



**STUDENT
RESEARCH**
foundation™



State of the Union

January 2018

A year of research in review

The **Future of Work** is Already Here but High School Students Aren't Ready

America's economic future is endangered – unless we as a nation take immediate action to better prepare each student for a new era of work. That era has begun. It looks different from any other experienced. The breakneck pace of technological innovation may render much of the substance of classroom learning irrelevant – but make the ability to learn quickly and think creatively essential for economic survival in a global economy marked by global collaboration – and competition. The competitors will be both human and automated.

Data from the **Student Research Foundation** sheds light on three critical ways we as a nation – educators, parents, employers, and youth – must take actions to fortify our economy in an era of uncertainty:

- Career education success measured by its ability to fuel aspirations, equip students them to compete against robots, and prepare for the 65% of jobs they will hold but do not yet exist.
- Infuse a sense of global citizenship in students who will be expected to compete and collaborate in real time in teams that cross boundaries and cultures.
- Ensure all Americans – regardless of resources – receive a high-quality, life-long education that provides ample home-grown talent if access to legal immigration shrinks.

The **Student Research Foundation** draws on data from high school students across the nation to recommend specific steps to prepare for the future.



► Career Education

Roughly 7 in 10 high school freshmen and 8 in 10 seniors have started **considering careers**. This is both encouraging – but concerning. Setting aside, for the moment, 1 in 5 seniors who have not yet started considering careers, there is cause for concern even for those with aspirations:

- It is hard to aspire to a job that has not yet been invented, but **65%** of students will eventually hold jobs that are not yet invented.
- Automation will replace **30%** of work functions – including substantial numbers of jobs to which many of these students aspire.
- The winners in this struggle among humans and machines will be those humans who can do what machines cannot yet do – think creatively most of all, but also collaborate, communicate, and think critically to identify problems that machines may ultimately solve.¹

As automation takes over predictable routine tasks previously handled by humans, workers will be called upon to contribute in different ways to spur innovation, to generate collaboration and thinking in ways that are not easily automated.

**1 in 5 high school seniors
have not yet started
considering careers**

We already see many examples of automation in our daily lives. Transformations in banking (e.g., remote check deposits, automated bill paying, routine electronic notifications) and commerce (on-line transactions, price comparisons and rapid home delivery) have radically transformed those industries. We are even seeing adaptations of brick & mortar retail stores (e.g., pre-ordering with curbside pick-up; in-store pickup of online orders; home delivery, etc.).

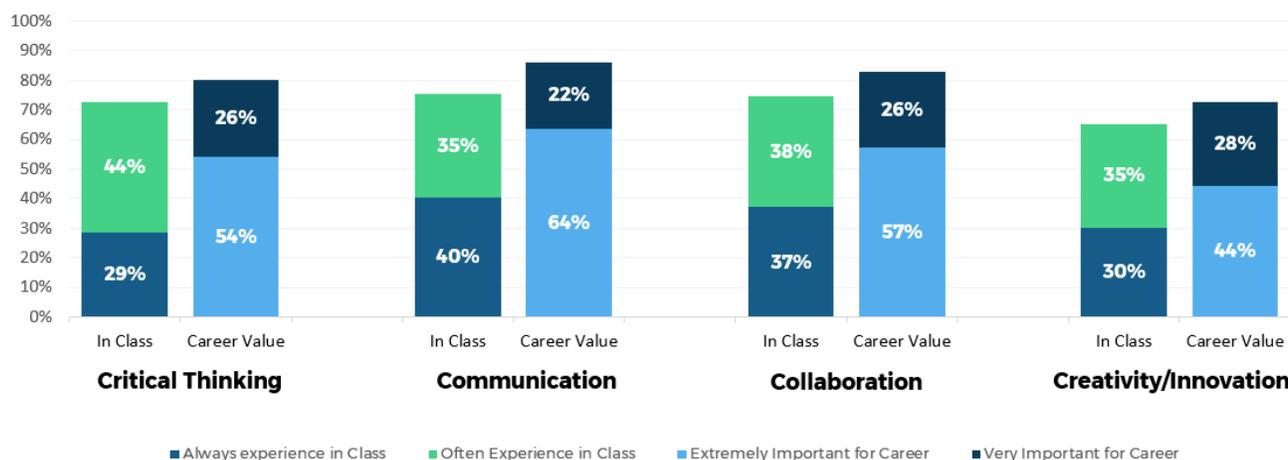
McKinsey and Company estimates more than 30% of job activities in 6 out of 10 occupations can be automated. Although the speed of transformation in the future may vary due to several different factors. Many are worried about job losses due to automation. The scenario has an upside as many new jobs and opportunities will be created. People will need to learn new skills. Employers and educational systems will need to adapt to support the necessary learning to assure that opportunities are fulfilled.

It is essential that we encourage more **creativity and innovation** among students. These skills are vital to a technology-driven continuously changing world of work. Experts agree this is a linchpin in the economy. Our data shows that students say schools are least effective at teaching creativity and innovation -- yet it should be considered at least as important as critical thinking, communication and collaboration to insure a positive future.

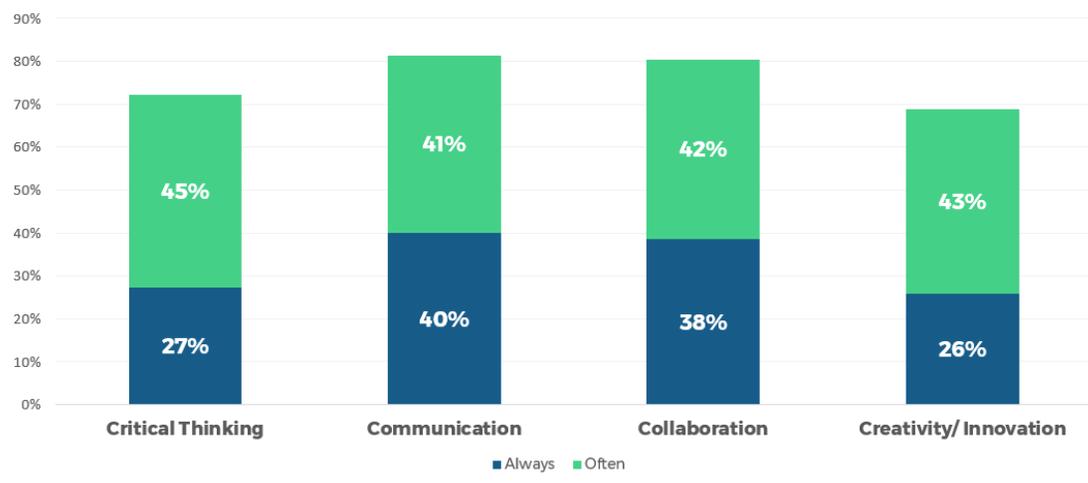
- Students are **least likely** to report they always have an opportunity to learn **creatively or to think critically**. Even more concerning, students are least likely to see creativity/innovation as extremely important for their careers. (See “*Skills Developing in High School Classes/Need for Career*” graph below)
- Teachers not only agree that students are less likely to experience creativity/innovation or use critical thinking in their class than communication and collaboration, but they rate the importance of creativity and innovation as 6th most important out of 9 qualities.

Skills Developing in High School Classes/ Need for Career

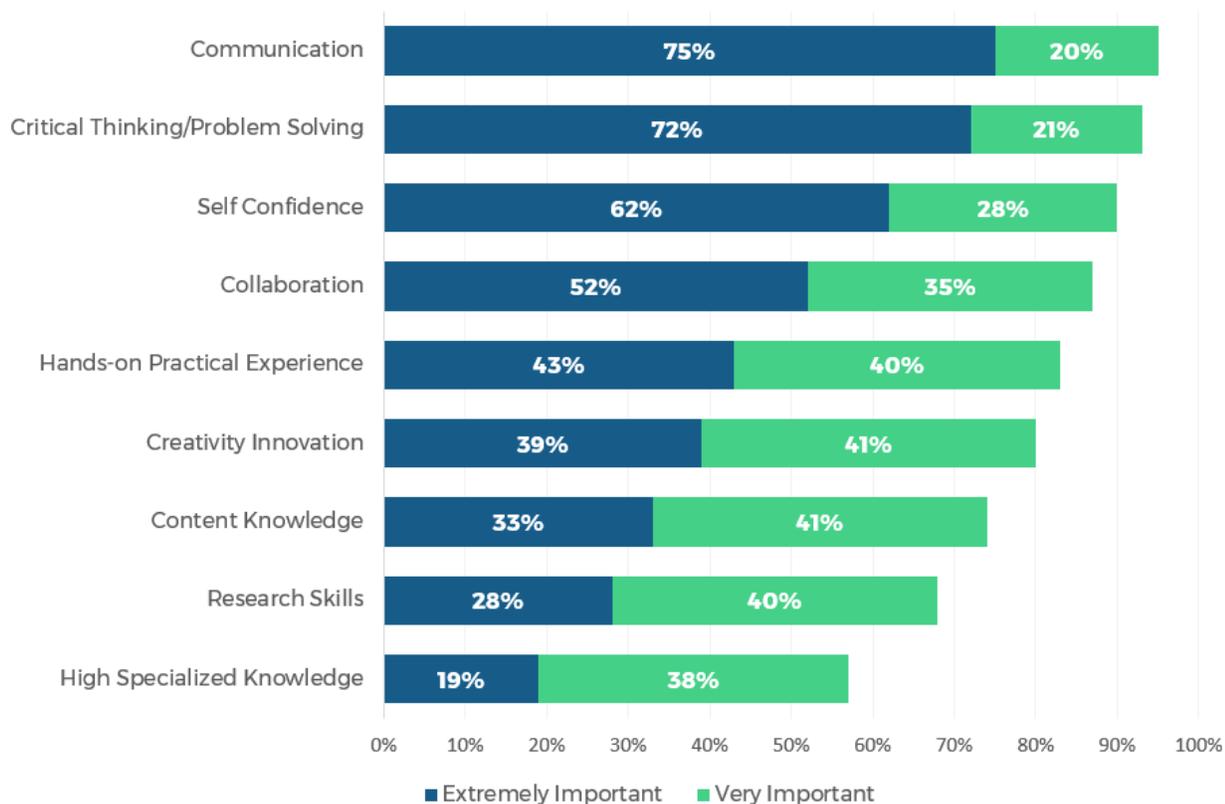
Students Rate Classroom Experience Lowest on **Creativity/Innovation** & Value it Least Often as Extremely/Very Important to Career



Teacher Assessment of Skills Students Are Able to Develop in the High School Courses They Teach



Important Skills to Students' Future Success



The economic wellbeing of today's students – and the US economy – depends on students being able to *think creatively & innovate*.

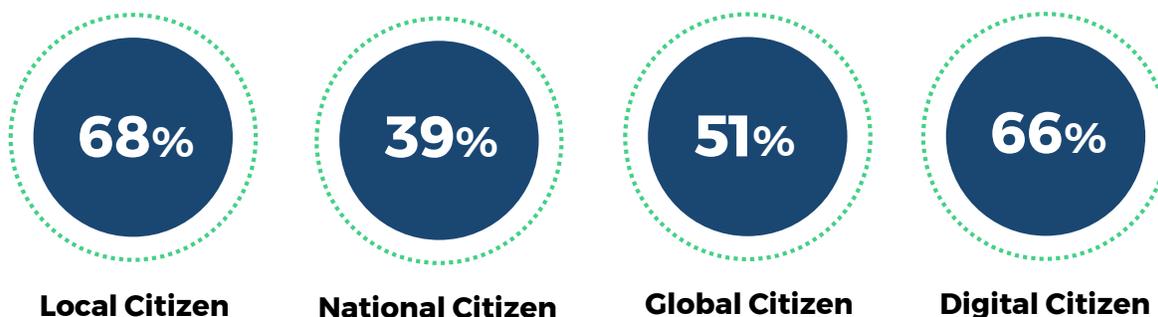
► Call to Action

The economy is global – yet students are not prepared for global citizenship!

The economy is inherently global – connected by instantaneous data and rapidly accelerating, disruptive change -- yet only half of students believe high school is preparing them to be responsible global citizens. Students more often say high school is preparing them for local citizenship.

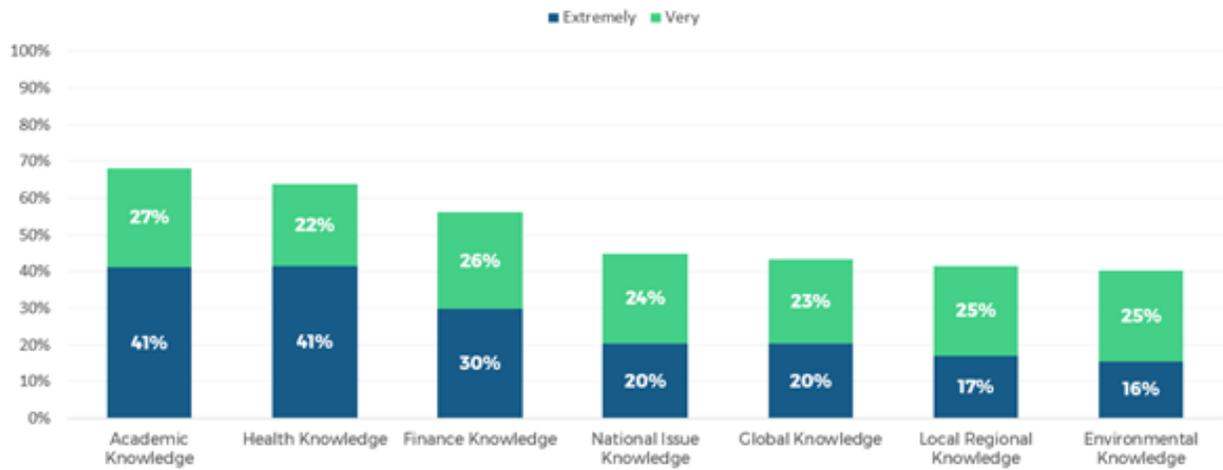
High School Students & Citizenship

How high school prepared students for different types of citizenship



Data collected in our studies show that high school students say that “**Academic Knowledge**” (68%) is most important in preparing for their future career. They value global issues and other important points less highly which runs counter to the arguments about what’s needed in the changing world of work. While it is certainly important that doing well academically is important for college admissions, it’s just as important that the other kinds of knowledge are vitally important for future careers!

Importance of Different Types of Knowledge for Future Career Varies Among Students



► Call to Action

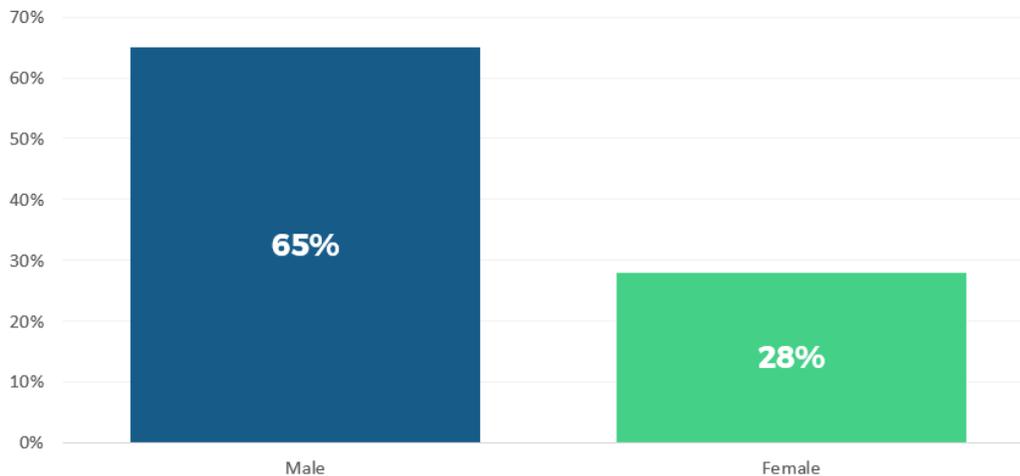
Students need to be engaged in global learning, as advocated by groups like **the Partnership for 21st Century Learning**.

We can't afford to lose any *talent!*

Equity in an increasingly diverse workforce is imperative— we can't afford to waste any talent. Our data show gender and racial/ethnic gaps among students' career aspirations and academic preparation they receive. These need to be remedied for the health of our economy.

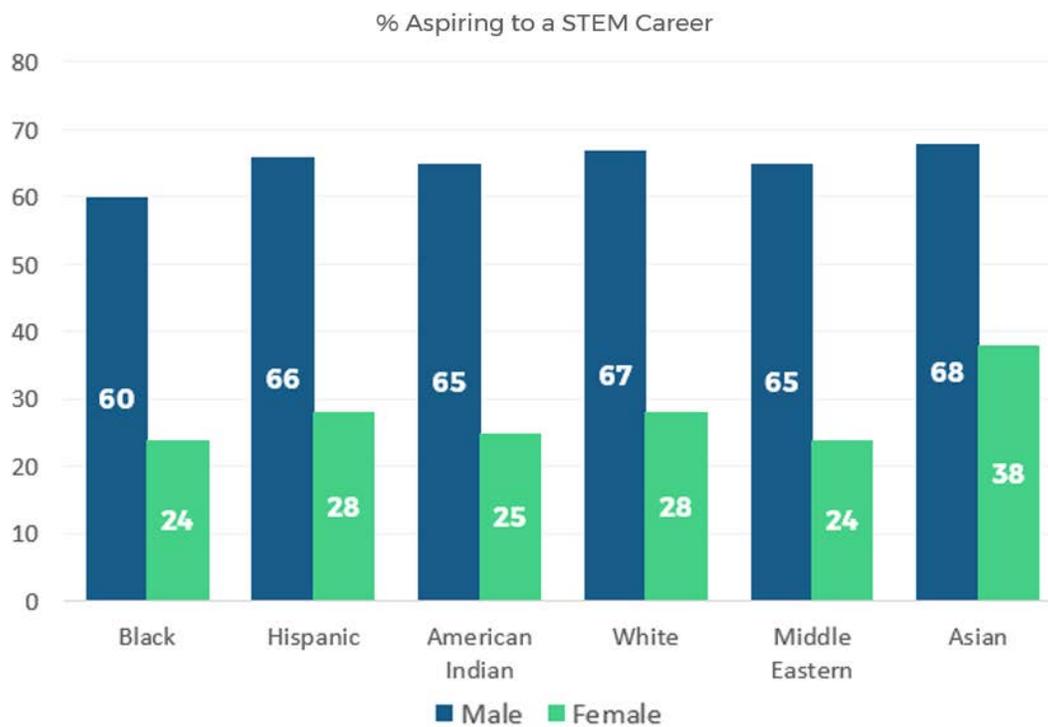
37 Point Gender Gap in STEM Aspirations

Threatens the Pipeline



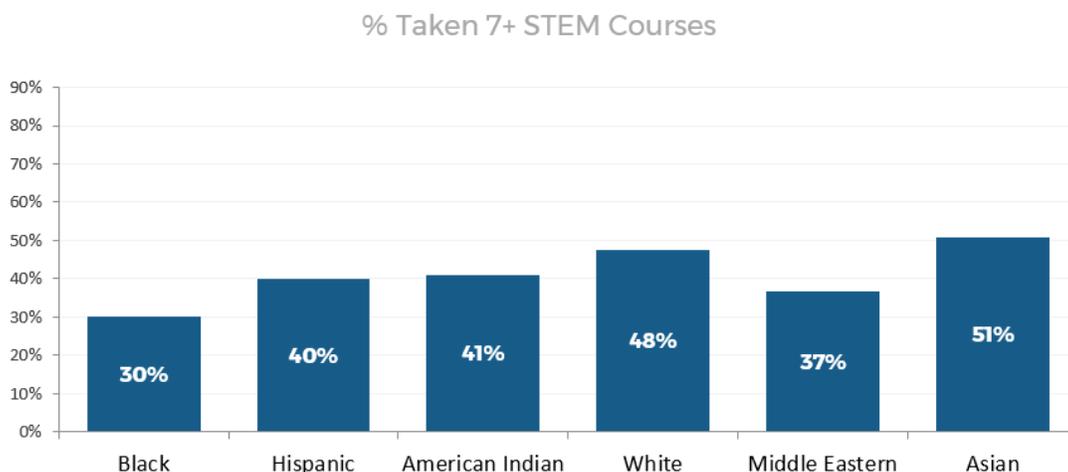
- Males are more than twice as likely as females to aspire to a STEM career

The Gender Gap in STEM Aspirations



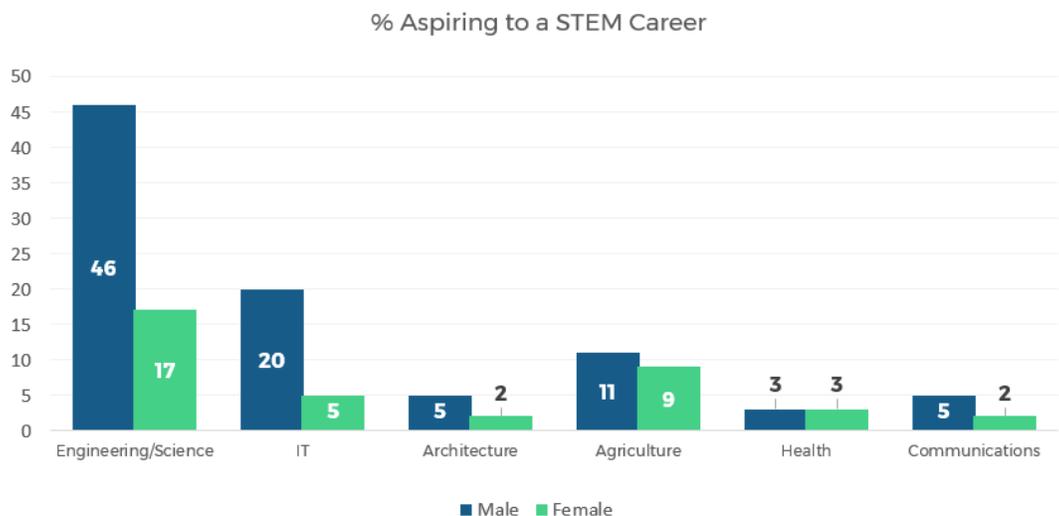
- Blacks remain the least likely to aspire to a STEM career

Among Seniors in the Class of 2017, significantly fewer Blacks have taken 7+ STEM courses



- By senior year, African-Americans are substantially less likely than others to have taken 7+ STEM courses -- the minimum many would say for post-secondary STEM education.

The Gender Gap is Concentrated in **Engineering & IT**



► Call to Action

Support the work of groups like the 50K Coalition (engineering**),
NCWIT and NGCP (**females, CS & STEM**), and more!**





Connect with the **Student Research Foundation** to voice your opinion!

Preparing students for college and future careers has never been more complicated. The Student Research Foundation is here to assist you and your students with understanding **options and trends** in both education and career pathways.

► What is **Student Research Foundation**?

The Student Research Foundation serves as the voice for young people's career aspirations.

We believe success comes from having clear goals and understanding for achieving those goals.

By defining career pathways and helping students reach those paths, the Foundation strengthens the nation, its economy, and its citizens.

► **Partners**



Learn more about our [partners here](#).

To learn more or participate in future studies, [contact us](#) or visit our surveys on [our website](#)!

References

1. <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>
2. <https://www.mckinsey.com/global-themes/future-of-organizations-and-work/what-the-future-of-work-will-mean-for-jobs-skills-and-wages>
3. <https://www.studentresearchfoundation.org/blog/which-careers-will-grow-which-will-go-away/>
4. <https://www.studentresearchfoundation.org/blog/buildingpathwaysandskills/>
5. <http://reports.weforum.org/future-of-jobs-2016/chapter-1-the-future-of-jobs-and-skills/#hide/fn-1>
6. <https://www.successperformancesolutions.com/65-percent-of-todays-students-will-be-employed-in-jobs-that-dont-exist-yet/>

Footnote

¹ <https://www.forbes.com/sites/jacobmorgan/2016/04/11/skills-education-succeed-fourth-industrial-revolution/#533015c02d0a>