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Meeting the Educational Challenges of a 21st Century Economy: Strategic Investments to Win the Future

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Executive Summary:

Despite the economic downturn and a perceived lack of jobs, the changing U.S. labor market is creating demand for high skilled workers who possess more than a traditional high school diploma, but less than a bachelor's degree. This paper proposes that educators, industry, and policymakers can fill the "skill gap" by embracing programs that align high school academic instruction, technical training, and local job opportunities.

Introduction

As low-skilled professions become automated or exported to Chinese shores, technological advances are generating opportunities here at home in healthcare, information technology, and advance manufacturing. Leading economists project that between 2008 and 2018, these emerging sectors will create more than 47 million new occupations that will account for an estimated 64 percent of all new job openings.¹ A quick glance at today's job trends provides supporting evidence for this prognosis. Healthcare, for instance, is the nation's hottest industry having added over one million jobs during the recession.² What's more, this trend is likely to continue as the implementation of the Affordable Care Act increases the demand for nurses and other healthcare support staff.³

Yet despite the changing composition of the American economy, the education that many young people receive today remains disconnected from labor market demands. In the quest to establish academic environments where all students are held to high standards, education policy reflects a "college-for-all" philosophy that despite good intentions fails 7,000 students a day who leave high school before completing their degree.⁴ This paper argues that a greater emphasis on career readiness can reduce the dropout rate, while also reengineering American high schools to provide the lifeblood that supplies industry with much needed talent.

To some, talk of career readiness conjures negative memories of the vocational schools of the 20th century that siphoned students into low-level academic tracks.⁵ The new focus on career readiness, however, is about equipping individuals with the knowledge base to participate in an increasingly competitive market, and not about reviving antiquated tracking practices. With U.S. global competitiveness at stake, state policymakers can raise the quality of career readiness programs through a comprehensive approach that allows educators, community partners, and the private sector to collaborate in breaking down the barriers between secondary education, post-secondary education, and local industry.

Framing The Problem

"When I compare our high schools to what I see when I'm traveling abroad, I am terrified for our work force of tomorrow" — Bill Gates, Founder and CEO of Microsoft

Consensus among researchers confirms that despite several decades of education reform, the U.S. graduation rate has not climbed above 70 percent.⁶ In some jurisdictions, these numbers are worse since graduation rates vary by gender, race, and locality. Overall, the on-time public high school graduation rates for Hispanics are as low as 48 percent, with graduation rates for Whites and Asians hovering around 75 to 77 percent, respectively.⁷ Some states and districts are losing potential talent at the rate of seven thousand students every school day—a steady desertion that grows into more than 1.2 million dropouts each year, a number equal to the entire population of Dallas or San Diego. Some estimates place the loss in productivity upwards of \$3.2 billion over the lifetime of the dropouts.⁸ These numbers have serious consequences.

Dropouts are far more likely to spend their lives periodically unemployed, on government assistance, or cycling in and out of the prison system. The relationship is clearest when looking at dropout status and incarceration: although they constitute less than 20 percent of the overall

population, dropouts make up over 50 percent of the state prison inmate population.⁹ Consistently, failing high schools are located where disadvantaged groups are disproportionately represented in the prison system.¹⁰ The loss of large numbers of young people from the education system is a matter of public record and public concern. Rather than educating individuals to tackle a highly competitive 21st century knowledge economy, “dropout factories” are creating a steady stream of would-be delinquents in what some civil rights leaders have labeled the “school-to-prison” pipeline.

The job prospects for these dropouts are similarly bleak. The impact of a truncated education can be seen in the employment numbers during the recent recession and the ongoing recovery. Unemployment improved the most between January 2010 and January 2011 among Americans with a high school education or less, decreasing from 15.4 percent to 13.6 percent. Even with the change, unemployment still stands relatively high when compared to individuals with some college and with college graduates— 10.9 percent and 5.8 percent, respectively.

U.S. Unemployment by Education, January 2010 vs. January 2011

30-day averages for period ending Jan. 31 in 2010 and 2011

	January 2010	January 2011	Change, 2010 to 2011 (in pct. pts.)
High school or less	15.4%	13.6%	-1.8
Some college	10.9%	10.9%	0.0
College graduate	6.4%	5.8%	-0.6
Postgraduate	5.0%	3.8%	-1.2
All	10.9%	9.8%	-1.1

Gallup Daily tracking

GALLUP

Sustained economic recovery will likely continue driving down unemployment numbers for high school dropouts, although marginally. Another Gallup poll found that more than 60 percent of small-business owners who hired fewer workers than they needed in 2010 claim the one reason they did so was an inability to find qualified employees.¹¹ Fresno, California offers a more vivid example: although the

unemployment hovers at 16.9 percent, managers at the 7,000-employee Community Medical Centers say they cannot find enough workers to fill jobs requiring technical training.¹² These examples are just two of many that support the idea that improvement in education and training are critical factors in reducing unemployment in the future.

The aggregate consequences of raising the high school graduation rate for each age cohort are economically significant if they complete high school both college and career ready. Each cohort of 20-year olds includes over 700,000 high school dropouts. The fiscal consequence is \$148 billion in lost tax revenues and additional public expenditures over the lifetime of the dropouts. If this number was reduced by half through successful preparation for college and career, the net present value economic benefit would be \$45 billion.¹³ To better serve *all* students, states should move to implement student-centered approaches that seek to engage the individuals who do not succeed in traditional classrooms but could benefit from a rigorous technical education.

Recommendations

The U.S. education system fails 1.2 million young people each year not because of indifference, but because it is focused too exclusively on a few narrow pathways to success. The one-size-fits-all method to how school systems deliver education is clearly broken. Those who are left behind tend to be students without their own sources of motivation, without role models in their

families or communities—that is, the children of the underprivileged, whose parents are poorly educated or have jobs for which formal schooling is irrelevant.¹⁴ Combining a college-preparatory curriculum with an exceptional career and technical education affords students who may otherwise drop out with a clear pathway towards better economic prospects.

There is a need for school models that engage potential drop outs that are grounded on relevant and rigorous curriculum. A career track for students connects the actual needs in the country’s economy with related coursework that helps motivated young people answer the question: “why do I need to learn this?” To provide all students these opportunities requires State Governments to incentivize districts to:

a. Invest in Career Academies. The purpose of the small learning communities is to create supporting, personalized learning environments that combine academic and career and technical curricula around a career. Instruction is offered on the fastest growing local industries, each designed to prepare students to either go directly into the workforce or continue their education in college or other post-secondary training.

b. Leverage Technology to Provide Career Planning. Career counseling is an essential component of any effective pathways approach, yet America’s current system of career guidance is wholly inadequate, and many adolescents receive limited guidance. Software, such as Virginia Community College System’s WIZARD, provides students with customized information on certificates and courses that allow for purposeful long-term planning.

c. Forge Private-Public Partnerships. Robust integrated partnerships between schools and private partners to conduct “skill analysis” with the intent of strengthening and expanding what works in strong career academies. At the same time, the partnerships build capacity to support the work on the ground through investment in work-based learning opportunities, career mentoring, and internships.

On the national level, the Carl D. Perkins Vocational and Technical Education Act of 1998 attempts to get at this need for career and technical education, but is made less effective because it functions almost separately from mainstream education. Some of the failure could be attributed to the wrongful notion that career readiness is in some ways less rigorous than college readiness. Much of this is borne from historical accounts. During the 19th century, a small group of education leaders argued for elementary school teachers to sort their pupils by their evident or probable destinies. As sorting became routine, academic achievement was one criterion, but the obvious sorting mechanisms were gender, race, and ethnicity.¹⁵ Although the manual training curriculum was intended originally as a means of infusing instruction with greater sensory experiences in order to make learning both more interesting and more meaningful, in too many instances it became a euphemism for work experience with minimal instruction.¹⁶

History, however, should make policymakers vigilant but not afraid of innovation. With nearly 14 million unemployed workers and another 8 million working part-time involuntarily,¹⁷ the time is right to widen the cultural constructions of a “real school” and place students on the equally demanding trajectory towards career readiness. Focusing the career academies on future jobs directly challenges the premise that students will not have a challenging curriculum. In the new economy, hierarchies are flatter and front-line workers are more broadly responsible, requiring advanced decision-making, problem-solving, and communications skills that they did not previously need.¹⁸ Even secretarial occupations that were considered undemanding now involve a sophisticated command of computer software. If done correctly, these career-focused improvements could advance career readiness and improve the job prospects of those who college-for-all leaves behind.

21st Century Investments

“For far too long, career and technical education has been the neglected stepchild of education reform. That neglect has to stop.”

—Arne Duncan, *United States Secretary of Education*

Career academies are 21st century school models that connect learning in the classroom with real-world applications outside of school.¹⁹ There are three characteristic of career academies: (1) they are organized as small learning communities to create a more supportive, personalized learning environments; (2) they combine academic and career and technical curricula around a career theme; and (3) they establish partnerships with local employers to provide career awareness and work-based learning opportunities for students.²⁰ Students are still expected to achieve at high levels in mathematics, science, English, and social studies but master these subjects through the power of applying knowledge to a real-world context.²¹ These academies can create that necessary connection between school and future outcomes that traditional schools, for some students, do not.

Furthermore, information about the value of career and technical education has been growing, making it more possible to target investments to the most promising practices. Consider the findings of one of the most rigorous studies on the effectiveness of these academies. When compared to the traditional high school models, career academies had the strongest and most pervasive effects on the engagement of high-risk students. For these individuals, the academies increased attendance and credits earned in both academic and career or technical courses, and they kept a higher proportion of those students enrolled in school through the end of twelfth grade.²² In many ways, this point is consistent with recent studies conducted by Elaine Allensworth and her colleagues at the Chicago Consortium on Chicago School Research at the University of Chicago that showed schools where students felt like their high school grades mattered for success in col-

lege and the workforce were more likely to graduate.²³ In sum, engagement matters.

Unfortunately, workforce preparation and college readiness have often been positioned as “either/or” choices, suggesting that high schools cannot help students in both areas simultaneously. But the data is beginning to demonstrate otherwise. In a randomized experiment published in the *American Educational Research Journal*, one group of teachers taught math in a traditional lecture style while the other group integrated the material into a career curriculum. After one year of the math-enhanced career and technical education lesson, students performed equally on technical skills and significantly better than the students who learned math through lectures on two standardized tests of math ability.²⁴ When done well, career academies integrate rigorous academic instruction into demanding technical curriculum and field-based learning.

Moreover, students who attended career academies had higher earnings than their peers who did not attend career academies. The magnitude of the impact of career academies on annual earnings during the eighth year after high school for young men—a 16 percent increase over non-academy group’s earnings—is larger than the earnings premium that other researchers have calculated for two full-time equivalent years of enrollment in community college.²⁵ The most sustained impact was observed in males, who showed longer employment periods. This is not to say that career academies are a substitute for post-secondary education, only that they can provide a solid first step on the economic ladder.

Charting a New Path

Implementing the new program would require a fundamental shift. Traditionally changing basic organizational patterns creates overload for teachers, it does not simply add new tasks to familiar routines but requires teachers to replace old behaviors with new ones. It also requires school leaders to persuade pupils, colleagues, and parents and school boards to accept the new patterns as normal

and desirable.²⁶ This transition will not be easy, especially because some opponents will look at the expansion of career and technical education as an assault on academics. But quite the opposite is true. Career and technical education makes available another tool for teachers to teach challenging material, not to replace it. In line with current efforts to professionalize teaching, these programs require teachers to be able to develop their own curricula, to collaborate with teachers from other disciplines, and even to work with employers.²⁷

Critical to any successful career academy pathway program is for education leaders, policymakers, and the private sector to engage in integrated partnerships to conduct needs assessment.²⁸ Working with local businesses these surveys are used to determine what occupations are projected to experience growth. Rather than a one-time consultation, the dialogue between the institutions is an ongoing partnership to ensure that the curriculum is aligned with community needs with the purpose of developing career tracks and not dead end occupations. Massachusetts, for instance, has already created broad, cross-sectional needs assessment to establish career schools. Located in central Massachusetts, the Essex Agricultural and Technical High Schools offers training in the majority of the twenty-five fastest occupations in the state as defined by the Massachusetts Department of Workforce Development.²⁹

In our current economy, there is evidence of skill mismatches, with vacancies in good-paying jobs as welders, machinists, and health care professionals while workers either cannot find jobs or take positions well below their potential.³⁰ One necessary component of career readiness is a quality career counseling strategy that guides students to emerging markets. In South Carolina, the legislature enacted the Education and Economic Development Act (EEDC) which mandates the development of curriculum organized around a career cluster system.³¹ Career counselors help students a select career, determine what credits are necessary to achieve their objectives, and provide general guidance as early as

middle school. Technology also offers a promising avenue to provide students with customized career counseling at a fraction of the cost of hiring more counselors. While the recommendations do not necessitate legislation, the South Carolina model is an example of a jurisdiction that has made career education a central tenet of their economic development.

Part of the process of aligning school systems with economic need is to eliminate government regulations that protect or create inefficient silos. At the federal level, for example, the Department Labor provides \$100 million grants under the “Energy Training Partnership” program to provide job training for dislocated workers and other target populations in energy efficiency and clean energy industries.³² The current grants structure does not encourage secondary schools, post-secondary institutions, and workforce development centers to partner in a way that the funding could provide a higher return. Instead, the grants are completely reactive and can only be used once individuals are dislocated. Policymakers, education practitioners, and business leaders should be able to leverage these and other existing federal investments, including removal of barriers to combining funding from disparate funding streams.

On the instructional level, teachers need professional development to deliver the instruction, mentorship, and feedback students need to be successful. Resources to fund these projects should not only come from the Perkins Act, but also from Title II of the Elementary and Secondary Education Act (ESEA) that provides funding to improve teacher quality in traditional schools. State policymakers should also be able to use ESEA funds on a range of efforts in secondary schools to better familiarize disadvantaged high school students with both the requirements of postsecondary education and with opportunities like Pell grants to support them if they want to continue the certification process into college.³³ Some of these streamlining efforts were undertaken in Virginia under the leadership of then-Governor Mark Warner in his Education for a Lifetime Initiative.

Finally, cooperation to develop well-defined pathways that lead to industry-recognized certification is a critical component. A good example is the consortia of auto manufacturers that brings together GM, Ford, and Toyota to work with community colleges and the National Automotive Technology Education Foundation with the intent of certifying workers in electrical and electronic systems, engine performance, and other automotive specialties.³⁴ In all these efforts, the partnerships allow for more fully established pathway system that defines for students a set of courses, training, and hours that count towards the industry certification. Equally important, it provides industry with a market signal that lets them know they are hiring employees who have the skill set to fulfill the high skill job responsibilities.

Conclusion

The current dropout problem affecting American public high schools is a cause for concern. Concentrated primarily in high poverty, minority communities these schools are exacting a significant cost on the economy. As the demographics of the country shifts in favor of traditionally underperforming groups, it is imperative that our education reform strategies include multiple pathways to success. Making these changes requires refocusing attention on student needs; when people differ in capabilities, interest, and preferences, identical treatment does not provide every child with a world-class education. Rewiring how high schools function requires a sustained effort, especially since reform in one school or school district takes place within a larger interdependent system. Within this context, investing in career academies, leveraging technology to provide career training, and forging more private-public partnerships should be undertaken at a systems level for it to truly take hold.

Instead of being ready-made plans, the laid out policy recommendations are principles, general aims, to be modified in the light of experience and embodied in practices that vary by state or even by district. Nonetheless, we must change expectations.

Once there is a broader mandate, because a crisis demands it or leadership with some new vision re-defines it, then districts and school leaders can change their ways—otherwise, they only have permission to replicate what already exist. The way schools are currently organized is a product of history, not some primordial creation.³⁵ Educators should take advantage of tightening budgets to support new conceptions of teaching and learning that offers a medium for all students to succeed and develop intellectually. The challenge for practitioners is not only to carefully implement a rigorous career program so as to not harm student learning, but to also transform the shortage of skilled labor into an opportunity to reassess the conveyor belt policy that contributes to the current “skill gap.” Success here is measured by how much we are able to engage the students who have traditionally been left behind, and how well the new system prepares them to move forward.

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