Broadening Participation in Mathematics, TPSE MTG 11-15-14

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My Story....

- 1985-1987 Martin Luther King Jr. Middle School (Mrs. Goo)
- 1987-1991 Eleanor Roosevelt High School, Science and Technology Program (Greenbelt, MD)
My UMBC experience

- 1988 Meyerhoff Scholars Program: Provides financial assistance, mentoring, advising and research experience to African American male undergraduate students committed to earning Ph.D.'s in Math, science and engineering
- 1990-1st Meyerhoff class which includes females
- 1991 Dr. Freeman Hrabowski III is keynote speaker at ERHS graduation
- 1991-1995 UMBC
- 1992 Dr. Freeman Hrabowski III becomes President of UMBC
The Meyerhoff Effect....

- Continuous support
- Healthy competition among peers (positive peer pressure)
- Study groups (both Meyerhoffs and Non-meyerhoffs)
UMBC and beyond...

- 1995 Earned a bachelor’s degree in mathematics from UMBC and became a 1st-year high school math teacher
- 1996-1998 MAT program at Bowie State University
- 1999 Hired as a math instructor at Anne Arundel Community College
- 1999-2007 PhD program in Mathematics Education at UMCP
The PROMISE/AGEP Effect....(2005-2007)

- Mentorship, and financial support
- Dissertation House (Dissertation completion workshops, research presentations and conferences)
- Mentor in Residence
- “PROMISE has been a critical catalyst for increasing enrollment, retention and graduation rates of underrepresented minorities.”- taken from Promise Website: https://promiseagep.wordpress.com
The PROMISE/AGEP Effect

- NSF grant funded program led by UMBC
- 14 colleges, universities/regional education centers and 4 community colleges (including AACC)
- Facilitates underrepresented STEM grad students and postdoctoral to obtain masters and PhD's in STEM areas while creating pathways to successful careers in the STEM areas including a path to the professoriate.
Engineering Scholars Program at AACC (2011)

- National Science Foundation (NSF), grant award ($598,000)
- Increase financial and student academic and support services
- Increase the number of underrepresented students in the engineering (women, African Americans, Hispanics, and Native Americans)
- Increase retention rates of Engineering students at AACC
- Increase employment and transfer rates of Engineering
ESP eligible students...

- Must have a financial need
- High-achieving, GPA requirement
- Targeted population a plus
- Must major in engineering or engineering technology
- US Citizen/Permanent Resident
ESP Benefits

- Full Scholarship
- Faculty Mentors and Targeted Advising
- Professional Talks, Field Trips and Conferences
- Organized Group Study
Takeaway....commonalities

• Active recruitment of high-achieving students from underrepresented groups in STEM
• Establishment of a community of learners (academic support, study groups, peer to peer friendly competition)
• Providing Financial Support (scholarships, identifying students with financial need to address socioeconomic issues)
As a Department Chair of Math...

- Facilitated the review of student success data
- Identified issue(s): African American and Hispanic students are significantly the lowest performing students in mathematics across ALL math courses (developmental through Calc 3 and DiffEQ) and ALL course formats
- Math Department Meeting/Student Panel
- Student Success for ALL students
- Diversity and Hiring
- Mentorship and Support of Faculty
How might we create systematic change?

- Highlight/bring attention to the issues
- Study high-achieving students in mathematics from underrepresented areas, what works....
- Implement best practices and show evidence of success
- Faculty as a resource