intel®

Unlocking New Technology Skills to Empower Tomorrow's Innovators

Equipping students with a strong foundation in technology, engineering, and computer science inspires and empowers young innovators to thrive in the knowledge economy and fuel innovation.

Executive Summary

The future of the world's economic well-being depends on the ability of tomorrow's innovators to solve pressing global problems through technology. A strong foundation in science, technology, engineering, and math (STEM) skills and access to technology are essential for seeding innovation and fueling economic empowerment for all. At Intel, we focus our global STEM education programs on technology, engineering, and computer science skills— where the largest STEM education gaps exist—and which are critical to our own future business success.

In short, disciplines spanning technology, engineering, and computer science are needed to fuel market-creating opportunities, seed innovation, enable economic empowerment, and meet the increasingly complex needs of a rapidly expanding and competitive knowledge economy. These fields enable game-changing innovations and spark disruptive creativity for the innovators of tomorrow.

Both formal and informal technology, engineering, and computer science disciplines are critical in responding to a trending skills gap challenge affecting markets across the globe. In fact, by 2018, jobs requiring STEM skills are projected to grow by 17 percent compared to 9.8 percent growth for non-STEM occupations.[1] By 2020, forecasts suggest there will be more than 1.4 million computing-related job openings to be filled in the U.S. alone.[2]

To ensure we have the right talent to fill the jobs of the future, we must continually equip and empower students to achieve success in STEM fields. This includes investing in programs to expand the pool of talent as well as eliminating an increasingly leaky pipeline that results in students abandoning STEM-based education before they reach the workforce. This is especially true for girls and women and other underserved learners pursuing education in technical disciplines.

Maker-Fueled Empowerment for Girls and Women

The maker revolution has opened up a host of new opportunities for girls and women showing interest in and pursuing STEM-based education and career paths. In fact, research suggests that girls and women involved in the maker space build a stronger interest—and greater skills—in computer science and engineering.[3]

How to Inspire Kids to Pursue Technical Education and Careers

- Hands-On Engagement: According to research conducted at Kids' Tech University at Virginia Tech's Virginia Bioinformatics Institute, positive hands-on experiences with technology and computer science-based activities can increase the probability that a child 9-12 years of age will choose a technical career.[5]

- Gamified Learning Environments: Beth Holloway, director of the Women in Engineering Program at Purdue University, says toys can help develop engineering skills in children. Toys and games that let them design and build something are a great first step in inspiring kids to consider a career in engineering or computer science.[6]

- Friend and Peer Support: Researchers have found that friends are an important influence on a student's decision to pursue science in high school.[7]

Why Work with Intel?

Today's young people are critical to ensuring a bright, global future. Preparing young students for that responsibility requires a solid, working knowledge of technology, engineering, and computer science disciplines that empower and equip them to create a better future.

Intel is actively working with government leaders, communities, educators, academia, NGOs, and other organizations across the globe to advocate and support the effective use of technology in education. By helping both educators and learners connect with technology solutions throughout the learning process, Intel promotes essential skill-set development, including digital literacy, critical thinking, and collaboration.

Addressing the Gender Gap in Technology for Engineering and Computer Science Education

Research continues to show fewer girls and women pursue or stay with engineering or computer science careers. Among a host of contributing factors, girls may feel uncomfortable in computer science or engineering classrooms primarily composed of boys.[3] Studies also indicate that middle schools and high schools need highly targeted programs for girls that offer hands-on learning environments[4]—enabling practical training in engineering and computer science. These same schools and educational institutions can also benefit from mentorship relationships to help girls connect with role models and advocates in technology and computer science-related disciplines.

Recommendations for Action

Governments and educational institutions must work together to:

- Engage with students early to inspire interest and passion for STEM-related disciplines

- Offer focused support for girls, women, and other underserved learners to close the gaps toward inclusion in technology, engineering, and computer science careers

- Encourage hands-on engagement, parent involvement, mentorship, and peer support to students pursuing STEM-related disciplines

- Infuse information and communications technology (ICT) and information literacy into education initiatives

Learn more about Intel's initiatives focused on technology, engineering, and computer science education at Intel.com/innovate.

Explore our programs:

Inspiring Girls and Women to be Technology Creators

Professional Learning for Teachers

Keeping Girls and Women on the Path to Engineering Careers

Seeding Innovation through the Maker Movement

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