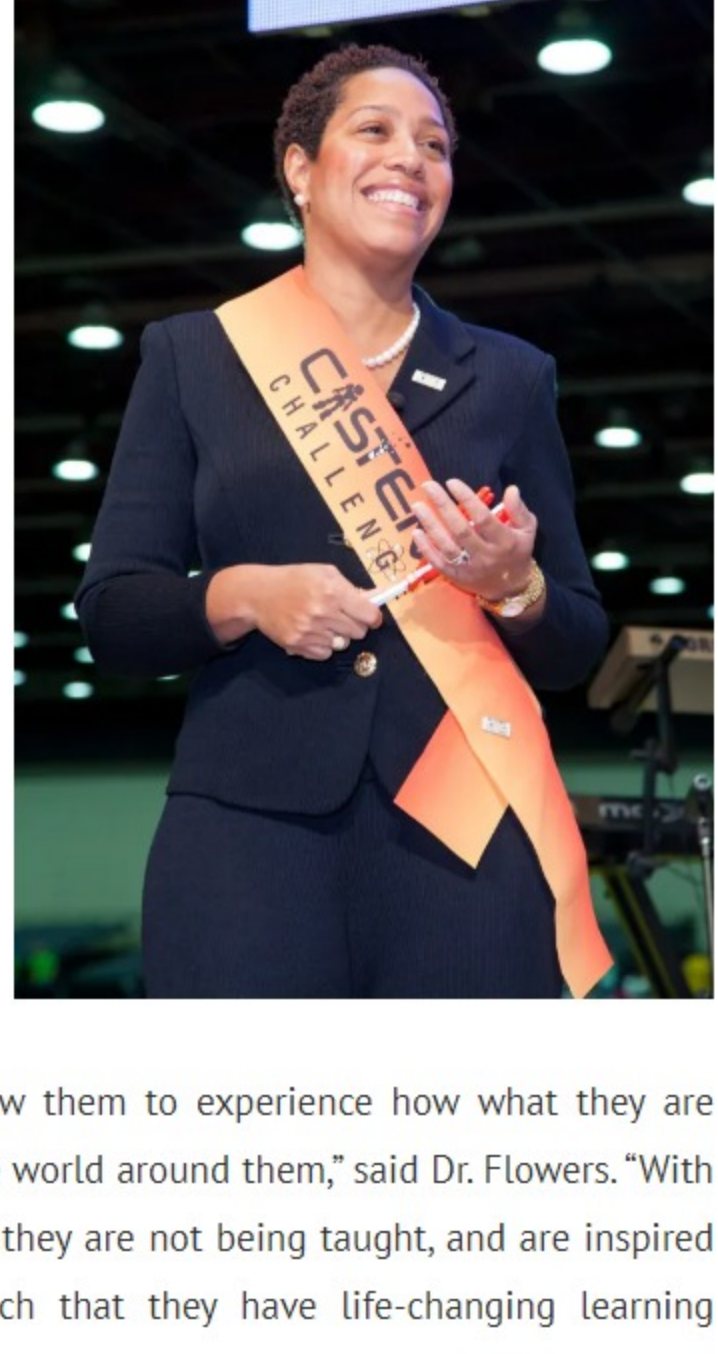
Dr. Flowers lived in housing projects and Section 8 communities, while struggling to graduate from high school and finish college as a poor community kid. While she was able to avoid the challenges of teenage pregnancy, experimenting with drugs, getting a criminal record and dealing with the personal challenges that come with poverty, she still knew that she needed to avoid any other unforeseen pitfalls. Dr. Flowers knew that she needed to stay focused, while maintaining a belief that failure was not an option. She was destined for great things, because she believed that greatness was better than the alternative of never being able to escape poverty in her neighborhood.

"I believed I had nothing to lose, because I lost many things. I knew what it was like to struggle. I was already at the bottom and I knew there was no place else to go but up," said Dr. Flowers.

After landing at Yates, Dr. Flowers also served as the SECME (South Eastern Consortium of Minorities in Engineering) coordinator for the school. SECME is a national program that gave her students the opportunity to have experiences with building and competing with mousetrap cars, essays and banners. After a while, her students wanted to do more, which motivated her to get them entered to participate in FIRST Robotics, Space City BEST Robotics and GCTAME competitions.

After three years of doing that, Dr. Flowers realized there was a tremendous disconnect. One was literacy, whereby she realized that although she was successfully providing math and science enrichment for her students, she also needed to work on their literacy skills so they could achieve the level of success she desired for them in math and science. Secondly, she realized that all of the competitions she was preparing her students for were taking place after school, and while her students loved experiencing that type of learning (building, creating, designing, testing, programming, wiring, and experimenting with tools, gadgets, technology, etc.) during the instructional day, she also needed to provide them with an opportunity to experience more. Lastly, she realized that if the enrichment projects were not connected to the school districts' academic goals and objectives of improving students' performance on standardized tests, approved curriculum and were not aligned to standards, the type of learning she knew would work could never be integrated into a classroom setting.

As a result of those early realizations, Dr. Flowers decided to create a non-profit organization after an encounter with Theresa Heinz. She decided to call the organization, C-STEM Teacher and Student Support Services (Communication-Science, Technology, Engineering, and Mathematics), which became the nation's first Pre-K-12th grade integrated STEM enrichment program.



As a leading STEM advocate in the nation, Dr. Flowers inspires students to accept academic challenges, push beyond that which they believed they could not do, and to achieve more than they thought was ever possible.

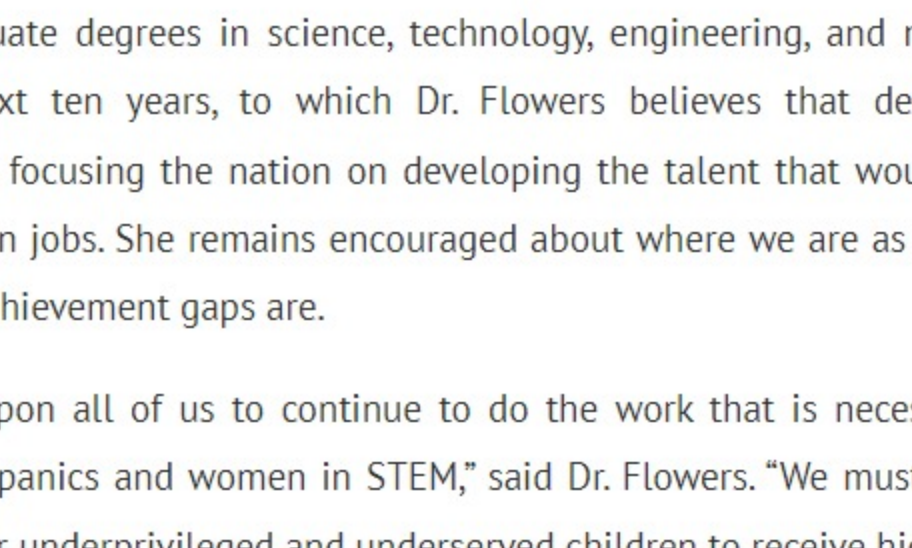
"I am very fortunate to have the opportunity in my work to place tech tools in children's hands like robots, 3D printers, and digital fabricators to allow them to experience how what they are learning in school applies to their daily life and the world around them," said Dr. Flowers. "With those same experiences, students experience what they are not being taught, and are inspired to take their learning into their own hands such that they have life-changing learning experiences which create opportunities for them, and allows them to see that there are unlimited possibilities with what they can accomplish once they make a personal commitment to achieve that which they set out to accomplish."

STEM is important to Dr. Flowers because she believes it offers an awesome path to making young people's dreams come true. She also believes STEM is enjoyable, and can take young people places they never thought was possible.

"Growing up, to pass time, I would dream the day away through the JC Penny Catalog," said Dr. Flowers. "That catalogue allowed me to see myself outside of the hood wearing fashionable clothes, beautiful pajamas, the type of bedding I would have, to the type of matching towels I would have in my restroom when I finished college. As I looked through that catalog, I knew that completing college with a science degree would make it possible. I never dreamed that it would take me to The White House or to the home of the Vice President of the United States. STEM has offered me a life very different from that which I had growing up in Detroit, Michigan and Cleveland, Mississippi."

Dr. Flowers believes there is a correlation between the decrease of Blacks in STEM and societal stereotypes. Societal stereotypes are influenced by various experiences with minorities in urban, suburban, and rural areas. Societal stereotypes can arise from issues related to poverty, the lack of diversity in the classroom and in leadership, and low performance expectations.

"The fact that in 2017, there are STEM fields such as geoscience where Black students comprised only 2 percent of the B.S. degrees, 2.6 percent in physics and 3.9 percent in engineering, and comprised 14.9 percent of the college-aged population, speaks to why it is important for Pre-K through 12th grade schools, colleges, and universities to have community support towards increasing minority engagement and success with completing STEM degrees," said Dr. Flowers. "It is obvious that grade schools and universities could achieve greater results having additional support. The biggest hurdle I have seen those of us working in education to overcome is the development of strategic partnerships that support the alignment and leveraging of resources to yield an increase in minority participation, such that there are greater sustainable outcomes."



Vice President Joe Biden and Dr. Jill Biden participate in a photo line at a Black History Month reception held in the library of the Naval Observatory Residence, in Washington, DC Feb. 25, 2014. (Official White House Photo by David Lenzmann)

According to Dr. Flowers, STEM is the economic opportunity that helps one achieve their dreams, makes life better for their families, and helps them give back to their community. STEM is directly connected to career paths that create communities and transform the world.

In 2012, the Obama Administration announced its goal to increase the number of students who receive undergraduate degrees in science, technology, engineering, and math (STEM) by one million in the next ten years, to which Dr. Flowers believes that decision helped do a tremendous job of focusing the nation on developing the talent that would be needed to fill more than 9 million jobs. She remains encouraged about where we are as a nation in knowing where the STEM achievement gaps are.

"It is incumbent upon all of us to continue to do the work that is necessary to successfully engage Blacks, Hispanics and women in STEM," said Dr. Flowers. "We must continue to do our part to advocate for underprivileged and underserved children to receive high quality education, and be accountable to provide opportunities and experiences that enable them to find success in STEM. There still remains tremendous work to be done, yet I remain encouraged and hopeful about the increases I want to see in developing minority STEM talent that out there that is very attainable."

Dr. Flowers believes everyone benefits from STEM, because STEM touches every aspect of everyone's life, personally and professionally, as well as impacting the quality of life.

"From the flowers that wake-up and go about your day, STEM makes everything possible in your life," said Dr. Flowers. "There are people who will say that STEM is not connected to their life, but it is. Our daily comforts of power in our homes, automobiles, clean water, technology tools, roadways, banking, medicine, agriculture, beauty products, and so much more. Those individuals working in engineering, technology, innovation, manufacturing, and medicine, make the quality of life as we know it possible and safe for us all."

The Forward Times salutes Dr. Reagan Flowers on her success as a leading advocate in the area of STEM during National Women's History Month, with a sincere hope that this leads to an increase in STEM awareness within the Black community and an increase in young African American girls and boys pursuing careers in STEM.

For additional information on C-STEM, please visit www.cstem.org.

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