International Center for
Leadership in Education

RIGOROUS LEARNING FOR ALL STUDENTS

INNOVATING FOR IMPACT
WHITEPAPER SERIES

Preparing Our Students for Their Futures: WHY Innovative Practices are Needed
PAPER TWO

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January 2017

This paper is the second in our five-part series on effective innovation, the kind of innovation that moves everyone in education—from administrators to students to the community—out of the twentieth-century paradigm of a focus on teaching to a focus on learning. Innovation that empowers every last person in the system. Innovation that helps us break free from the regulatory rigidness that has been holding us back from real change for decades.

ARE WE TEACHING WHAT OUR STUDENTS NEED TO KNOW?

In the first installment of this series, *Innovation: The Key to the Nation's Most Rapidly Improving Schools*, I outlined nine interrelated areas that must evolve to make room for future-focused innovation in our districts and schools:

Take a look at the following charts. The first chart shows the highest paying starting salaries and average salaries by four-year college major. The second chart shows the fastest growing four-year college majors.

College majors with highest salary potential 4-Year College		
Occupation	**Starting**	**Average**
Petroleum Engineer	$103,000	$160,000
Actuarial Math	$58,700	$120,000
Nuclear Engineer	$67,600	$117,000
Chemical Engineer	$68,200	$117,000
Aerospace Engineer	$62,800	$109,000

Source: Forbes.com

Salaries of fastest-growing college majors 4-Year College		
Occupation	**Starting**	**Average**
Human Development	$35,900	$48,000
Athletic Trainer	$34,800	$46,900
Social Worker	$33,000	$46,600
Recreation & Leisure	$32,200	$45,300
Child & Family Studies	$30,300	$37,200

Source: Payscale.com

One of these things is not like the other.

I recently had the opportunity to do a breakout session with student trustees when speaking at a conference for college trustees. As part of my effort to make sure students understand that what they major in matters, I showed them these two charts.

A student raised his hand to ask a question. Or rather, make a statement: "Do you realize that if you major in one of those high-salary majors, your college experience will be no fun at all?"

When we as educators hear sentiments like this, we must understand the role we did or did not play in such thinking: it's up to us K-12 educators to encourage students to consider from an early age the ultimate purpose of education. As not every student should or will go to college, the same scenario applies to our high school students.

What student doesn't want to have fun in high school or college? Both are a period of growth, and part of that involves learning how to make wise social decisions with less parental oversight. I do not begrudge any student this important experience. When we hear that a high school or college student wants school to involve some fun, we know that person is a very normal young adult.

When we hear that students want fun to *determine* their majors or course selections, we know something went wrong. And we have to ask ourselves how we might have played a role.

Are we challenging students to take the most rigorous and relevant courses that will best prepare them for their futures? Are we pushing them to choose college majors that are more likely to land them high-skilled jobs and help justify the expense (and debt) of college? Or are we watching as they choose the more "comfortable courses" they feel will leave more time for enjoying their school experience without challenging their thinking?

Most students only sit before us for about nine months. I realize as individuals, we can only do so much in nine months. But if we all band together around shared goals for students beyond graduation, collectively we can have a dramatic and lifelong impact on our students' futures.

One of those goals must be to cultivate in all of our students an interest in and respect for lifelong learning. We have to impress upon students that learning never stops, particularly for those wanting to find themselves self-sufficient as adults. We will only be able to convince them of this if we can communicate *why*.

The reason this is so critical is because careers today are no longer the static, well-defined, linear things they once were. That small computer you toss into your purse every day or carry around in your back pocket has changed everything.

For about a year, I've been using the likes of Facebook, Alibaba, Airbnb, and Uber to illustrate this point in talks and speeches. Facebook is the world's largest media provider, but it owns no content. Alibaba is the world's largest seller of products, but it owns no inventory. Airbnb facilitates housing for more travelers than any other hotel company in the world, but it owns no properties. Uber is the world's largest provider of automobile transportation, yet it owns no cars. Each transition away from how these industries have historically operated represents a change in jobs and skills.

In just the year since I've been using these companies to show the extent of how technology has transformed our world, Uber has proved my point again. Uber is signaling yet another significant shift in how it does business, with incredible implications for careers. Uber has joined forces with Tesla and other auto manufacturers to lobby state governments to permit driverless cars on their roads. Why? Driverless cars can drive for 24 hours a day, 7 days a week. This would permit them to be in operation 24/7. This is how the airline industry uses planes—if planes are not in the air, the airline is not making money. Driverless cars remove many of the expenses, realities, and constraints of human employees while allowing more revenue from around-the-clock car use. (Not surprisingly, taxi lobbies are fighting this with a vengeance.)

Consider how the make-up of corporate Uber employees will change once a fleet of driverless cars is dispatched on roads across America. Uber will need fewer employees managing human drivers, and more managing the technical aspects of driverless cars. And then what of all those Uber drivers? If your job skills are on the verge of becoming obsolete, how do you stay afloat? You must learn yet again. You must gain new skills.

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Where it was once enough to train people to be specialists who work in silos, employees must now be generalists, with a high-level understanding of their micro and macro environments and the ability to work with people across functions. We must strive to prepare our students for self-sufficient lives, which means preparing them for high-skill careers.

This trend—of currently employed and even self-sufficient people in the workforce finding themselves with skills on the cusp of losing market value—is here to stay and is picking up speed. Those who sink will be those who lack adaptability and the interest in learning new skills, no matter where in their careers they might be. Those who swim? These are the people we want our students to become. These are the people who will be able to navigate and stay afloat in a rapidly changing career landscape—technology disruption after technology disruption.

McKinsey recently put out a report projecting that five percent of all jobs will be automated out of the workplace in the next five years. Of the jobs that don't get swallowed up whole by technology in this round, they project that 30 percent of tasks in 60 percent of the remaining jobs will be automated. What does this mean for those workers? Of their pay? How can companies justify maintaining payroll for employees now doing less work? What must they do to remain valuable?

Any job or part of a job that is routine, sequential, or concrete will be automated. It's already been happening for decades, as shown in the following chart capturing job growth by decade.

U.S. Job Creation by Decade
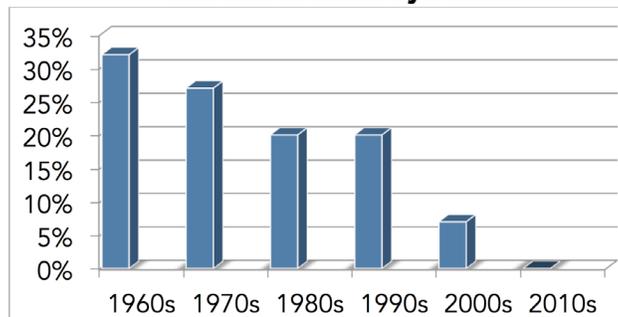
Source: Bureau of Labor Statistics, St. Louis Federal Reserve

Technology is the major force leveling the bars in this chart; where technology hasn't eliminated jobs, it has counteracted job growth. Entire categories have been and will continue to be decimated by technology. Middle class jobs are also at risk. Accountants, auditors, machinists, even economists have been projected to see major job losses due to automation in the coming years. If you can write an algorithm for a task or a job, the job is gone. And it will only continue to cascade. Technology has a domino effect; once it invades an industry or job category, it fundamentally and irreversibly transforms that industry or skill.

This Missing Middle is what I call this phenomenon of technology chipping away at middle-class, middle-skill jobs. As technology replaces middle-skill jobs, it's pushing more jobs to both low- and high-skilled sectors of employment. Today, to prepare your students for a middle-skilled career, which was the standard of twentieth-century education, is to prepare them for low-skilled and low-wage jobs. This is the reality of the twenty-first century.

As the middle goes missing, the new kinds of jobs being created in the higher-wage, higher-skilled end of the spectrum are entrepreneurial in nature, if not literally. As businesses operate under more rapid change and ambiguity, those they hire need to be nimble and broadly knowledgeable about multiple moving parts.

Where it was once enough to train people to be specialists who work in silos (jobs that fall into Quadrants A and C of the [Rigor/Relevance Framework](#)®), employees must now be generalists, with a high-level understanding of their micro and macro environments and the ability to work with people across functions (jobs that fall into Quadrants B and D).

Rigor/Relevance Framework®

We must strive to prepare our students for self-sufficient lives, which means preparing them for high-skill careers. Given how frequently those high-skilled jobs themselves get the technology treatment, this means we have to nurture in our students a lifelong love and appreciation for learning, particularly in a technology-driven environment.

When I give speeches, I like to go through a certain exercise. I ask the audience, usually educators, if they have kids in their teens or early twenties. "How many of you hope that your kids will become self-sufficient, independent adults in the next decade?" I ask. Of course, every hand shoots straight up. No parent wants their child to struggle to find the freedom, opportunity, and confidence that come with self-sufficiency.

And no educator wants this for the students in his or her classroom either. This means when we go to work each day, we must repeat this mantra: I am preparing every last student for a successful life—not just in school, but for the world beyond school. When this is our personal and shared goal, simply preparing our students for the next grade becomes glaringly insufficient and short sighted. The focus of our instruction shifts from the test to the skills students will need once they're in the working world. And we also naturally begin supporting each other in this most important goal.

I leave you with a closing thought. Let's return to Uber. Uber was born thanks to the opportunity of Internet and mobile technologies. Iteration after iteration since its founding in 2009, Uber has continued to let technology transform it. In its latest evolution, Uber is letting driverless car technologies transform it once again.
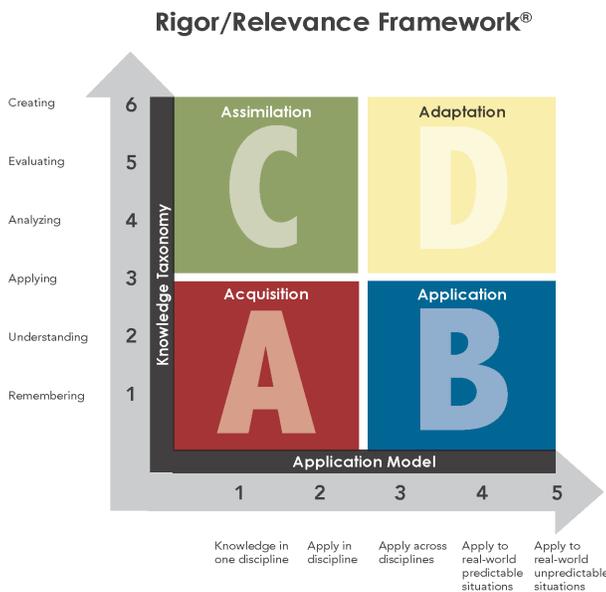
Yet we in education have asked technologies to transform to us. We've asked it to fit into our twentieth-century model of education. We've asked it to fit into our classroom time; our notions of how instruction must be delivered; our own comfort and skill level with technologies; our outdated notion that using technology to gather information and collaborate is a shortcut, even "cheating"; our perceptions of what the role of a teacher should be.

If our students will need to be sophisticated lifelong learners in a technology-driven environment, shouldn't that be the environment we create for them?

What must your school innovate so that it can allow technology to transform it to build an environment that nurtures lifelong learning? That is what I'll tackle in the next installment of this Innovating for Impact whitepaper series.

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