



Rethinking the Traditional High School-College-Career Continuum

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From *Thinking Forward: New Ideas for a New Era of Public Education*

A collection of essays celebrating CRPE's 25th anniversary

Robin J. Lake, Editor

November 2018

Acknowledgments

Many CRPE colleagues and reviewers helped push our thinking on these essays; the collection is much improved as a result. Special thanks to Stacey Childress, Tony Lewis, and Bruno Manno for their reviews of this collection. Many others provided insights and commentary on individual essays: Thomas Arnett of Christensen Institute; Shael Polakow-Suransky of Bank Street College; Josh Schachter of CommunityShare; Sunanna Chand of Remake Learning; and Amy Anderson, Lauren Fine, Selam Gebre, and Rebecca Kisner of ReSchool Colorado.

At CRPE, Paul Hill and Travis Pillow served as indispensable thought partners to all authors. Our deep gratitude goes to Mark Toner for his extensive writing and editorial assistance. Alice Opalka managed the project beautifully, and Deb Britt's and Mary Jane Anderson's eagle eyes were essential, as always.

Finally, we are grateful to Carnegie Corporation of New York and the Walton Family Foundation for their support of this work. We note, however, that the views expressed in these essays are the authors' alone and do not necessarily represent the opinions of the funders.

About the Center on Reinventing Public Education

CRPE is a nonpartisan research and policy analysis center at the University of Washington Bothell. We develop, test, and support bold, evidence-based, systemwide solutions to address the most urgent problems in K-12 public education across the country. Our mission is to reinvent the education delivery model, in partnership with education leaders, to prepare all American students to solve tomorrow's challenges. Since 1993 CRPE's research, analysis, and insights have informed public debates and innovative policies that enable schools to thrive. Our work is supported by multiple foundations, contracts, and the U.S Department of Education.

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In Switzerland, at age 16 students earn the equivalent of a high school diploma. After that, they move into intensive career and college preparation, working toward a baccalaureate degree. Unlike the German school system, students are not sorted or tracked during this interim period. The time between what is the 10th and 12th grades in the United States is instead considered a period for exploration and guided preparation via hands-on apprenticeships or intensive pre-college theoretical work, aligned with each student's interests and talents. There are multiple pathways toward college and career, and those pathways are viewed as complementary: students entering college should have a good idea of their interests so they can use their time well, and those interested in certain careers should know whether and how college can help them be successful in those careers.

In contrast, American public education assumes one common pathway for all: four years of high school and—for the lucky—continuation into higher education, the required credential for the vast majority of middle- and high-paying jobs. Students put in their time and hope that they are prepared and competitive for the jobs they think they want.

When economists describe the future of work, they use words like *technology-driven*, *changing*, and *uncertain*. Words like *adaptive*, *agile*, and *responsive* are used to describe workers who will thrive in this economy. A growing [consensus](#) is that work in the future, fueled by rapid technology developments, will shift and change constantly. Workers will need to be prepared to shift along with it, committing to what the authors describe as continuous waves of learning.

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A clear and concerning “skill gap” exists today, and it will only get worse with continued improvement in labor-substituting technologies like automation, robotics, and artificial intelligence. Yet as careers grow ever more diverse, in 2018 we remain almost singularly devoted to the “4+4” preparation model (four-year high school, four-year college) as the pathway to an attractive career.

While our workforce requirements change, the need for a well-informed citizenry has not waned. Since the inception of the U.S. education system, there has been a tension surrounding its ultimate goal: whether it is to prepare citizens for democratic engagement or for gainful employment. As it stands today, our education system is doing neither particularly well.

We propose a better use of the billions of dollars we spend each year on education to improve results by breaking down the traditional barriers between high school, college, and career. Our goal is to replace the current two-tiered system, where those who can afford higher education and get in are deemed ready to participate in society, while those who cannot (largely predictable along racial and class lines) are denied access to the economic and political systems necessary to participate in and contribute to all aspects of society. These barriers to social mobility run counter to the deeply ingrained ethos of equal opportunity in America and prevent this country from developing the talented workforce and democratic citizenry needed for our nation to thrive in the 21st century.

It is clearly time to reimagine the 9–16 continuum of learning and to take up the important governance and system questions we outline here: a set of specific program and policy ideas intended to move the discussion forward.

The Traditional System Does Not Meet the Needs of Today’s Students

Despite wanting to be all things to all students, today’s K–12 school system is not. It was designed to identify and prepare students for either an elite college preparatory trajectory or an inferior vocational track that ends at the secondary level.

“Gifted” programs and schools, tracked math coursework, and other formal and informal systems identify and train students for four-year college. But in reality, preparation for a four-year college often has more to do with access than skill. Students who have limited access to quality teachers and schools are rarely considered college-bound.

Even when students do arrive at a four-year college, they are all too often unprepared and unable to succeed without costly remediation. For too many, this challenge proves insurmountable, and they find themselves deep in debt and without a college degree. It can be argued this is largely the consequence of both the breadth and depth of what was taught before they arrived on campus. The K–12 system simply takes on too much content and does not infuse what is offered with appropriate rigor. As a result, high schools struggle to prepare students well for either a college pathway or a non-college pathway ending with high school.

Our devotion to the “4+4” high school to college continuum seems all the more puzzling given its financial burdens and outcomes. Between 2005 and 2012 student debt increased by 35 percent,¹ while the earnings of college graduates barely budged.² On top of the college debt crisis, researchers have raised doubt that students are getting the essential analytic skills needed for today’s careers. An analysis of the College Learning Assessment for a cohort of college students found that after four years of higher education, 36 percent of students failed to show significant improvement in higher-order reasoning skills—what professionals need to succeed in today’s complex jobs.³

Along with these broader skills, there is also demand for specific career pathways that are not being met by our educational system, meaning that we need to be more strategic about the type of education and training students receive. For example, while there may be enough engineers and scientists, there is a lack of STEM applicants for government and private sectors.⁴

Over the past 10 years, traditional career and technical education (CTE) programs across the country have been evolving to reduce tracking and modernize program offerings toward higher-wage opportunities. Such programs often lack systemic supports and rigor, however, and are still regarded as second class.⁵ Successful CTE, work-based learning, and alternative pathway programs demand investments in curriculum and teacher training, as well as coordination with businesses and/or higher education—without these investments, the programs will not be rigorous or effective.⁶ Research also suggests that successful programs for underserved youth include strong community partnerships, dual enrollment opportunities, and paid internships.⁷

At the same time, new education programs must take into account changing educational requirements. Following the 2008 recession, most of the jobs that have been added back into the economy require a four-year bachelor's degree.⁸ There are various reasons for our nation's degree inflation, including employers' declining confidence in our nation's high schools. However, students who are adequately prepared for careers through means other than a four-year degree still should be able to gain entry into middle-class jobs as they did before, as long as they are adequately prepared.

In short, students who graduate from a four-year college are too often saddled with debt and not adequately prepared for a career. Students who are not able to access four-year colleges are relegated to technical preparation programs that often fail to provide strong systemic supports and curricular rigor, and thus fail to adequately prepare students for anything but low-skill careers.

Rethinking the Traditional Boundaries

While pressure to tighten preparation pathways has been felt most acutely at the postsecondary level, there is a clear argument for addressing career preparation at the secondary level as well. Not only is it more expedient and less expensive for the student, it is also easier to establish policy at the secondary level. Most students in our nation are educated within the public education system, and private schools that receive federal funding must comply with accompanying regulations. Put differently, a significant amount of the groundwork to support substantial secondary reform is already in place.

Over the past 10 years there has been a resurgence of interest in career preparation at the secondary level, including improved CTE programs, new graduation pathways, and apprenticeship systems based on European models. There has also been a move toward tighter coordination and permeability between secondary and postsecondary preparation and credits, via dual-credit programs and stackable credentials.

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These initiatives all assume some degree of blurring between the traditional boundaries of high school, college, and career. Below we present some promising examples at the national, state, and local levels. Each embraces greater permeability of the P-16 continuum and presents a model for a different kind of education system.

The Swiss model provides specific training but does not lock students into a career

In the Swiss system referenced in the introduction, the national government and provinces work with industry to create a coherent set of competencies and aligned apprenticeship opportunities. This is facilitated, in part, by a Swiss form of government that is closely connected with the business community, sometimes referred to as a “corporatist” state. A far cry from the low-wage job focused “voc-tech” programs still found in some U.S. high schools, the Swiss place students in [apprenticeships](#) in high-tech, health care, engineering, and other advanced industries.

After completing compulsory lower secondary school (akin to middle school in the U.S.), 15- or 16-year-old Swiss students choose from a “practical” choice of more than 300 industry-sponsored apprenticeships or a theoretical path geared to students who know they want to pursue academic professions such as philosophy, psychology, or sociology. Students in the practical track continue to take academic coursework 2-3 days a week while working toward a vocational certification or baccalaureate degree. More than 70 percent of all Swiss students choose the practical path, and many go on to higher education following their apprenticeships.

The Swiss system combines concrete career training with opportunities to change course, making it more nimble than most European career preparation programs. The key features of the Swiss system include:

- **“No dead ends.”** Students who pursue the practical track can opt for college without being penalized.
- **Permeability.** Student academic and applied learning opportunities are mutually reinforced. Secondary and postsecondary systems are tightly coordinated to allow credit transfers and credentialing.
- **Systemic.** The Swiss model is not a set of independent programs that coexist. A national investment of time and funding ensures there is a wide range of opportunities to meet student and industry needs. There are also support structures for students and their families to navigate opportunities, find the right fit, and have successful experiences.
- **Industry-led.** Switzerland’s government does not try to predict what skills industry needs and it does not try to provide all of the training associated with those skills. Industry partners, which have much to gain from a ready pipeline of talent, are full partners in setting competency targets and providing training to meet them.
- **Investment in research and development.** There is major investment in evidence building in the Swiss system. A partnership with [CEMETS \(Center on the Economics and Management of Education and Training Systems\)](#), run by Dr. Ursula Renold, trains scholars and education reform practitioners and supports ongoing research and learning to inform the Swiss career readiness system.

States coordinate requirements at the secondary and postsecondary level

The state of Colorado has recently attempted to adopt and adapt the Swiss model by creating a statewide set of industry partnerships and apprenticeships. Many other states are considering components of Colorado’s model. However, at this early stage, there are several differences between Colorado and the Swiss model. Most notably,

the apprentice programs in Colorado are layered on top of the current four-year high school and higher education model. Early participants report difficulty managing multiple requirements: high school coursework, sports and extracurriculars, and employer apprenticeships.

In the long run, it is likely that states like Colorado will have to consider a **coordinated set of credentials and credits** that start in 9th grade. By shifting to a system of skill-based competencies and “stackable” credentials, students can earn industry-aligned credits in secondary education that can be applied toward higher education degrees. ExcelinEd offers an excellent playbook for policymakers, including prioritizing policies to promote quality CTE coursework.⁹ The authors caution, however, that while a few states, like Florida, have been able to create agreements across K-12 and higher education, these agreements took years to negotiate.

The blurring of secondary and postsecondary education has already begun through **dual enrollment programs**, which give students access to college-level coursework and credit before they graduate from high school. However, while dual enrollment succeeds in providing students with exposure to higher education, which has a positive impact on student motivation, these programs typically focus on helping students fulfill basic requirements, like entry-level English or math. The potential of extending dual enrollment into other types of courses and curriculum, however, would require funds to follow the student, which existing school districts and schools would likely resist, as has been seen in Florida.¹⁰

Systemic solutions, not add-on programs, are necessary

Any career pathway has to begin in school. Hanushek and Woessmann recently wrote that we should not delude ourselves into thinking that we can introduce work-based learning models, like apprenticeships, to substitute for failing K-12 systems.¹¹ If we become enamored with add-on programs that fail to address the underlying weaknesses and inequalities in K-12 education, students will not have better opportunities than they already have.

Add-on programs that fail to address the underlying weaknesses and inequalities in K-12 education will not give students better opportunities.

The need for systemic reform in K-12 education is more urgent than ever, but it remains a very large ocean to boil. How might we create more effective pathways for students? Three examples offer a look at how we might begin to answer that question.

- The Cleveland Metropolitan School District (CMSD) helps community teams, made up of local families and businesses, design new K-8 and high school models that align with emerging career opportunities and neighborhood assets. Thus far, the district has redesigned four high schools, two that are tech-focused to align with nearby manufacturing and tech companies—one with an **aerospace and maritime focus**, and one focused on **life sciences** in partnership with the Cleveland Metroparks Zoo. These models are intended to prepare students for high-growth, high-wage careers in the region by aligning their concentrations with regional economic trends.

- San Antonio is developing a slate of open-enrollment magnet schools with specific career and technical foci. [Fox Tech High School](#) offers law and health profession tracks, with curricula that suitably prepares students for either admission to a four-year college or for a career directly out of high school. [CAST Tech](#) is a new school that engages with local companies to help develop IT and digital media curricula. Industry partners teach classes, providing real-life problems for students to solve. The school has a flexible schedule to allow students time to pursue internships and job shadowing. Students at both schools can take courses to graduate from high school with an associate's degree or industry certification.
- States, districts, and individual schools—district and charter—also are starting to develop schools that are based on student interests and skills and paced according to student mastery.¹² One such school is [Boston Day and Evening Academy](#), a charter school that offers 11-week curriculum modules rather than yearlong courses, combined with individualized student planning and extensive social-emotional supports. The school is aimed at disengaged students who have dropped out of school or are at risk of dropping out. According to the school's own analysis, about 95 percent of the school's 400 students graduate with post-high school plans.

Guidelines for Reinventing the P–16 Continuum

All of the examples above seek to alter the current 4+4 continuum in a significant way. Moreover, beyond innovative new CTE models, other experiments and initiatives under way also are challenging the traditional 4+4 model, including early college high schools, secondary apprenticeship programs, and competency-based school and district models. What has been lacking thus far, however, is any attempt to integrate initiatives into a comprehensive policy framework that can drive the evolution of a more integrated P–16 model. We also lack a set of guiding criteria to assess the potential benefits of the experiments that are now underway. Without that, there is real danger of faddism, unintended consequences, and unfulfilled promises.

We propose three guidelines that could help policymakers, districts, and charter leaders move toward an integrated system and evaluate changes to the P–16 continuum: embrace decentralization, look to new instructional models, and pursue alternative funding schemes.

Look to new instructional models

New instructional models offer one potential way of overcoming resistance to change and improving cooperation between the K–12 and postsecondary education communities. These might be school, district, charter network, private school, or homeschool cooperatives that merge high school, college, and even online curricula into an integrated and rigorous career *and* college prep program, with customized dual enrollment and apprenticeship opportunities and appropriate social-emotional supports for students. In such a system, funding would have to follow the students, accountability systems would have to be redesigned, and schools would have to curate a rich set of opportunities for students. Given the complexity of this endeavor, not every school would want to take on this challenge, but many eventually would if startup funds, supports, and early success stories were available.

Another alternative could be European-style high schools that only focus on core academic and social-emotional learning. The time and money saved from not offering extracurricular activities and electives could be used to fund customized internships, service learning, and other life and career readiness skills. Some private and charter microschoools are already experimenting with this model. Not every school need follow it (some students will always prefer a comprehensive high school). But stronger supports for new models like these can only speed the pace of learning, evolution, and performance improvement.

Even within the comprehensive high school model, what if senior year were focused on career and personal exploration? Students from wealthy families sometimes take a gap year to work, travel, or volunteer between high school and college. What if seniors of all income levels who demonstrate proficiency in college and career-readiness skills could use 12th grade to start college early or do a full-time apprenticeship or career exploration project.

Embrace decentralization and networks to promote innovation

It is difficult to accurately predict the future needs of a system as complex as our society. A safe bet is that we must prepare students for rapid and continuous change—but determining which types of jobs will or won't exist in the rapidly evolving future is much more difficult. New approaches must embrace rather than avoid uncertainty by developing students' adaptability and lifetime learning skills. It would be a mistake to create a new system as rigid as the 4+4 model we need to replace.

This guiding premise should have a great impact on determining which models to invest in and how to pursue investments. Take K-12 apprenticeships as an example. Hanushek and colleagues have smartly raised the question of whether the push to replicate European apprenticeship programs risks investing too much in an outdated model of intense preparation for a single lifelong career.¹³ The authors find that while short-term payoffs from apprentice models are high in Europe, the long-term payoffs are low in today's rapidly changing economy because there is no lifetime learning component. We also have to recognize that the realities of U.S. public education are different from most other countries: we have no national education system, and our highly decentralized system is generally resistant to change. Dramatic structural shifts that threaten long-standing educational institutions and interests will be far harder to implement here than in more centralized systems. It therefore seems likely that change will happen only if and when the U.S. business community becomes strongly engaged in these changes, via organizations like [CareerWise Colorado](#), and we use and expand the existing flexibilities in education, such as public charter schools, to promote more innovations in how schools promote career readiness.

Pursue alternative funding schemes

Changes in current funding models will likely be a key component of substantial changes to the 4+4 model. For example, former Senator Mike Johnston, a candidate for governor of Colorado, has proposed a lifetime learning credit to facilitate the ongoing upgrade of skills and competencies needed over the course of a career.

Another example of a new funding approach is mandating that school districts pay for their students to take dual enrollment courses at local colleges (and in some cases high-quality online courses such as those offered by Arizona State University). Education savings accounts could also be used to give parents more choice over

participation in dual enrollment and accredited employer apprenticeships. This would enable students to opt out of some high school courses and use the funds to obtain certified competencies geared toward their desired career pathway. (See [Travis Pillow and Paul Hill's essay on funding](#) for more on how this could be done well.)

Charter school laws and startup funding could be adjusted to incentivize more new schools to provide innovative career readiness and higher education opportunities. But laws would have to be adjusted to allow funding now tied up in higher education to be used for these purposes.

In sum, there are many creative ways that resources could be reallocated if high school as we know it ended after the 9th or 10th grade so that students can pursue more individualized pathways. A critical question, embedded throughout this essay, is whether all students will have the same opportunity to access new high-paying career pathways and whether we can ensure that less advantaged students are not relegated to low-level pathways, as the current CTE system has done in the past. We believe there are many ways to ensure that every student has the opportunity to develop individual interests, talents, networks, and skills in a pathway-oriented system.

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Information systems and supports must be provided to help under-resourced families and students navigate their options. Strong accountability systems must be designed to ensure that every student has foundational or gateway skills by age 16, and that career pathways are effective at creating new possibilities for upward mobility. There are risks, but holding to the current system is inherently unequal and unworkable.

Conclusion: Leadership Required

Well-established American institutions and traditions, like comprehensive four-year high schools, are not easily reimaged, but they must be. Can traditional high school schedules flex to free up student time for applied learning? Can a more efficient funding model allow money to follow students to a range of activities and providers? Can higher education adapt entrance requirements to allow for skill-based training in K-12? What are effective ways to engage the business community, and how much ownership do they need for these efforts to be successful? What new information systems and parent support mechanisms are needed, and who will provide these functions?

These are just a few examples of the seismic shifts that will be needed. Realistically, any of these approaches will likely result in tensions that cannot be overcome without strong leadership and political savvy from governors, state education chiefs, and the federal government.

Despite these challenges, states, districts, and schools are already headed in this direction. There is momentum toward rethinking CTE and providing work-based and dual enrollment opportunities for students. There surely isn't one best option among the ones described in this essay, but failing to fundamentally restructure a system that was built for a different set of priorities is a recipe for failure. And failure has significant implications for America's future.

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