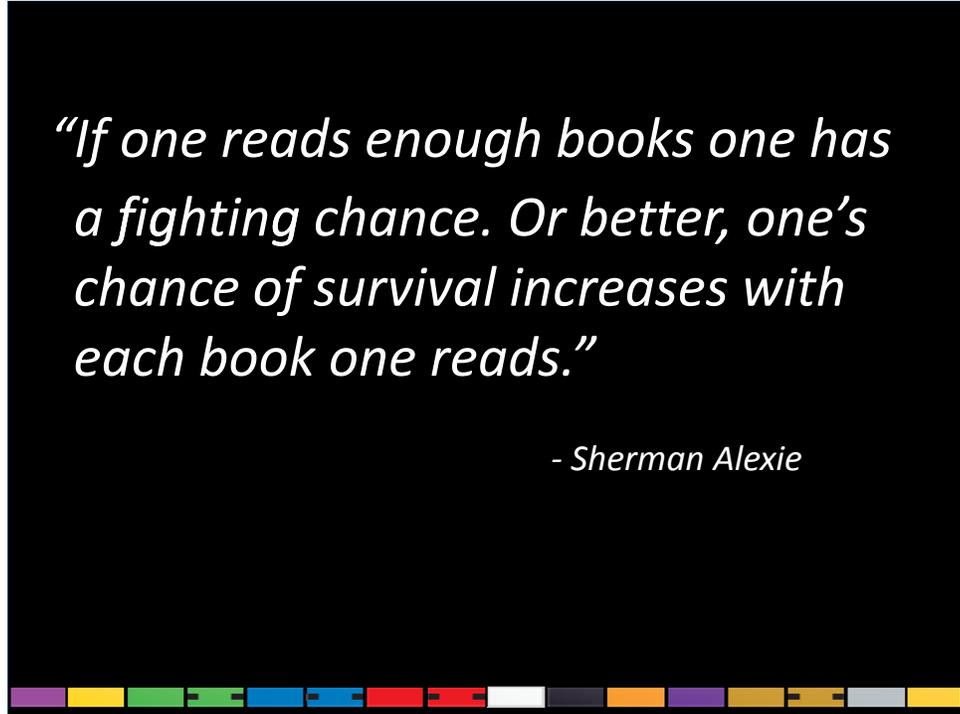


“If one reads enough books one has a fighting chance. Or better, one’s chance of survival increases with each book one reads.”

- Sherman Alexie



Underrepresentation of Minorities in STEM; District Leaders Role in Reversing the Trend



Dr. Angela Peters

ARCTalks
ideas worth sharing



Underrepresentation of Minorities in STEM: District Leaders Role in Reversing Trend

Angela W. Peters, Ph.D.
Vice Provost Academic Programs



American Reading Company
Superintendent's Summit

Factors associated with STEM attrition

- About 28 percent of bachelor's degree students and 20 percent of associate's degree students entered a STEM field (i.e., chose a STEM major) at some point within 6 years of entering postsecondary education in 2003–04.
- A total of 48 percent of bachelor's degree students and 69 percent of associate's degree students who entered STEM fields between 2003 and 2009 left these fields by spring 2009. Roughly one-half of these leavers switched their major to a non-STEM field, and the rest of them left STEM fields by exiting college before earning a degree or certificate.
- STEM attrition was correlated with a wide range of factors, including students' demographic characteristics, **precollege academic preparation and the type of math courses taken in the first year**, and STEM course taking.
- High levels of withdrawn/failed STEM courses were associated with an increased probability of dropping out of college for both bachelor's and associate's STEM entrants. Less success in STEM courses than in non-STEM courses (as reflected by earning lower STEM grades relative to non-STEM grades) was also associated with an increased probability of dropping out of college for STEM entrants at the associate's degree level.



Challenges

- National mathematics standards adopted by 45 states and the District of Columbia that supporters say are designed to make high school graduates “college- and career-ready” and improve the critical science, technology, engineering and math (STEM) pipeline do not prepare students to study STEM or even be admitted to a selective four-year college (Pioneer Institute).
- U.S. government data show that only one out of every 50 prospective STEM majors who begin their undergraduate math coursework at the precalculus level or lower will earn a bachelor’s degree in a STEM area. Moreover, students whose last high school math course was Algebra II or lower have less than a 40 percent chance of earning any kind of four-year college degree.



Message to Superintendents

- An **accelerated mathematics** sequence should be available from **grade 6** on so that mathematically able students can be prepared to enroll in and complete a full Algebra I course in grade 8 and have a chance to consider a STEM career when they plan their mathematics and science coursework in high school.
- It’s important to catch students well before they get to college to bring them in to the STEM fold. Most schools are reaching down into the eighth grade to pull students into a STEM program through an **Early College High School**.
- STEM is not just science and math. It’s a **pedagogical shift** and how we actually teach today’s students. K-12 teachers should address real world problems, authentic projects, hands on activities, where the **students learn more than the content**.
- When we talk to Boeing, Microsoft, Google and others they tell us the same thing...they need more than just content. They need workers that know how to collaborate, how to problem solve with critical thinking, that have a strong work ethic, that know how to communicate both written and orally. When you talk about STEM education, you are talking about **incorporating those 21st century skills in content that is integrated**.



Building K-16 partnerships

CCSD Chosen as Only K-12 Partner for \$25 Million Cybersecurity Ed Grant

Friday, January 16, 2015

Vice President Biden Announces Cybersecurity Workforce Pipeline Consortium

Charleston County School District is thrilled to announce that yesterday evening, the White House released an announcement naming CCSD as the national K-12 partner in a new cybersecurity consortium consisting of 13 Historically Black Colleges and Universities (HBCUs), two national labs, and one K-12 school district.

