



— Getty

# Cybersecurity

## EDITOR'S NOTE

The technology sector is behind in recruiting cybersecurity professionals. This Spotlight will empower educators to begin identifying the next generation of tech leaders; dive into how aptitude tests can be used to highlight hidden skillsets among your students; discover where K-12 education fits into the mix of an advancing world; gain insight on how you can positively influence the career goals of students of color and hear from top company executives about expectations.

Aptitude Tests: Are They Effective In Opening Students' Minds to More Career Paths?.....**2**

What's the Purpose of K-12 Education In the Age of Automation? .....**2**

How to Get More Students of Color Into STEM: Tackle Bias, Expand Resources .....**4**

Top U.S. Companies: These Are The Skills Students Need in A Post-Pandemic World .....**6**

Jobs at All Levels Now Require Digital Literacy. Here's Proof.....**9**

The Pandemic Is Shaking Up The World of Work: Schools Need To Help Students Prepare.....**12**

## OPINION

Apple Exec on Rewiring Education.....**13**

Published on April 27, 2021

## Aptitude Tests: Are They Effective in Opening Students' Minds to More Career Paths?

By Alyson Klein

**B**oys grow up to be engineers and computer scientists. Girls become nurses and teachers. That seems like an antiquated notion in a world where many students are encouraged to explore a wide range of careers. But the stereotypes persist.

Aptitude tests—which seek to measure students' potential in a particular field—may be one way to help students from pigeonholing themselves into career paths early on, a study published in Cambridge University Press found.

Aptitude tests that evaluate students' strengths, as well as examining their passions and personalities, are gaining favor in school career counseling programs.

To understand how these tools may nudge a particular student toward a field they may not have considered—or even heard of—researchers at the University of Missouri conducted an independent review. The study compared 7,222 high school students' natural aptitudes with their self-reported interests in four areas: manufacturing, computer technology, construction, and health care.

For healthcare, the study looked at both a student's capacity and interest in direct patient care jobs (such as being a doctor or nurse) and more technical jobs in the healthcare industry (think X-ray technician.) The study included 3,619 females and 3,603 males.

The researchers used both aptitude and interest tests created by YouScience, one of a handful of interest and/or aptitude tests school districts are using to help guide students' career exploration. (At the researchers' request, YouScience funded a stipend for a research assistant to help with the project.)

Just asking kids what their interests are and matching that with a particular set of careers can be helpful, the researchers say. But giving students an aptitude test that measures their potential in an array of fields might give them a nudge to consider jobs that they could excel at, but aren't as familiar



with, or didn't think they could be good at.

"If you just look at people's interest scores, they fall into areas which I call what they are exposed to, what they can see based on their life experiences. Many young people are exposed to very little," said Richard Feller, a professor emeritus at Colorado State University who worked with the Missouri researchers on the study. Students' different life experiences create an "exposure" gap, he said, that aptitude tests can help bridge.

This is especially true when it comes to women and STEM fields, the study found. Just 12 percent of women are interested in careers related to information technology. But aptitude tests show that just as many women as men have the capability to excel in that field.

The study found that more than four times as many girls were found to have potential in manufacturing, more than seven times more in construction and technical health care fields, and two times more in computer technology than an interest inventory alone would show. What's more, males were more than 1.6 times more likely to show promise in patient care positions.

"It opens up all kinds of opportunities for students who have been less fortunate, who have been stereotyped, come from areas of little enrichment, or [have] maybe faced gender issues," Feller said. "We've got great potential that we're [not] tapping into." ■

Published on March 22, 2021

## What's the Purpose of K-12 Education in the Age of Automation?

By Alyson Klein

**F**or the past decade, schools have placed significant emphasis on getting students ready for careers. The problem is that it's not clear what kind of jobs will be available in ten or 20 years. So what should that mean for K-12 teaching?

Daniel Susskind, a fellow in economics at Oxford University, tackled that question—and many others—in his book, *A World Without Work: Technology, Automation, and How We Should Respond*. In it, he describes a possible future where liberal arts education would take on increasing importance as people look for meaningful ways to spend their time in a world where machines take on many of the tasks humans do today.

Education Week caught up with Susskind on Zoom for his thoughts on where the world of work is headed. This transcript has been edited for brevity and clarity.

### What do you expect the world of work to look like when today's 2nd graders are entering it?

Every day, we hear stories of systems and machines that are taking on tasks and activities that until recently we thought only human beings alone could ever do. Making medical diagnoses and driving cars. Drafting legal contracts and designing buildings. Writing news reports and composing music. What does this mean, not only for the vast majority of us at the moment whose job is our main, if not our only, source of income, but for also all those young people out there who are looking ahead to the future of work?

It's important to be clear [that if readers] pick up the book expecting an account of some big technological bang after which there's no work left for human beings to do, the robots have taken all the jobs, they're going to be bitterly disappointed. Work is going to remain for some time to come.

The argument I'm making is a slightly dif-



## District of Columbia Public Schools keeps staff and students connected with Microsoft Teams

### Customer

[District of Columbia Public Schools](#)

### Products and Services

[Azure Active Directory](#)  
[Microsoft 365 A5](#)  
[Microsoft Intune](#)  
[Microsoft Teams](#)  
[Microsoft Teams audio conferencing](#)  
[Microsoft Teams meetings](#)  
[Microsoft Teams Phone](#)  
[Microsoft Whiteboard](#)  
[Office 365 Calling Plan](#)  
[Surface Go with LTE](#)  
[Teams Platform](#)

### Industry

[K-12](#)

### Organization Size

[Corporate \(10,000+ employees\)](#)

### Country

[United States](#)

July 12, 2021

To support more than 65,000 staff and students during the pandemic, the District of Columbia Public Schools (DCPS) deployed Microsoft Teams with Teams Phone. The platform was ultimately used to drive remote learning for 117 schools across the district—and provide more flexible learning options for the future.

When it came to managing responses to the COVID-19 pandemic, DCPS was ahead of the curve. Well before COVID-19 struck, everyone in the DCPS network had already been licensed for Microsoft 365, which provides access to Microsoft Teams. The problem was that many students in DCPS lacked the hardware to use these tools.

With a solid plan for devices and connectivity in place, DCPS was ready to ramp up its use of Teams.

For years, DCPS staff and students had been using a mix of communication platforms, including Teams, Skype for Business, and other third-party tools like Webex. With COVID-19 requiring a widespread move to remote working and learning, DCPS decided that implementing one platform—Microsoft Teams Platform—made more sense.



"Unifying everyone in Microsoft Teams provided us the phone, collaboration, and security capabilities that our school district needed," says Prashish Shrestha, Director of IT Infrastructure and Operations at District of Columbia Public Schools.

### Providing crucial connections with Teams Phone

One capability that proved particularly valuable was Teams Phone. This provides Teams users the ability to make and receive calls to and from landlines and mobile phones via public switched telephone networks.

When the district went remote, teachers no longer had access to onsite school phones. DCPS wanted to ensure that they didn't have to use personal phones for work calls. "Microsoft Teams Phone gave us a fast, convenient new way for teachers to keep in touch with students and parents during the pandemic," says Mohammad Asim, Subject Matter Expert for Mobile Device Management and Office 365 at District of Columbia Public Schools.



And that was just the beginning. To better support staff and students working and learning remotely, DCPS had even bigger plans for Teams.

### A complete remote learning platform

Prior to COVID-19, DCPS had also been working on integrating Teams with its other school systems. In this way, Teams could function as more than just a unified communications platform—it could serve as a fully integrated learning and teaching hub.

For teachers, this meant convenient integration with Aspen, the student information system (SIS) that DCPS uses. To simplify this integration, DCPS used Microsoft School Data Sync, a free service in Microsoft 365 Education. School Data Sync ingests SIS data and then automatically creates Microsoft 365 groups and teams directly in Teams.

Today, when DCPS teachers sign in to Teams, they see their school rosters automatically load in Teams. With School Data Sync, these teams are constantly and automatically synced with new data coming in from Aspen. By joining these groups with Azure Active Directory (Azure AD) and managing them with Microsoft Intune, DCPS IT has also been able to streamline and improve Microsoft 365 licensing for staff and students.

Along with Aspen, DCPS also integrated Teams with Canvas, its learning management system. When students select a day of the week in their schedules in Canvas, they see links to their related content in Teams. When they select a content area, they also see their assignments. "Canvas forms the base of our students' curricular experience, and Teams works seamlessly with it," says Karen Cole, Deputy Chief of Academic and Creative Empowerment at District of Columbia Public Schools.

## A smooth deployment

Like all transition plans during COVID-19, speed was paramount for the district. And with Teams, DCPS was able to move quickly. In fact, the DCPS IT team was able to transition all 65,000 of its staff and students to Teams in just two weeks.

A few specific tactics helped ease the transition. Since Skype for Business usage was low, and some staff were already using Teams, the DCPS IT team decided to jump directly to Teams Only mode rather than transition both platforms in parallel.

This was the fastest way to deploy Teams, and by using Teams Only mode, the DCPS IT team was able to deploy Teams Phone right away for teachers.

The deployment was further accelerated through the purchase of a Microsoft Teams Calling Plan, which provides Teams licenses to provision each teacher a new phone number. Conveniently, teachers can use their new DCPS phone numbers on either their PCs or through the Teams app on their mobile devices. In addition, all staff were provided Microsoft Teams Audio Conferencing, enabling one-touch dial-ins for meetings.

For people who hadn't yet started using Teams, there was much to learn in a short period, but DCPS had them covered. The Office of Teaching and Learning launched an aggressive change management program for both students and staff that included instructional videos, webinars, and in-person training sessions. Because Teams is updated constantly—which was especially true during the early days of the pandemic—DCPS made sure that training materials were also updated frequently. This helped ensure that everyone could make the most of their Teams environment.

The plan worked. Both staff and students were happy with Teams as a working and learning platform—and so were parents. Not only did usage increase, but people used Teams to do more than initially projected.

"When we saw people asking about advanced functionality like breakout rooms and Microsoft Whiteboard in Teams meetings, that's when we really knew that our adoption plan had been a success," explains Asim. Teams breakout rooms help teachers to provide more personalized, one-on-one instructions, and Whiteboard in Teams meetings is used to enhance virtual classroom learning and interactions.

## Tighter control

As part of the district's deployment plan, Teams ran on the same tenant for staff and students. This made for easier collaboration and better management of the platform, but it also required some fine-tuning of security. Policies that worked for staff weren't necessarily right for students.

Take chat, for example. When COVID-19 struck, and Teams adoption grew, students started using Teams chat more and more for personal use. This was against DCPS policy. The DCPS IT team blocked chat between students, but several loopholes in Teams at the time enabled students to get

around those policies. Additionally, DCPS didn't have the right tools for monitoring offensive language in Teams chat.

With later Teams releases and a move to a new Teams license, however, DCPS was able to resolve these issues and get to the necessary level of security. "There was definitely a learning curve when it came to Teams security, but we've now been able to achieve the control and privacy we need for our staff and students," says Shrestha.

Along with more effective control of chat, DCPS also established better controls around the creation of teams, limiting this option to teachers and staff. In addition, DCPS used advanced security features to better control communications and access by volunteers—an external workforce of almost 3,000 classroom aides, social workers, counselors, custodians, and other support staff.

### Planning an even better future with Teams

As the current school year wraps up, DCPS anticipates that most staff and students will be returning to its offices and schools in the new school year. The plan is to keep working with Teams.

To prepare for that future, Shrestha and his team are refining their Teams security model and related policies to support an even wider range of user scenarios. They are also introducing new productivity and collaboration features within Teams.

"Our staff and students have really embraced Teams as our primary tool for remote learning and collaboration," says Shrestha. And as he is eager to point out, "Teams will continue to be an important part of how staff and students work and learn together at DCPS—whether they're onsite or working from home."

Find out more about [District of Columbia Public Schools](#) on [Twitter](#), [Facebook](#), and [YouTube](#).

View the story online at:

[Microsoft Customer Story-District of Columbia Public Schools keeps staff and students connected with Microsoft Teams](#)



ferent one, which is that as we move through the 21st century, because of these technological advances, more people might find themselves unable to make the sorts of economic contributions to society that they might have hoped, or indeed, expected to make in the 20th century.

**So it sounds like we don't really know what the world of work is going to look like for today's 2nd graders, but machines will probably replace many jobs, or at least a lot of the tasks.**

Technologies don't destroy entire jobs in an instant. If you were to ask me what jobs you think are most at risk of automation, I am reluctant to give you a list because that isn't what technology does. What it does is, in a far more bottom-up, gradual way, it displaces people from particular tasks and activities, but it can also make some tasks and activities more valuable and more important for human beings to do.

There's a sense that what technology does is it takes on the boring stuff and leaves us human beings with the interesting stuff. But, actually, that's not right. And just one example, if you look at many of the tasks and activities that are currently hardest to automate, many of them involve some kind of interpersonal interaction and as a result, many are found in pretty low-paid service roles. Retail assistants. Waitresses. Baristas. Receptionists. Security-guards and so on. So there's not always as comfortable a correlation between how fulfilling we find those tasks and how readily they can be automated. And yet sometimes that's how it's talked about.

**In your book, you note that policymakers, including former President Barack Obama, called for more people to attain post-secondary education in order to compete with machines. Do you agree that this is our best response at the moment to the idea of technological unemployment?**

It's useful to distinguish between two very different worries we might have about the future of work. One is the dramatic one that you often read about in popular commentary, which is where there just aren't enough jobs to be done, full stop. And that I call structural technological unemployment.

There's also another type of technological



— Courtesy Photo

**“**It's useful to distinguish between two very different worries we might have about the future of work. One is the dramatic one that you often read about in popular commentary, which is where there just aren't enough jobs to be done, full stop.”

**DANIEL SUSSKIND**

Fellow in economics Oxford University

unemployment, where people don't necessarily have the skills and the capabilities to do [available] jobs. There's a skills mismatch. Education responds to one of the main frictions in the labor market, which is that people just might not have the right skills and capabilities to do the work that needs to be done.

Another reason that people might not want to be able to do the work that has to be done is place mismatch. People just don't live in the same geographical place that work is being created. [That's] particularly important for blue collar roles, rather than white collar roles. Many blue collar workers rely on being in a particular place and for that place to be succeeding economically and creating the kind of opportunities that will lead to you finding employment. It's not obvious how

more education necessarily engages with that place mismatch.

And then the sort of final mismatch is what I call the identity mismatch. People very often have a very particular conception of themselves and they might be willing to stay unemployed in order to protect the identity. And a good example of this is if you think of men of working age in the United States displaced from traditional manufacturing roles by new technologies. There are some who would say they would rather not work at all than take up so-called 'pink collar work.' Many of the jobs that are hardest to automate and where there's a lot of job growth are disproportionately done by women, whether it's social care, whether it's nursing, whether it's pre-school and kindergarten teaching. So, there is an issue of identity there. There is work available but for various reasons these men don't want to do it. It's not obvious to me how education, traditionally understood, engages with these identity mismatches between your perception of yourself and the work that's available to be done.

There's also just the more general problem, which is that if we look deeper into the 21st century, and we think it's true that the problem might not be that there's enough jobs and people can't do them, but just there aren't enough jobs full stop for various reasons. If we take that seriously, then again, it's not clear to me that more education is necessarily the best response to that challenge.

But I don't think that's the challenge we face. So for now, the challenge is frictional technological unemployment and I think the main source of it is skills mismatch and that's why education is still, to my mind, so important.

**If you were advising a high-schooler on the future job market, what careers or fields are a relatively safe bet to escape automation?**

Very broadly, there's two strategies. Either you want to become the sort of person who can compete with these systems and machines, who can do the sort of things they cannot do yet. Clearly, there are large domains of human activity that remain out of reach of even the most capable machines. Interpersonal faculties. Creative faculties. Problem-solving faculties. Communication faculties. Even though machines are indeed making inroads on each of these things, by and large, if you look at the labor market, jobs that involve those sorts of faculties are



among the hardest to automate.

The second strategy is that instead you become the sort of person who can build these systems and machines, who is capable of designing and operating and understanding how these systems and machines work.

We're not taking seriously enough the challenge of either teaching people to compete or teaching people to build.

**You write that schools need to stop teaching algebra in ways that apps like Socrates can do kids' homework for them. Can you elaborate what you mean by that?**

[With some apps], you can take a photo of quite complex math problems and it will scan it, use character recognition technology, and it just gives you an answer. And it just strikes me that in a world where these sorts of technologies are increasingly available, that ought to be an implication for how we teach math. We shouldn't be teaching math in a way that people can be able to just take a photo of a question and come up with an answer and that's it. We should be pushing math instruction in a way that takes advantage of these technologies, in much the same way that the calculator revolution did the same for the way in which we taught math a few decades ago.

It's not, 'let's stop teaching math.' It's how can we use these technologies to teach math in a different and more useful way, given where the technologies are.

**In your book, you are enthusiastic about the potential of technology to personalize learning for students. You write that teaching "to the middle" ability level is essentially, teaching to no one. But there's still a lot of skepticism among educators about personalized learning. They feel like it overemphasizes technology. They don't necessarily feel like their students are doing any better than they were before using personalized learning approaches. Given that skepticism, why are you a fan?**

I'm a fan for two big reasons. We know that an average student who receives one-to-one instruction from a human being is

going to outperform about 98 percent of ordinary students in a traditional classroom. So we know that one-to-one instruction with a human being is incredibly effective. But of course one-to-one instruction, with a human being, is not affordable or scalable. So what do we do? Well, this is the promise of these technologies, they offer us a glimpse of how we might replicate that one-to-one interaction in a way that is scalable. ... That promise is what makes me excited.

The technologies we have today are the worst they are ever going to be. I've seen [problems] that reflect the skepticism that you're describing. But for me, that's not a reason to stop, it's a reason to continue to iterate and experiment and try and settle on a model or technology that does better than what we currently have.

**Near the end of the book, you argue that we may return to a liberal arts education, to make sure people can still lead meaningful lives. But right now, schools are focusing much more on STEM than the humanities. When and how should a greater emphasis on a more liberal arts education occur?**

I suppose I want to avoid there being a discreet switch. I think both of these strategies are going to become increasingly important. In my view, the challenge should be focused more on 'how can we avoid teaching young people to do all the routine activities that machines already do.' I wouldn't want to rule out either of those strategies, in part because there is a huge amount of uncertainty about what skills and abilities are going to be valuable and important.

If you take seriously the idea that we might be approaching a world with less work for people to do, full stop, if you think that that might be a challenge for the 21st century, then there is a kind of bigger challenge for education in thinking 'what's the purpose of education?' At the moment, in large part, it's preparing people with the skills and capabilities so they can flourish in the working world. In a world in which there may be less work for people to do, how does an education system prepare people to flourish in that world instead. That, to me, is one of the big and under-explored questions. ■



National Museum of Mathematics (McMath)

Published on March 2, 2021

## How to Get More Students of Color Into STEM: Tackle Bias, Expand Resources

By Kevin Bushweller

**T**he numbers are troubling. Only 7 percent of the people who earn STEM degrees are Black, according to the most recent federal data. That percentage did not change much at all between 2008 and 2018, but it did rise from 7 to 12 percent for Hispanic college graduates.

In the working world, the percentage of Black people working in the fields of science, technology, engineering, and mathematics drops even lower. Bottom line: There are very few STEM role models for students of color.

John Urschel is trying to change that reality through his own personal story and by talking to high school students of color around the country. Urschel, who is Black, is a former professional football player for the Baltimore Ravens and the author of *Mind and Matter: A Life in Math and Football*, which made the New York Times Bestseller list.

On track to wrap up a PhD in mathematics at the Massachusetts Institute of Technology, Urschel is determined to get more students of color

Former professional football player John Urschel, the author of the New York Times bestseller *Mind and Matter: A Life in Math and Football*, is making it his mission to encourage more students of color to enter STEM fields.



interested and achieving in STEM fields, especially math. While at MIT, he has been involved in the school's MathROOTS program, which works to encourage more females and students of color who are in high school to pursue studies and careers in STEM fields.

In a conversation with Assistant Managing Editor Kevin Bushweller and other reporters and editors at Education Week, Urschel talked about his journey from being a student whose 1st grade teacher initially misjudged his intellectual abilities and wanted to hold him back a year to a PhD candidate at one of the nation's top universities, tackling the highest levels of mathematics.

Following are some of the key insights from that conversation, edited for brevity and clarity.

**In your book, you write about a situation when you were in 1st grade in which your teacher wanted to hold you back a grade because she saw you as a “typical minority student unable to keep up in a classroom setting.” Yet when your mother insisted the school test your knowledge and skills, you were way ahead of your peers. How often do you think minority students face similarly biased assumptions?**

Certainly more often than I would like. I visit a good amount of schools. I typically try to aim for the high school level. Even talking to parents of children in high school, they tell me these [similar] stories of when their kids were younger. It's important that when we look at a student that we really try to diagnose what their situation is based off the characteristics of what they're doing, not things like the color of their skin or the household they're born into.

When I was growing up, one of the most important things to my mother was that whatever I wanted to do, whatever I wanted to be, whatever I really desired, she really wanted to make sure that the only thing that could ever, ever hold me back would be a lack of talent, whatever talent means, a lack of work ethic, or just plain bad luck. She really was very adamant that she never wanted it to be because of the household I was born into, or a lack of resources.

**Over time, you developed real confidence in your math skills. What message should educators be sending to all students, and especially to students of color, to build that kind of confidence?**

I would say specifically in mathematics and STEM, one thing that is really important but somehow doesn't really come across as I would like it to, is that whatever you are doing in math, wherever you are at in math, you are at a given place. And that place you are at, meaning what you know and what you don't, doesn't say anything about your intelligence level or your ability to do math, and that getting better in math and in quantitative things takes work, it takes time.

**What matters most in building that confidence?**

What really matters is resources, what really matters is how much a child is nurtured and fed things. This is just my opinion, but I would say that, by and large, if I had to choose between giving a child a little bit more innate math talent or a little bit more resources, I think, really, resources is what is a very good and bigger predictor [of future success].

I like to think I am pretty good at math. But I am also very much aware that my ability in math was honed through countless, countless hours of very hard work, of struggling and working through things, and lots of setbacks and lots of growth. And I think that is something that people don't realize enough.

**How can educators help kids—especially those who typically shy away from STEM fields—learn to embrace that hard work in areas like math, science, technology, and engineering?**

I think that's a tough one, especially the concept of difficulty, because I do believe there is a sweet spot for every person, given their age and where they're at, and also the type of person they are, between work and reward. This is an important thing that you need to make sure you get right. I am working on things for days and days and days, and I don't see a reward for a while. That's OK for me. That's not OK for a 7- or 8-year-old.

But the bigger thing I would say is a slight shift in focus on what the goal is and what is important. Too often, the importance and the goal get focused on getting the right answer. But getting the right answer has never really been my focus on things. The goal is to try to truly learn something.

**You were a high achiever in football as well as math, playing for Penn State in college and the Baltimore**

“

I would say that, by and large, if I had to choose between giving a child a little bit more innate math talent or a little bit more resources, I think, really, resources is what is a very good and bigger predictor [of future success].”

**JOHN URSCHEL**

the author of the New York Times bestseller *Mind and Matter: A Life in Math and Football*

**Ravens in the National Football League. How are math and football complementary?**

I would say that the thing about football that was really important for me and helped me, in math and just in general in life, is just the feeling of being part of a team. Seems like this is pretty universal: No matter what you want to do, no matter what you want to be when you grow up, the thing that is almost universal is that you are going to have to work with other people, you're going to have to work with other people for prolonged periods of time, and your success is inherently tied to other people.

**Any parting advice for educators?**

I would recommend making sure parents have access to educational materials that show them what their child is learning, what they're covering, and how these things work. That's something that could be really helpful. When a parent just sees a homework sheet, it can be quite difficult if they don't have the resources to understand how certain mathematical concepts are being taught. ■

▶ **Additional Resource**

Hear John Urschel in his own words [here](#)



Published on March 2, 2021

## Top U.S. Companies: These Are The Skills Students Need in A Post-Pandemic World

By Mark Lieberman

**T**he future of work looks quite a bit different now. The COVID-19 pandemic continues to confound even the most accomplished futurists' efforts to make predictions about what lies ahead.

Even with that lingering ambiguity, companies have already begun shifting their priorities and rethinking their expectations for the next generation of employees, who will enter the workforce having experienced all manner of unforeseen shifts in the work people are doing and the techniques for doing it well.

In a survey conducted in January 2021 by the EdWeek Research Center, 55 percent of high school teachers, principals, and district leaders said their students' interest in health care jobs has increased during the pandemic, and 57 percent said the same about jobs in information technology.

Education Week surveyed executives at some of the nation's leading companies in those industries and several others: hospitality, automotive, and consulting.

Our prompt: Tell us what you'll want and expect from today's K-12 students when you're eventually hiring them, and make suggestions for how schools can provide students with those skills.

Responses have been edited for length and clarity.

### Sysco

*Michael Fischer, vice president of global talent management*

The environment in which organizations operate, and serve their customers and communities, is becoming increasingly volatile, uncertain, complex, and ambiguous—known in the business world as VUCA. In order to thrive in these conditions, companies like Sysco will need future associates with a set of skills and capabilities that are fit for this type of dynamic situation. Schools can help by developing students with these capability areas:

- **Agility and Flexibility:** Ability to sense unpredictability and act quickly in response; ability to identify new ideas and approaches. Successful associates need to

demonstrate curiosity—ask questions and have the courage to move quickly.

- **Growth Mindset and Resilience:** Desire to continuously learn, and the ability to recover and bounce back from adversity and hardships; building strength and a greater ability to cope. Take ownership and accountability for your situation, develop strategies for reflection and learning.
- **Teamwork and Collaboration:** Desire to work with others different from yourself—different backgrounds, genders, functions, geographies, cultures—to create better, more durable results; and the ability to work as a member of a team to achieve an agreed set of goals.
- **Learn to Learn:** The world is changing fast, and successful companies are evolving even faster to serve their customers and remain competitive. Associates with the ability to identify and anticipate changes in the environment and who can acquire new knowledge and skills will be needed and effective in this environment.

In my mind, the question is what should be done at the local, state, and federal level to support and enable schools to develop students—especially those from poor communities—to enter the workplace with the skills to be successful in the workplace of the future. For example:

- **Start early!** Schools should provide quality, universal pre-K education that is consistent for all children across all schools. This is a primary determinant of school success for students.
- Schools deserve **equitable funding**, especially those in underserved and marginalized communities (typically brown and Black communities) which often lack proper funding.
- Ensure every child can read before 3rd grade, another key determinant of long-term success in school and beyond.

### McKinsey

*Dirk Schmautzer, education practice partner*

One of the many trends that the COVID-19 pandemic has accelerated is rapidly digitizing and automating workplaces. We see strong evidence that **digitization and automation**

increases the demand for technological skills, as well as for social and emotional skills. While the increase in technological skills is obvious, the increase in social and emotional skills is driven by the fact that related activities are more difficult to automate. Therefore, it becomes more important for workers to carry them out competently.

Examples of social and emotional skills include effective teamwork and relationship building. Both skill sets can be developed by refocusing some elements in the K-12 system. For example, to prepare students for the effective teamwork they will need in the workforce, schools can focus on teaching coaching, collaboration, motivating different personalities, fostering inclusiveness, and resolving conflict.

### Microsoft

*Mark Sparvell, director of marketing education*

One thing 2020 highlighted was that the future is very hard to predict, which is challenging to concepts of “future ready” and “skills for the future.” What we do know is that this dramatic change in itself has provided a unique lens into how future generations can prepare for the unknown ahead.

McKinsey & Company asked global HR professionals about missing skills for an increasingly automated world. They identified problem-solving, critical thinking, innovation, and creativity as being most needed, followed by the ability to deal with ambiguity and complexity.

When we examine how schools can best prepare students to effectively navigate uncertainty and the workforce, recent findings from the Education Endowment Fund in the UK may hold some promising answers. The Fund inquired into the qualities and skills possessed by students who had been successful during this time of remote learning, and identified these traits: **critical thinking and creativity, cognitive flexibility** (ability to deal with ambiguity and change), and **self-regulation**. These are a strikingly similar set of skills to the McKinsey & Company findings. It would appear that the skills that will have the greatest impact in the modern workplace are the same skill sets and mindsets required by students to navigate remote learning.

This similarity shows that student-centered approaches that intentionally release control of learning to learners, supported by technology that facilitates connection and collaboration both in schools and remote learning contexts, can support the development of skills and dispositions required to get a job, create a job, or keep a job in the future.

“

The question is what should be done at the local, state, and federal level to support and enable schools to develop students—especially those from poor communities—to enter the workplace with the skills to be successful in the workplace of the future.”

### MICHAEL FISCHER

vice president of global talent management, Sysco

### Delta

*Ed Bastian, CEO*

Education is one of the core pillars of Delta’s community involvement—we’re committed to advancing education equitably in our communities and helping to shape the lives of our future employees and customers. The pandemic has made it clear that **innovative, global, and strategic thinking** will be more important than ever to every skillset as the world moves into recovery and rebirth. Our educational institutions need to adapt to ensure our children can participate and compete on an increasingly connected world stage. To that end, Delta is proud to be partnering with Atlanta Public Schools and 3DE, which is helping to re-engineer public education to empower students to unlock greater economic opportunity in today’s global society. 3DE operates in seven U.S. cities, including our hometown of Atlanta, and provides real-world case studies to help students develop key skills for success throughout their lives.

### Apple

*Susan Prescott, vice president of worldwide developer relations and product marketing for enterprise & education*

The pandemic has been unprecedented. Teachers have worked tirelessly to ensure their students could continue learning, despite the

many challenges posed by the COVID-19 pandemic, and we’ve been inspired by their dedication to help students engage and build community, to have conversations about race and social justice, to build new skills in coding and embrace their innate creativity and curiosity.

As students look ahead to their future careers, coding continues to be a foundational skill that embodies creativity, critical thinking, collaboration, and problem-solving—all important proficiencies to bring into the workplace. Learning to code helps students build these skills and brings opportunities, no matter what career they pursue. This is why we’ve invested in creating free and comprehensive coding curriculum and professional learning for schools from elementary to higher education, and why we’ve partnered with educators across the country to ensure they have the tools to share these resources with their students.

We’ve seen firsthand how coding has transformed the global economy, creating entire new industries and supporting millions of jobs. The iOS app economy alone now supports more than 2.1 million jobs across all 50 states, helping to provide opportunities for Americans of all ages. We see this continuing to grow, creating boundless opportunities for today’s students.

### Boston Consulting Group

*Nithya Vaduganathan, managing director and partner; Renee Laverdiere, partner*

Work and organizational models have remained mostly unchanged since the Industrial Revolution when people needed to work in close proximity to coordinate, collaborate, and co-create. Many companies used the pandemic as an opportunity to reimagine how work gets done. In many industries and jobs, the pandemic proved many jobs can be done in a more hybrid and remote fashion—and made it even more clear where digital tools, data, and technology can help. However, a one-size-fits-all approach won’t be the answer to future work models; employee preferences for the future are highly varied.

In a global survey BCG conducted of 12,000 employees, 40 percent desire flexibility in when and where they work, but an almost equal portion of the workforce wants the structure of fixed time and place. Regardless of the model, being satisfied with social connectivity is critical: People who are satisfied are 3.2 times more likely to feel as or more productive than pre-COVID.

As a result, the worker of the future will need refined skills in managing their work, a broader range of communication styles, and **the ability to manage a fragmented suite of**

**collaboration tools and technologies.** While many students in K-12 are getting learning opportunities in these skills with remote/hybrid learning, students need help developing a growth mindset, becoming more self-directed and disciplined, learning to prioritize, and overall more digital fluency.

### Blue Cross Blue Shield Association

*Kelly Williams, senior vice president and chief human resources officer*

Sponsoring Take Our Daughters & Sons to Work Day has always been a highlight for me—from seeing and feeling the pride of Team BCBSA as they introduced their children to their colleagues to the joy and curiosity of their children as they explored our workplaces and the world of work with their parents.

Enter 2020 and what used to be an annual experience is now a daily immersion shaping all of us—children, parents, colleagues, employers. Yes, our ability to engage, adapt, and respond to change is important—further illuminated by the pandemic—and still **self-awareness and personal well-being** remain at the top of my development list.

In my experience, how well we know ourselves, combined with how well we take care of ourselves—at work and in life—influences everything. Which is why I'd love to see equanimity as a core competency in schools. At the heart of it, it's about being versus doing. Being grounded. Being centered. Regardless of what's happening. Like all skills, it requires practice. Just imagine the possibilities of an equanimity—based curriculum!

### CareFirst BlueCross BlueShield

*Angela Celestin, executive vice president and chief human resources officer*

With the onset of the COVID-19 pandemic, the skills of empathy, openness to continued growth, and being self-motivated as well as the ability to express oneself have become increasingly more important and need to be continually developed.

This pandemic has shown us the importance of emotional intelligence, especially empathy. Empathy is critical to the success of every person and team. **Practicing empathy** is the first step to unlocking the value of each other's diversity. Empathy can be defined as the ability to vicariously experience someone else's feelings, thoughts, or attitudes—in other words, it's walking a mile in someone else's shoes. Once you do that, then you can begin to fully appreciate and leverage diversity effectively.

Openness to continued growth and self-motivation will be key to being successful

“

A one-size-fits-all approach won't be the answer to future work models; employee preferences for the future are highly varied.”

### NITHYA VADUGANATHAN

managing director and partner, and Renee Laverdiere, partner, Boston Consulting Group

in the future. New jobs and careers are emerging every day and as they emerge there are new skills that need to be learned or adapted. Technology will continue to change how we work and will require us to constantly learn new skills or apply our current ones in a different context. This relates to the work that we do individually but even more importantly to the ways in which we work together.

The ability to express oneself is not just about writing the best paper or delivering the most effective presentation. It's about understanding how to be vulnerable and honest in a variety of settings, whether virtual or in person, to develop trust and respect with others. At CareFirst, we strive to nurture belonging—One Company, One Team. We consciously seek to understand and practice empathy to instill a sense of community. To nurture belonging is to create an environment where every person feels like a member regardless of their experience, position, background or identity. In CareFirst's inclusive work environment, it is important that each associate feels supported across the organization and feels a shared connection with their colleagues.

These things along with personal accountability combine to enable effective teamwork, which we will continue to need.

Schools play a critical role in developing the talent in future generations. The skills that children pick up early on from developing relationships with their teachers and each other will continue to be the foundational component to success. Teachers that offer nurturing environments and flexibility so that students feel comfortable bringing their whole self to school will

be the most effective teachers in the future—producing the most engaged students.

Finally, classrooms that integrate technology and creativity effectively will provide students the opportunity to develop a passion for finding new ways to view the world and constantly learn.

### Chrysler

*Lottie Holland, director of talent acquisition, diversity, inclusion, and engagement*

Our rapid transition to the virtual environment has accelerated the importance of **communicating effectively through a host of mobile devices and digital platforms.** Unlike in-person interactions, virtual environments inhibit reading and responding timely to many critical nonverbal cues.

Students today need to develop and refine skills to communicate clearly, concisely, and with intention in their work, client, and personal relationships, through courses focusing on presentation skills, effective writing, and more.

### Cigna

*Dr. Stuart Lustig, senior medical director*

There is an urgent need for our schools to focus on ways to build healthier and more resilient communities. This need has been accelerated by the global pandemic, which has further exposed significant health **disparities that disproportionately impact underserved communities.** As part of Cigna's commitment to whole person health, we have been researching resilience, defined as our ability to quickly recover from challenges, to better understand its building blocks and how people can develop the skills to overcome adversity and ultimately thrive.

Our research unveils real costs that can be associated with low levels of resilience: For many students today, low resilience is connected to worse physical health, higher rates of stress and anxiety, feelings of low self-esteem and self-worth and poorer academic performance. In the workforce, low resilience is connected to lower engagement with colleagues, lower productivity and professional ambition, and higher turnover.

The data also shows that resilience is a skill that resides in every person from an early age. Resilience is at its highest levels in young children, yet as children grow into their teenage years, we start to see resilience levels fall sharply—by as much as 50 percent by the time young people reach ages 18-23. This resilience curve is alarming—not only is Gen Z the least resilient generation, but they are also the loneliest, according to our previous studies on loneliness.

However, resilience is like a muscle that



can be strengthened throughout a person’s life. To build a more resilient generation and future workforce, it’s critical that today’s students have the support they need—resources and personal skills—to continue to build that muscle. Teachers, coaches, and parents play a critical role **by encouraging resilience-building factors:** practicing good physical and mental health, staying active and practicing stress-reduction activities, building connections—through two-way conversation, mentorship, dialogue on difficult topics, fostering inclusivity and being surrounded by a diverse community. Our research shows all these things can help young people, and even adults, develop their resilience skill set.

General Motors

*Telva McGruder, chief of diversity, equity, and inclusion*

The past year has really underscored the importance of nurturing in our employees a balance of professional resilience and adaptability. The rate of change in many industries—including our automotive and technology environment—is moving at such a rapid pace that, even outside of the context of a global pandemic, we need our employees to remain nimble and persevere through whatever comes their way.

The ability to thrive in the face of monumental change, while maintaining some semblance of day-to-day stability both personally and professionally, requires muscle

development that we often do not acknowledge until we’re faced with an adversity that demands those muscles. The pandemic absolutely called on each of us as individuals and as teams to focus on our **ability to keep going amidst heightened ambiguity and uncertainty.** There’s no doubt we are collectively going to need to keep these muscles in shape for the years to come.

Our schools excel at teaching students how to learn, with specific attention paid to common cycles of behavior (if x, then y). If we could expand this to accommodate more styles of learning and introduce to students the **concept of learning agility as a core skill,** it would help to harness the resilience and adaptability that so many children already have developed, for better or worse, especially those dealing with the challenges presented by resource scarcity.

Encouraging and nurturing the positive elements of resilience and adaptability—inner strength, the ability to bounce back after a failure, and the courage to try something new, for example, can go a long way to prepare a student for future success in the workplace. It is on us as educators and employers to help frame these skills—whether learned deliberately or because of one’s circumstances—and further develop the learning agility that these skills enable. We can and should uplift resilience and adaptability as skills for achievement in any work environment.

**Hyatt**

*Malaika Myers, chief human resources officer*

Hospitality is unique because it’s one of the few remaining industries where people can start in entry-level roles and build fulfilling, lifelong careers. When we welcome new colleagues, we are prepared to teach them the skills they need to be successful in their roles so in the hiring process, we’re really looking for soft skills.

At Hyatt, our purpose is to care for people so they can be their best and delivering on our purpose requires a strong level of empathy—understanding what our guests need in order to really care for them. To manage through the pandemic, we relied on collaboration, inclusion, and a mindset of experimentation to reimagine our business. These types of soft skills will be critically important for the workforce of the future.

Alongside fostering development of soft skills, schools should seek opportunities to connect students with real-life work experiences. Across our global Hyatt portfolio, we have found success in collaborating with community-based organizations to introduce young people to the hospitality industry and connect them with employment opportunities as part of our RiseHY hiring program. In our hometown of Chicago, we continue to build on our longstanding relationship with the Chicago Urban League to provide internships to high school students at our corporate office so they can gain real-world experience and explore opportunities in our industry. ■

Published on September 25, 2018

Jobs at All Levels Now Require Digital Literacy. Here’s Proof.

By Benjamin Herold  
Newark, Del.

**I**t’s no secret that American workplaces are becoming more reliant on technology.

But what may surprise the country’s K-12 educators and policymakers is how work at nearly every rung of the employment ladder is becoming more digitized. Often, the skills needed to succeed have less to do with computer programming than what experts call “digital literacy”—the ability to interpret, create, and strategically use digital information.

“Everyone’s job is changing,” said Mark

Muro, a senior fellow and policy director at the Brookings Institution, a think tank. “The ability to read and then conduct first-order analysis of digital information is highly valued in almost all work environments.”

To better understand the central role of digital literacy in the workplace, Education Week took a deep look at four occupations in the Christiana Care Health System. It’s the largest private employer in Delaware, with 11,600 employees and an expected 1,500 new hires in 2018.

The newspaper got to know: Bobbie Wells, an entry-level service assistant responsible for cleaning and disinfecting patient rooms; Dante Pozzi, a production supervisor in the

IN HEALTH CARE, A WIDE RANGE OF JOBS ARE BECOMING MORE DIGITAL

Researchers gave occupations a “digital score” on how much computer knowledge is required to perform the job, and how central computer use is to the position. The scale is 0-100, with 100 representing fully digital and 0 representing not digital at all.

| Occupation                                   | 2002 | 2016 |
|----------------------------------------------|------|------|
| Janitor/cleaner                              | 3    | 18   |
| Cooks                                        | 4    | 31   |
| Registered nurse                             | 38   | 55   |
| Medical Record/Health Information Technician | 59   | 59   |

hospital's massive kitchen, which churns out 2,500 meals a day; Brianna Buzzuro, a registered emergency-room nurse; and Stefanie Brumberg, who helps oversee the health system's massive flow of digital data from her perch as corporate director of health-information-management services.

Across the board, said Neil Jasani, Christiana Care's chief people officer, digital literacy is critical to getting your foot in the door—and advancing.

"The ability to create digital content, consume it, act on it, communicate it, share it, find it—all that is tied to patient care," Jasani said. "Those skills are emphasized more as one rises up the career ladder."

How can schools build a strong foundation for the digital-literacy skills that are required in real jobs?

Following are profiles of the four employees visited.

### **Bobbie Wells, 28**

*Service Assistant, Environmental Services*

Bobbie Wells' workdays start at 7 a.m., when she begins cleaning patient rooms according to a detailed plan designed to stop the spread of infection.

Her entry-level job requires only basic digital-literacy skills, centered on using mobile apps for communications and task management.

"I work off the iPhone," Wells said. "I get phone calls from management, and that's how I know which room to go to, which patient has been discharged, and what needs to be cleaned."

Learning the apps was easy, she said, akin to what she sees her older two children, ages 10 and 6, already learning on their school-issued iPads.

"I think they're preparing them at least for the simple stuff we do," Wells said.

But even at the beginning rung of Christiana Care's environmental-services department, new technology is becoming more prevalent. Wells and her colleagues now regularly use a high-tech, ultraviolet-light cleaning system, which is digitally operated and requires extensive training.

And for entry-level workers who want to advance, digital literacy is key.

For service assistants like Wells, the most common next step is becoming a patient-care technician. That position involves interacting with patients and taking their vital signs, and it requires an expanded comfort level with computers and software, as well as the ability to enter and read digital information.



Nate Pesce for Education Week

For Muro of the Brookings Institution, that reality holds a vital lesson for schools.

It's not enough to assume that so-called "digital natives" are developing the digital-literacy skills they'll need in the workplace by surfing YouTube and playing video games, he said. Nor should schools assume that every student will need to learn to code in order to have a good-paying job.

"What is needed is broad exposure to basic office and productivity software," Muro said. "It's the difference between being able to get a job in a stable industry and make it into the middle class, or being locked into the truly bad strata of American jobs."

(Top) Bobbie Wells wipes down a bedside tray in a hospital room in the Christiana Care Health System. Wells and her co-workers use a high-tech, ultraviolet-light cleaning system, which is digitally operated and requires extensive training.

(Left) Dante Pozzi works with some of the newer digital cooking equipment at Christiana Hospital in Newark, Del. The amount of computer-based work his occupation requires has increased nearly 700 percent since 2002.



Nate Pesce for Education Week

### **Dante Pozzi, 43**

*Production Supervisor, Food and Nutrition Services*

What's the most efficient way to make hundreds of gallons of gravy a week?

In the lower levels of Christiana Hospital, Dante Pozzi initiates the process via technology, using a digital touch screen to program a massive kettle.

"Food service is no different than any other industry," he said. "Tech is changing everything."

That sentiment is backed up by Brookings' nationwide analysis of the digitalization of work. Looking at federal data, researchers sought to determine the extent to which the day-to-day tasks required for hundreds of occupations are performed digitally. They assigned each occupation a "digital score" of 1 to 100, then tracked how much that score changed over time.

Between 2002 and 2016, the amount of computer-based work required of cooks in institutional cafeterias increased nearly 700 percent, with the occupation's score rising from 4 to 31.

In Christiana Hospital, patients place thousands of meal orders a day via iPads. Software aggregates the information into a report for the kitchen. Adjusting recipes is done by software. So is purchasing, plus processing the massive

orders that are delivered to the kitchen each day.

Production supervisors even have to review some basic predictive analytics—for example, if the software suggests the hospital should order 300 pounds of turkey for the following week, does that make sense?

Fortunately, Pozzi said, he has some background in technology. About a decade ago, he took classes to become certified by Microsoft and Cisco, leading him to work for several years installing computer systems at area restaurants.

And now, Pozzi said, his future plans revolve as much around computers as food: He's currently taking online classes at Wilmington University, hoping to earn a bachelor's degree in business administration and move up into management.

"I think there's a connection between food and technology," Pozzi said. "Being able to do both is really exciting."

### Brianna Buzzuro, 26

*Registered Nurse*

In Brianna Buzzuro's four years as a nurse, her job has changed dramatically.

"All of our documentation used to be on paper," Buzzuro said. "Now, every moment I'm not with a patient, I'm on the computer."

In the bustle of the Wilmington Hospital emergency room, that means interacting with multiple software programs at a time: Buzzuro uses one system to enter notes and patient assessments. Two separate software systems are used for moving and locating patients. Others control ordering medications, entering blood work, and examining X-rays.

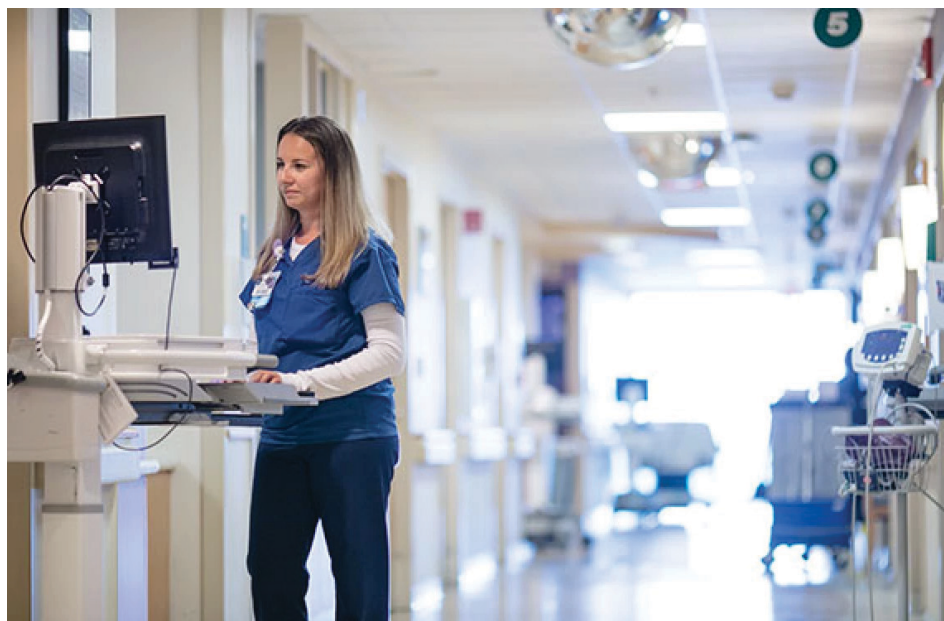
And it all could change again soon.

"I'm the chair of the [Nursing] Technology and Innovations Council" at Christiana Care, Buzzuro said. "We're looking at what we have now and how to improve it."

High on the priority list: a hands-free option for managing communications, such as a smartwatch, that would add a new interface and information dashboard for nurses to become familiar with.

The fast-paced digital work environment, combined with the rapid pace of change, can be difficult for some nurses, said Buzzuro. Recent college graduates who grew up using laptops and smartphones tend to grasp the new systems more quickly than their more veteran counterparts, she said. But even for millennials, there's still a lot of on-the-job software training.

That's why part of K-12 schools' responsibility now is to teach students to read and discern text, images, data, and other digital informa-



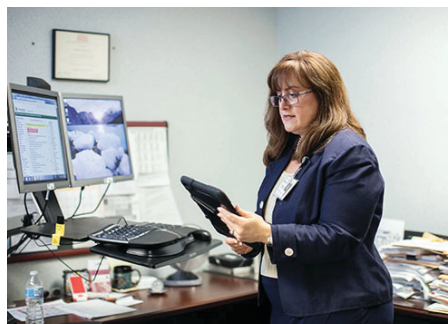
Nate Pesce for Education Week

tion in a variety of online environments, said Hiller Spires, a professor of literacy education at North Carolina State University.

"The whole mindset has to be developing the capacity to adapt and learn and relearn constantly evolving technologies," Spires said.

Jasani, who oversees the hiring and training of Christiana Care's employees, agreed.

"If I were to give advice to high school students," he said, "it would be to get very comfortable finding your way around various digital platforms."



Nate Pesce for Education Week

### Stefanie Brumberg, 47

*Corporate Director, Health Information Management Services*

Stefanie Brumberg views herself as a "hub," connecting Christiana Care's direct-care providers and information technology staff.

"I'm on conference calls most of the day, usually about the best way to capture the information we need to capture," she said. "There's just so much content to synthesize."

Both the variety of challenges and the pace of change are staggering.

(Top) Brianna Buzzuro and other nurses in the Christiana Care system must contend with numerous dashboards and information flows that are constantly changing.

(Left) Administrator Stefanie Brumberg works with an iPad in her office at Christiana Care. Sixty percent of the 4,200 discrete health-record forms the medical center uses are now administered digitally.

A full 60 percent of the hospital's 4,200 discrete health record forms are now administered digitally.

Since 2014, Christiana Care has cut its annual medical-transcription budget by 90 percent—the result of rapid adoption of digital speech-to-text systems that automatically transcribe notes as they are dictated by physicians.

Currently, some of Christiana Care's primary-care doctors are part of a new project: During patient visits, they wear Google "smart glasses" that livestream audio and video of the encounter to remote medical scribes, who document the visit directly into the patient's electronic medical record, to be reviewed by the physician later. It dramatically increases the amount of information recorded in each visit, Brumberg said, while freeing up doctors to focus on their patients without distractions.

And the near future holds even more disruption, especially for Christiana Care's dozens of medical coders.

According to the Brookings analysis, their jobs have long been highly digital. But the



health system is in the midst of implementing a “computer-assisted coding environment,” driven by artificially intelligent software. Instead of being collectors and locators of information, the medical coders will have to adapt to becoming validators of what the software recommends, making sure the system has not

missed anything important and allowing the department to take on more work.

For Brumberg, it will mean yet another flow of new digital information that will need to be fit into a very complicated puzzle.

The takeaway for the nation’s K-12 schools? The ability to synthesize digital informa-

tion across multiple sources, pull it all together in a meaningful and engaging way, and share it with others is the key to the corner office of the future, Spires said.

“Schools absolutely need to be teaching these skills,” she said. “If they aren’t digitally literate, people will be left behind.” ■

*Published on February 18, 2021*

## The Pandemic Is Shaking Up the World of Work: Schools Need to Help Students Prepare

By Alyson Klein

**W**hen the global economy finally emerges from the pandemic crisis, the world of work is going to be a very different place.

In fact, across eight of the world’s largest economies, 107 million workers, or 1 in every 16, will need to find a different occupation by 2030, according to a study released Feb. 18, 2021 by the McKinsey Global Institute.

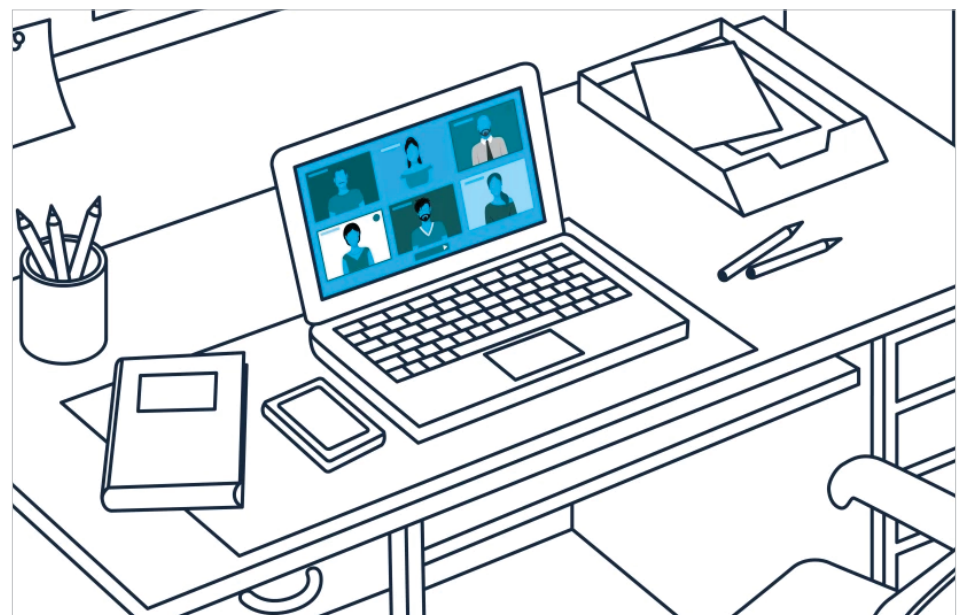
That’s 12 percent more than the organization had estimated before the pandemic hit. The report considered the jobs pictures in China, France, Germany, India, Japan, Spain, the United Kingdom, and the United States.

Those findings have huge implications for today’s K-12 students, many of whom will be entering the job market soon.

“The long-term impact is going to be quite disruptive,” said Susan Lund, a partner at McKinsey & Company and a co-author of the report during a webinar explaining the research. “Even after we get a vaccine and go back out about our business, we foresee that there will be more people who will need to move out of their current job and occupation and switch to different occupations to remain employed.”

And the disruption is going to be greatest for jobs that have the highest “physical proximity,” meaning workers and customers interact closely. That includes food service, retail, hospitality, and entertainment, industries where many young people used to get entry-level jobs out of high school or college.

In addition, the report predicts that low-wage workers will be hit the hardest. They are likely to make up 60 to 75 percent of the workers who will need to enter a different occupation, according to the report.



Jobalou/DigitalVision Vectors

Professions that will be especially vulnerable to this change include onsite customer service, leisure, travel, indoor production and warehousing, food production, and computer-based office work (think the administrative people in a doctor’s office, hospital, or manufacturing plant.)

“COVID was a giant nudge that shifted consumers and businesses to operate in new ways,” Lund said.

Remote work is likely to explode going forward, with 20 to 25 percent of the workforce able to work from home at least three days a week, the report notes. That is still a minority of people, Lund said, but it’s about four times higher than before the pandemic.

That trend is going to have big implications for office space as well as lunch spots and stores in downtown areas. It may also mean that there

will be movement out of high-cost cities and into suburbs, smaller cities, and towns.

And business travel could be down by as much as 20 percent permanently, as Zoom meetings replace in-person events, according to the report. That’s going to have big implications for the hospitality industry, even as leisure travel is expected to rebound.

Companies have been much more likely to rely on e-commerce, a continuing blow to industries like brick-and-mortar retail. In fact, e-commerce in the United States has grown more than 3 times faster during the pandemic than it did before the crisis.

What’s more, there’s been an acceleration in the use of automation and artificial intelligence, in order to deal with increased demand for goods that can be shipped online, and to help minimize the number of people on a fac-



tory floor. Once companies have made these shifts, it's unlikely they will reverse course after the pandemic, Lund said.

### Why schools need to pay close attention to these changes

So what does all this economic disruption mean for K-12 education? Bottom-line: Work-based learning experiences were already moving up the priority list. Now, they'll be an even higher priority.

"It is critical for people to have more than just a basic high school or secondary education," Lund said. "And that's not to say that everybody

needs a college degree or even a two-year associate's degree. But we need to really expand the opportunities and options for different types of vocational training, apprenticeships, technical training, some sort of credential so that young people have a marketable skill and can get into a job that will lead to upward mobility."

The problem is nothing new, she added, but the stakes of not acting are likely to become much higher.

"That's a challenge that we've always had, but because people could get jobs in food service and retail, I think many countries didn't put enough emphasis on actually making that a reality," Lund said. "But now, coming out of COVID,

this will not be optional. We really need to step up as countries to make this happen."

The United States already has some great models for this type of learning, including Pathways in Technology Early College High School, or P-TECH, the report pointed out. Students can earn an associate's degree in applied science along with a high school diploma. The curriculum, developed with significant input from industry, includes job-skills training so students are ready to enter the workforce upon graduation. The network partners with schools around the globe, including 161 in the United States.

Schools in the United States should work hard to expand such models, Lund said. ■

## OPINION

*Published on September 5, 2018*

# Apple Exec on Rewiring Education

By Tom Vander Ark

**A**s a physics student at UC Riverside in the 60s, John Couch became fascinated by a new invention--computers. He transferred to Berkeley and became one of the first 50 students to graduate with a computer science degree.

Couch was an early hire at Apple in 1978. He became VP Product and led the launch of the Lisa computer. He left in 1984 and took over a struggling K-12 school for a while. After a stint in biotech, Couch returned to Apple as Vice President of Education in 2002 (shortly after they had acquired PowerSchools).

After 16 years, Couch stepped out of Apple to start a conversation with his new book, *Rewiring Education: How Technology Can Unlock Every Student's Potential*.

Rather than patching or dumping the current system, Couch says, "Let's rewire it." By that Couch means an updated operating system--a new purpose based on designing not memorizing, on cultivating gifts not regurgitating facts, on community over hierarchy, intrinsic rather than extrinsic motivation, and real versus simulated experiences.

Challenge Based Learning. Apple Classrooms of Tomorrow (ACOT) was a ten year initiative launched in 1985 to study how technology might change teaching and learning. Building on the success of that early program,

ACOT2 aimed at making high school learning more engaging and relevant. It provided computers to students at school and at home.

From ACOT2, came the concept of challenge based learning--extended projects connected to community issues. CBL is an inquiry-based learning framework encouraging "relevant, creative, collaborative, and challenging work," according to Couch.

"Rewiring education is all about a series of challenging and relevant experiments that play off pre-existing experiences where an engaging and sometimes unpredictable, learning process ultimately leads to a clear understanding of the results."

The concept of challenge based learning was advanced by one of John's star employees, Karen Cator, now Executive Director at Digital Promise where the concept lives on (and with Buck, HQPBL, NYAS, and many of the deeper learning networks)

Coding and tech. Couch would like to see the foundational elements of coding taught in the early grades. Like challenge based learning, Couch sees coding as discovery-based and encouraging thinking outside box. He values data visualization and converting inputs to outputs.

On teaching, Couch see many unnecessary barriers. He hopes that tech will help solve that problem and help deliver powerful learning experience.

He's a fan of the SAMR model and would like to see more classrooms move from substi-

tution and augmentation to modification and redefinition of learning.

Couch is bullish on applications of AI including adaptive learning, digital assistants, virtual reality. He thinks the jury is out on Blockchain. Learn more about his views at RewiringEducation.

In his next book, Couch will highlight re-wired schools. He's particularly interested in microschools. ■

*Tom Vander Ark is an advocate for innovations in learning. As CEO of Getting Smart, he advises schools, districts, networks, foundations and learning organizations on the path forward.*

Copyright ©2021 by Editorial Projects in Education, Inc. All rights reserved. No part of this publication shall be reproduced, stored in a retrieval system, or transmitted by any means, electronic or otherwise, without the written permission of the copyright holder.

Readers may make up to 5 print copies of this publication at no cost for personal, non-commercial use, provided that each includes a full citation of the source.

For additional print or electronic copies of a Spotlight or to buy in bulk, visit [www.edweek.org/info/about/reprints.html](http://www.edweek.org/info/about/reprints.html)

Published by Editorial Projects in Education, Inc.  
6935 Arlington Road, Suite 100  
Bethesda, MD, 20814  
Phone: (301) 280-3100  
[www.edweek.org](http://www.edweek.org)

EducationWeek®

# SPOTLIGHT

**Get the information and perspective you need on the education issues you care about most with Education Week Spotlights**

The Achievement Gap • Algebra • Assessment • Autism • Bullying • Charter School Leadership • Classroom Management • Common Standards • **Data-Driven Decisionmaking** • Differentiated Instruction • Dropout Prevention • E-Learning • ELL Assessment and Teaching • ELLs in the Classroom • Flu and Schools • Getting The Most From Your IT Budget • Gifted Education • Homework • **Implementing Common Standards** • Inclusion and Assistive Technology • Math Instruction • Middle and High School Literacy • Motivation • No Child Left Behind • Pay for Performance • **Principals** • Parental Involvement • Race to the Top • Reading Instruction • Reinventing Professional Development • Response to Intervention • School Uniforms and Dress Codes • Special Education • STEM in Schools • **Teacher Evaluation** • Teacher Tips for the New Year • Technology in the Classroom • Tips for New Teachers



**VIEW THE COMPLETE COLLECTION OF EDUCATION WEEK SPOTLIGHTS**

[www.edweek.org/go/spotlights](http://www.edweek.org/go/spotlights)