New Dimensions of College and Career Readiness
Implications for Low-Income Students
New Dimensions of College & Career Readiness

Preface: Identifying a Need for Building 21st Century Skills in Higher Education

In May more than 50 representatives from industry, education, and philanthropy gathered at a summit hosted by College for Every Student (CFES) at its headquarters in Essex, NY to focus on ways to ensure that students, especially those from disadvantaged backgrounds, have the skills and training necessary to thrive in an increasingly competitive environment. The two-day event, sponsored by CFES, the GE Foundation, and Trinity College Dublin, challenged participants to explore New Dimensions in College and Career Readiness.

While Summit speakers covered a variety of topics, one underlying theme persisted: just attaining a college degree is not enough. Young people must also develop 21st century workplace readiness skills.

Summit speakers included Kelli Wells, Executive Director of Education and Skills for the GE Foundation; Robert Schwartz, a senior research fellow at the Harvard Graduate School of Education; and Dean Garfield, President and CEO of the Information Technology Industry Council. Representatives from Princeton University, U.S. Military Academy at West Point, Middlebury College, North Country Community College, Google, Jopwell, Ernst & Young (EY), the Clark Foundation, and the Hendrickson Family Foundation also contributed.

Summit participants agreed: the high school-to-college trajectory remains the likeliest path to achieving long term career results. College graduates, on average, still earn far more in their lifetimes than non-graduates, and for students from low-income families, higher education remains a portal to a world with opportunities to which they might not otherwise gain access.

However, simply steering students toward college isn't enough to ensure their success, summit participants warned. Emphasis must be placed on arming young job-seekers with the range of skills they will need to enter the 21st century workplace.

Today's employers seek individuals already equipped with practical work experience and technological savvy, as well as foundational skills like adaptability, problem-solving, and leadership. Yet employers find that large numbers of college graduates entering the labor pool aren't equipped with these Essential Skills. So while employers are struggling to find the talent they need, many young people are under pressure to secure employment and achieve career success.
“In order to prepare students to be competitive in a global economy, we have to do a better job of linking the educational pipeline to the jobs of the future,” said Wells, whose remarks opened the second day of the summit. Yet many of these 21st century jobs don’t exist today.

In his opening comments at the summit, College For Every Student CEO Rick Dalton remarked that today’s pace of change mandates that students graduate with portable skills suitable for a range of careers. “We chose the New Dimensions theme because the world is changing so rapidly,” said Dalton. “The dimensions of college and career readiness—communication, costs, regulations and requirements, technology, and colleges and careers themselves—are changing every day. In fact, change today is no longer linear. It is exponential. This requires that we adapt both quickly and strategically to ensure that our young people are college and career ready to meet a world of change and challenge.”

This white paper explores why it’s critical that we adopt new approaches to preparing students for the workforce. By analyzing challenges and observing best practices, we can develop new and innovative solutions that will position our young people for success in the workplace.

Emerging Themes

Exposing Students to STEM (Science, Technology, Engineering & Mathematics)

About five years ago, GE tasked a team of engineers in its oil and gas business with developing a new technology. After a year and a half of full-time work, “they were really, really close to getting it final and getting a patent for it,” said Wells. “But all of a sudden, a group of entrepreneurs based in Salt Lake City announced that they had created the same technology that GE was working on. It took them six months, and they got the patent before GE.”

Wells says the episode was a “wake-up call.” The lesson learned by GE was that multinational corporations aren’t just competing against each other any longer. They’re going head-to-head against smaller, nimbler competitors. Now, GE is asking: How can we build a culture of entrepreneurship inside a Fortune 10 company? The answer lies in creating a culture that develops deft, well-trained employees.

“We’re not preparing our kids for what they need to know going forward,” Wells said. “One of the Number One issues that we actually see for students who come into GE focuses on skills such as working on a diverse team environment, navigating the system, and building teamwork.”

GE isn’t alone. Summit participants agreed: Employers in every industry want workers who are fluent in the Essential Skills. Even as technology upends job responsibilities, the human touch will remain one skill that computers can’t replicate. As Jessica Stokes, an operations manager at EY Boston, said, “A machine learning platform can spit out a medical diagnosis, but there still needs to be some human that delivers that diagnosis and can talk with the patient about the implications of it. That’s the intersection of humanity and technology.”

Dean Garfield, President and CEO of the Information Technology Industry Council, a trade group whose 60 members include the world’s largest tech companies, corroborated what Wells and Stokes had to say on the matter, noting that the human element remains paramount even within a field such as technology.

“Most companies now are giving a lot of thought to being as rigorous in their talent acquisition work as they are in their innovation — because, in fact, talent acquisition is key to their innovation,” Garfield said.
While optimistic about employment options for skilled graduates in the future, Garfield also highlighted the workforce obstacles stemming from advances in technology. In his Summit discussion regarding Artificial Intelligence (AI), he noted that this emerging industry will open new pathways for computers to replace human input. Synthetic biology is still in its infancy, but it is poised to make huge changes in healthcare. Apple’s famous “Siri” has saved lives by dialing 911 for distressed iPhone users. The driverless car that seemed a far-off dream a few years ago may be commonplace on American highways by 2020.

“Technology creates great potential for making our lives more efficient, making the world more inclusive, improving our health and our ability to stay alive,” Garfield said. “But it’s also destructive in another way that we are coming to terms with in the technology industry — the disruption and displacement in work and the workforce.

The fundamental question for us is: What do we do about that?”

The specter of a displaced workforce resonates with Garfield, whose mother was able to send three children to college despite having only a second-grade education. She built a sizable nest egg and eventually drew a pension after working for 32 years in a razor-blade factory. Garfield is the first to acknowledge that advances in technology will likely kill jobs like hers.

The solution, according to Garfield and others at the summit, is to redouble efforts to create multiple points of entry for students to not only attend college but to pursue training in promising fields like STEM.

“What I hear most often from our companies is, yes, we need more students in STEM,” said Garfield. “But that doesn’t mean schools can afford to ease up on the traditional material they’ve always taught, either. The foundational skills that have made Middlebury great or Princeton great or Harvard great or any institution great — the analytical skills that are a core part of the curriculum at those institutions are as critical now as they’ve ever been. The key is for them to be supplemented by the additional competencies that are necessary to compete in today’s and tomorrow’s world.”

Exploring New Educational Pathways

The majority of the high-paying new jobs in the future will be in STEM. Not all of those jobs, though, will require bachelor’s degrees. The IT industry will need coders, for example, but it will also need support specialists. Healthcare will need doctors, of course, but it is desperate for physical therapists and skilled nurses. Students should be encouraged to consider careers like these, participants suggested.

To Harvard’s Robert Schwartz, those alternatives should include vocational training combined with traditional education. While two-thirds of new jobs will require more than a high school education, a third of that work will call for less than a four-year degree.

Indeed, middle-skills jobs are in demand, pay well, and do not require students to amass years of debt to pursue. Schwartz cited statistics whereby 31 percent of young workers with an associate’s degree out-earn their counterparts with a bachelor’s degree, and 43 percent of young workers with just a post-secondary certificate out-earn their counterparts with an associate degree.

“None of us believe the only criteria by which we should look at education is financial returns,” Schwartz said. “On the other hand, given the rising costs of education, it’s not an unreasonable expectation to want to know: what are the economic outcomes? What is the return on investment?”
Part of convincing students to embrace these middle-skills jobs involves simply demonstrating that they exist. Dr. John Fortune, a trauma surgeon at the University of Vermont Medical Center, said that many students he encounters believe that all medical careers require years of college and advanced training. “Kids who think they’re going into medicine think they have to become a physician, and that’s not the case,” said Fortune.

Radiology technicians, physical therapists, nurses and others can all earn wages far above the median salary in the United States while incurring far lower education costs than those who pursue medical school.

Summit speakers stressed that while four-year degrees provide the most options to students, we need to do a better job promoting alternative post-secondary programs.

“We need to create more alternative pathways into education,” said Cliona Hannon, director of the Trinity Access Programmes (TAP) at Trinity College Dublin. TAP works with 21 Irish schools to implement the CFES model, linking students with mentors to bolster their career aspirations, teach them the Essential Skills and lift their eyes to education beyond the equivalent of high school.

“Dental hygienists and X-ray technicians are solid, career-oriented jobs that provide fair salaries and a lot of flexibility,” said Julie Hendrickson, president of the Hendrickson Family Foundation.

Opportunity Through Mentoring and Networking

Katriona O’Sullivan, by many counts, never should have made it inside a Trinity College Dublin classroom.

She grew up in an impoverished family. Pregnant and homeless, she left school at 15. At 23 she began working with Trinity Access Programmes (TAP), an initiative that guides students from underserved communities onto the university track. O’Sullivan eventually gained admittance to Trinity through TAP. She earned a bachelor’s degree from Trinity, and then a doctorate, and today, as coordinator of research and impact for TAP, she’s a lecturer at the 424-year-old institution.
While O’Sullivan’s own story ends well, her work is motivated by the perspective she’s gained from working with students from communities much like the one in which she grew up. O’Sullivan knows they have even farther to go than they realize.

“Now that I work in access and wider participation, I’m much more aware of how little I had in my community,” said O’Sullivan, who cautions that excellent schooling can’t overcome the myopia that comes from low expectations. “It’s very important, from a higher education view, that we consider opportunity and not just knowledge.”

At TAP, those opportunities are laid out in programs such as Pathways to Law, which gives students access to individuals already in the profession. Over the course of after-school programs and summer sessions, students meet judges, lawyers and other members of the legal profession, and they begin to see themselves in those careers.

That’s good for students and law firms, too, that are looking to build diversity, part of any successful organization today. Networking is a component of these sorts of programs, and networking provides mentoring, pathway programs and a map that students can follow to achieve career goals.

“One of the reasons we get our alumni, who do all kinds of different things, to get together with our own students is so they understand not just what our alumni do, but how they could do it as well,” said Bill Fitzsimmons, Dean of Admissions and Financial Aid at Harvard College. “Quite honestly, the run-up to get certain kinds of jobs sounds like the secret handshake. It’s very complex. Forging relationships with students, and getting into middle schools and high schools, is very important.”
**Industry-Education Partnerships**

Schwartz also urged industry to collaborate with educators on ensuring that all high school students gain work experience before going to college. Those jobs won’t necessarily translate to a career, but they will provide students with valuable qualities such as punctuality and teamwork that employers seek. They will also give students invaluable networking opportunities.

“Every young person needs something beyond a high school education, and every young person needs to be prepared for a career,” Schwartz said.

Considering how few teenagers today have after-school or summer jobs — just 26 percent of teens get any type of work experience, and students from underserved communities are least likely of all to get work — it is that much more important to increase outreach to employers to begin internships, job shadowing, and training opportunities.

“What we found at the end of the day was that all of a sudden you saw these students who were getting through the K-12 pipeline going on to college, but two things were happening,” Wells said. “They either didn’t know what they wanted to do when they hit college or they were really starting to become concerned about, ‘What do I do once I graduate from college?’ And we were finding some students were not getting the jobs or the careers that they wanted.”

According to Doug Bauer of the Clark Foundation, that kind of direction rarely comes from high schools themselves. “In low-income communities, college and career guidance can be almost non-existent,” Bauer reported. It is vitally important that groups like CFES engage these underserved populations to ensure that they have access to necessary resources that will aid their future college and career opportunities.

**Action: Implementing Strategies to Improve Career Opportunities**

Summit participants identified five key strategies to aid students — particularly those from low-income backgrounds — in becoming college and career ready:

1. **Foster Mentorship Programs**

Speakers repeatedly spoke about the power of mentoring. “We need mentors to be the ones to tell you that there is opportunity and that you need to take it,” said Porter Braswell, Chief Executive Officer and founder of Jopwell, a startup that pairs qualified minority job candidates with companies seeking talent. Several summit participants emphasized that students in underserved communities are missing out on 21st century careers simply because no one has opened their eyes to the possibilities around them. When students from low-income backgrounds are asked what they want to pursue, the answer often eludes them because they don’t know the possibilities. As Julie Hendrickson said, “you don’t know what you don’t know.”

Thus, one of the most important things a mentor can do is give their mentee a bigger vision of what their future can be.

O’Sullivan attributes a mentor for opening the door for her to attend Trinity College Dublin. “At 22, I met a woman who was also a single mother on welfare who had just completed TAP and was starting a degree in law,” recounted O’Sullivan. “She became my mentor. She told me to believe in myself. She showed me how to apply to Trinity and what language to use. She told me it was ok to be afraid.”

Mentoring is a foundational component of both the TAP and CFES programs. CFES has helped nearly 100,000 low-income students become college ready through mentors who are peers, college students, business and community leaders, and teachers. At CFES and TAP, mentors demonstrate that there are pathways to achieving dreams that students may never have realized were waiting for them, as well as help them develop the Essential Skills they need to enter the 21st century workforce.

2. **Develop Essential Skills**

Motivation, aspiration, teamwork, grit, leadership, adaptability — students who make the leap to college and career draw on these Essential Skills over and over again as they overcome obstacles and achieve their goals. “What we’re finding is that candidates who are thriving are the ones that have that grit and want to be successful,” said Porter Braswell. “There’s only so much we can do. Eventually it comes down to the actual candidate — that person has to have the thing that makes them want to be successful.”
College For Every Student and Trinity Access Programmes have helped thousands of students develop the Essential Skills through mentoring, leadership training, internships, community service, and other activities. The impact of these programs is self-evident: 98 percent of TAP’s students attain four-year degrees, while 95 percent of CFES students pursue college.

3. Build Computer Competency

“Millennials entering today’s workforce are often technology dependent rather than technology savvy. They rely on computers, tablets, SmartPhones, and the programs that run them to function in the modern world, and yet they have little understanding of how these devices and programs actually work,” said Ernest Stretton, retired superintendent of schools in Lake Placid, NY. It seems that most teenagers are adept at texting, Snapchat, and Instagram, but those are not the tech skills companies value most. Employers would rather see a candidate who knows how to craft a coherent email or build an iPhone App than one who is up-to-date on the latest social media trends.

The reasons why companies are looking for employees who understand how the technology works run deeper than the utilization of the technology itself. What employers are really after are the critical thinking and problem-solving skills necessary to deploy these computer systems and equipment. Computer coding, for example, is a skill many companies want, and yet the point of learning to code is not just to turn out legions of coders. When students delve into computer science, Wells said, “you start getting into things like problem-solving. You start getting into things like innovation and entrepreneurship and thinking about creativity.” These critical thinking skills are at the root of what today’s companies are looking for in young candidates.

4. Pursue STEM-based Study and Careers

In the United States, low-income students are ten times less likely to attain a STEM degree than their high-income peers. Given that the majority of the new high-paying jobs in the United States, Ireland and other countries will be in STEM, it’s critical that we fix this broken pipeline.

CFES has worked with several dozen schools in a STEM-focused program aimed at increasing these numbers by exposing low-income students to STEM study and careers. One example is the CFES partnership with the U.S. Military Academy. In each of the last three years, a dozen CFES middle-school students from the Tampa area attended a three-day STEM camp at West Point. The students stayed in barracks, tested virtual vehicles with instructors from the Department of Systems Engineering, studied projectile motion with an air canon, went on solar walks, and learned how hovercraft work. Don Outing, Director of West Point’s Center for Leadership and Diversity in STEM, told summit participants that programs and partnerships “like the one with CFES are good for West Point, low-income students, and our nation.”
Fortune, trauma surgeon at the University of Vermont, recommended specific strategies to move young people toward healthcare professions: make the study of healthcare exciting; provide shadowing experiences for students in local hospitals; and have students learn simple procedures like taking blood pressure. These strategies, like the West Point program, are successful because they provide hands-on experience and basic building blocks of skills that can be deployed in a variety of positions within a specific industry or field.

5. Build Business-Education Partnerships

Jessica Stokes discussed EY’s mentoring partnership, College MAP (Mentoring for Access and Persistence), and how the program has benefitted both students and professionals alike. Established in 2009, College MAP is an education-business partnership that has reached more than 1,200 low-income youth in 30 urban schools across the United States. The College MAP program matches small groups of mentors with high school juniors, and the relationships continue into the students’ senior year of high school and throughout their college education. EY professionals serve as professionals to provide insight and guidance to the students in the program, while balancing work and a long-term mentoring commitment, and the group of students becomes its own supportive learning community.

Partnerships between businesses and schools become even more critical as local and state governments relinquish funding responsibility to non-profit organizations, said Doug Bauer, Executive Director of the Clark Foundation. His own organization has supported a high-impact CFES initiative in the Leatherstocking region of upstate New York, where students visit area colleges and participate in mentoring programs, service activities, and leadership training each year to prepare themselves for the future.

Schwartz, who has led national studies on America’s future prosperity, urges businesses to provide internships, job shadowing, and actual work opportunities for high school students. Companies need to play a critical role in helping students become career ready and the benefit of building a talent pipeline is obvious.

Conclusion

The 2016 CFES New Dimensions summit focused on how to ready students for college and careers at a time of exponential change. Rick Dalton opened the summit by reflecting on a few of the technological changes over the last 25 years — the internet, mobile technology, alternative energy sources. Over the next five years we will encounter the same pace of change that was compressed into a quarter century. Speakers like tech CEO Dean Garfield and trauma surgeon John Fortune foreshadowed some of what lies ahead: Artificial Intelligence will open pathways for computers to replace human input. Synthetic biology will transform healthcare. We will need fewer doctors and fewer people to drive trucks and taxis, clean buildings and manufacture goods.

These changes will transform the workplace and they require that our young people, especially those from low-income families, are prepared for a new world of opportunity and challenge that lies ahead.
Listed previously, these five strategies, which emerged from summit feedback and discussions, are critical to readying our young people for the new dimensions of college and career readiness. We must:

• Ramp up mentoring programs.
• Help students master the Essential Skills such as raised aspirations, teamwork, grit, perseverance, and adaptability.
• Place an increased focus on technical and computer science skills.
• Build STEM awareness, interest, and readiness.
• Provide out-of-the-classroom experiences such as internships, apprenticeships, and jobs.

Several summit participants noted the critical importance of narrowing the skills gap, defined as the mismatch between workers’ skills, readiness levels, and job requirements. Considering that two-thirds of tomorrow’s jobs will require some form of college, summit attendees agreed that we must respond quickly and strategically to put students on the post-secondary pathway.

We must play a role in helping young people develop the Essential Skills and expose them to the 21st century workplace, especially in the STEM realm. Businesses must join EY, GE, Google, and others to engage with students. CFES has committed to creating 100 business-education partnerships in the next two years that will help low-income students become college and career ready.

Exponential change is the new normal. We need to be proactive. This requires that every one of us — business, education, community, philanthropic leaders, alongside our students — step up and get ready for new dimensions of college and career.