# Preparing Our Students for the Real World: The Education Shift Our Children and Future Demand

A thought paper for school and community leaders by Hans Meeder and Brett Pawlowski of the National Center for College and Career Transitions

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# Introduction

Our current education system is a legacy creation, built on the decisions made by those who came before us in the past 150+ years of public schooling. Our "factory" model of education was borrowed from the 19th century, as were our summertime breaks in schooling. And on that foundation we laid hundreds of other decisions that gave us the modern schools, a system not so much designed as inherited.

Not one of us intentionally asked for an education system that is built around narrowly defined curriculum, that is often devoid of meaning and context, that leaves some or most students increasingly disconnected from education as each year passes, and that too often leaves them utterly unprepared for life as the adults they will inevitably become.

But that is the system we have. And as we face the challenges of today, we can choose to do so within the framework of the current system, or step back and ask if that legacy system is the best solution to prepare our children for their futures. And, if not, how that system can be transformed to produce the results we seek.

This white paper is directed at today's leaders of education. Of course, when we say "leaders" we are thinking about school superintendents, school board members, as well as school leaders in high schools, middle schools and elementary school. But we're also thinking about community leaders, parents, and employers who partner with and have a say in how our schools function.

We have heard widespread recognition of these challenges from current education leaders, and have seen numerous attempts to address them, often with tremendous success (some of these success stories are found within these pages). But they continue to remain the exception, and not the norm, and given the needs of our communities, a sweeping change is required, both in mindsets and practices. We believe that the ideas in this paper will help you find clarity and direction to bring greater effectiveness and greater scalability to these efforts.

In section 1, we will take an honest look at the current reality of what is facing America students and its workforce in 2019.

In section 2, we take a look back at how, particularly after World War II, our leaders made decisions that brought us to our current state.

In section 3 we will explore and define Career Connected Learning, and describe positive evidence that supports it.

Finally, in section 4 we will share a call to action, with specific action steps that you as a state or local education leader or influencer can take to embrace Career Connected Learning as a strategy for ALL students.

Thank you for reading; we hope that this paper gives you clarity about your next steps.

# I. The Crossroads

*"Life is like arriving late for a movie, having to figure out what was going on without bothering everybody with a lot of questions, and then being unexpectedly called away before you find out how it ends."*

*-- Joseph Campbell*

People working today in both education and workforce development in the United States can relate to Joseph Campbell's observations about entering in the middle of the story: We have jumped on board a train that's already moving down a set of tracks, and we tend to spend our time trying to find our place and do the best we can for our students and clients. It's hard to second-guess the direction of the train while we're riding it, especially when it takes so much time and effort just to get good at the roles we're assigned.

But when we take a step back, we can see that there are signals, increasing in frequency and visibility, that there's a problem with the tracks ahead. And we have an opportunity to start to question whether the track we're on even takes us where we want to go.

## A. Where We Stand Today

We stand today at a point that was determined by the decisions we have made over the past few decades, as well as the decisions we chose not to make, and the questions we failed to ask.

In many ways, for example, public education in this country is the best it has ever been. Our elected policymakers have told the public education system what we want, and it has delivered, with the best reported graduation rates in history[1] and unprecedented access to instructional opportunities for students of all backgrounds.

But as observers of the American workforce can tell you, our focus on "college for all" has resulted in a severe mismatch with the needs of industry, leading not only to severe shortages of needed workers but a lack of opportunity for those students who we promised to prepare for their futures.

Similarly, rather than ask necessary questions and take a long-term view, our talent development system has looked for quick fixes to address its needs, focusing on offshoring, automation, and the retraining of existing workers rather than investing in the young people who will inevitably fill the labor pool of tomorrow.

It's time to look at where our actions have led us and consider our options for going forward.

### College for All, but at a Cost

For decades, we have been pursuing a "college for all" strategy, explicitly and implicitly encouraging every student to pursue a four-year college or university experience as the premier, honored option.

We have designed our high schools to prepare students for college-level work, and offer career and training options as an unfortunate second choice. In recent years, this even elevated to a priority of the federal government, with President Obama proposing to lead the world in college attendance rates by the year 2020 (a 50% increase from his 2013 announcement).[2]

In this push to raise college completion, policymakers sometimes overlook the fact that in many other industrialized countries, a much larger percentage of their college attendance is in the vocational-technical postsecondary sector than in the U.S. Most northern European and Asian countries strongly value vocational-technical education as an alternative to university-level education, and that value is reflected in student enrollments. Our competitor nations have surpassed the U.S. in postsecondary completion rates, not by sending more students to university track programs, but by focusing a lot of attention on what they call "vocational-technical" training.

The cultural norm in the U.S., however, has been focused on helping students aspire to four-year colleges and universities. As many have noted, this singular focus on going to college, while well-meaning, may not be serving high school students or society at large. The college-preparatory curriculum, oriented strongly towards the requirements of four-year colleges, isn't relevant to every student, nor does it help prepare students for a large number of good jobs that are actually available. And for those who would choose something other than a four-year college path, there is a real lack of relevance during the hours and hours they spend within school walls, which results in exactly the kind of disengagement over time displayed in a 2016 Gallup poll of students:[3]

For U.S. students, if they believe that four-year college is not relevant to them, or is financially unattainable, they mentally check-out and put in the minimum effort necessary. They may "do their time" in the classroom, doing just enough to receive a high school diploma that has almost no market value. The ACT and SAT organizations estimate that only 40 percent of high school graduates actually have

the academic skills necessary to succeed in college-level work. Despite rising graduation rates, 17% of students do not complete high school at all, which adds up to about 800,000 students annually failing to earn a high school diploma.

This lack of relevance, and the resulting disengagement, may also explain why one in seven students are chronically absent from school (15 days or more per year, in 2013-14);[4] and it might help to explain the fact that diagnoses of ADHD have gone up four-fold for boys and six-fold for girls between 1991-92 and 2008-09.[5]

## More College Attendance, but Poorer Outcomes

For those who do go on to either a two- or four-year institution, success is far from guaranteed. Among those attending a four-year institution on a full-time basis, only 59.6 percent graduate within six years of initial enrollment;[6] the number for two-year colleges is lower, with 29.1 percent of full-time enrollees graduating within 150% of the expected time.[7] Those who fail to complete a degree program typically incur some kind of a debt burden but do not end up with the degree needed to better their employment prospects in order to pay it off.

And debt is a major burden for those pursuing postsecondary education. According to Federal Reserve of New York, the total amount of student loan debt in the U.S. is $1.48 trillion, more than credit cards or auto loans[8]

Two in three (65 percent) college seniors who graduated from college in 2017 had student loan debt, and the average debt load is $28,650 per borrower. This was 1 percent higher than the 2016 average.[9]



Figure 1: Student Engagement by Grade, 2016
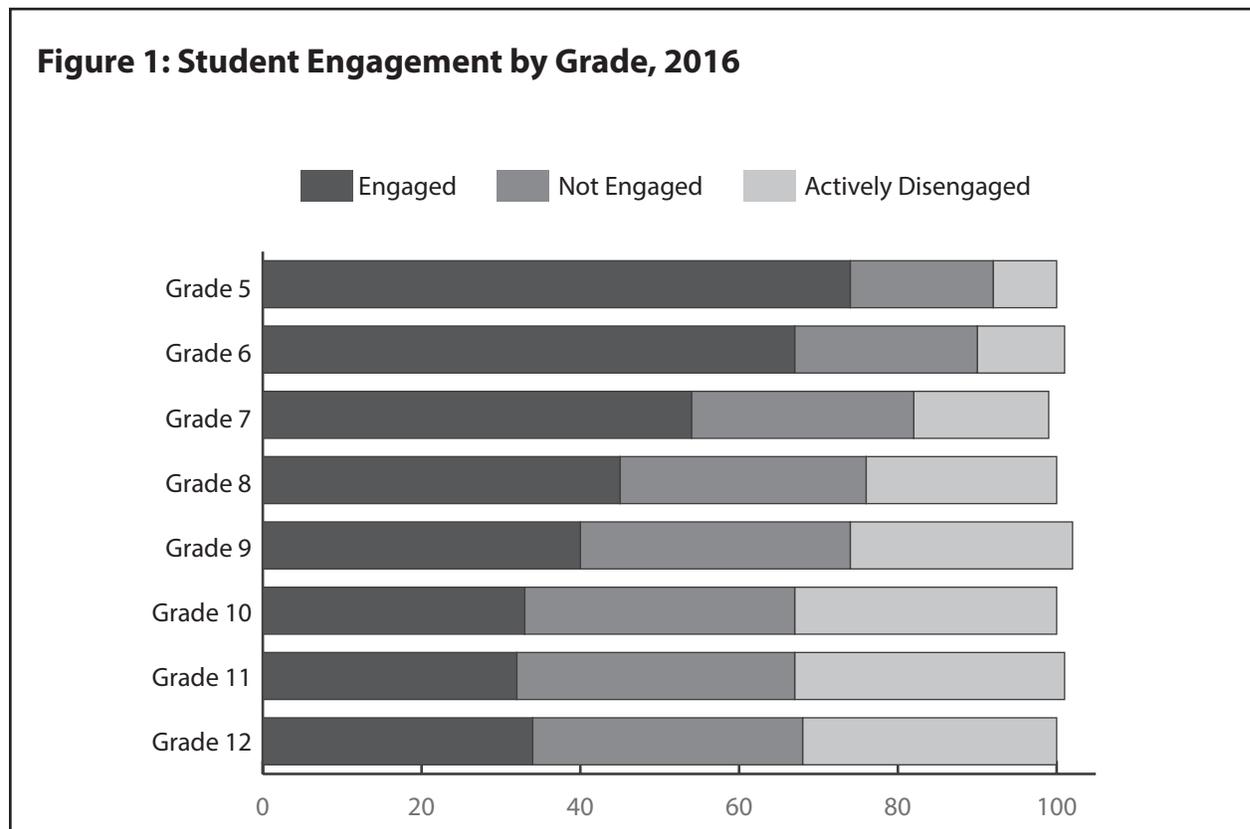
Further, the share of student loans that go into serious delinquency (90 days+ past due) has risen to almost 10 percent, and 21 percent of borrowers who stopped college without a credential are behind on student loan payments.[10]  That debt is forcing young people to delay major life choices, including homebuying,[11] marriage,[12] and having children.[13]

And even for those who do earn a postsecondary degree, their prospects are heavily influenced by the kind of degree they earned. While there is a severe undersupply of people with credentials in some fields (particularly those involving middle-skill roles), there is now an oversupply of people with four-year degrees. The quip about the barista or uber driver with a philosophy degree has its basis in reality.[14]

The reality is that a postsecondary degree doesn't automatically improve your life prospects: It depends strongly on first selecting a degree with a practical application in an in-demand field, and then completing that degree with as little debt as possible.

## Industry Disengaged from Schools, but Desperate for Skilled Workers

As education struggles with the results of its college-for-all strategy, businesses struggle with the lack of employable workers, a challenge made more acute by the retirement of their skilled and experienced Baby Boomer employees.

The pain, of course, is not felt evenly across all skill levels. There will continue to be an oversupply of low-skill workers since those are the jobs most easily eliminated through offshoring and automation. And there will apparently continue to be an oversupply of high-skill workers (defined as those completing a four-year degree or higher), given our push for college and the growing potential for eliminating even some of these jobs, thanks again to offshoring and through the increasing sophistication of artificial intelligence. (It is surprising how many lower-end, high-skill jobs, such as tax preparation, legal research, and even writing are being lost in this way.)

The real pain point for industry is found in the middle-skill range. According to the National Skills Coalition, middle-skill jobs account for 54 percent of the United States' labor market, but only 44 percent of the country's workers are trained to the middle-skill level.[15]

These middle-skill jobs are often hands-on and require a great deal of creativity, making them very difficult to eliminate, automate, or send overseas. And given industry's overall lack of involvement in the education system, they are currently certain to face a painful shortage for quite some time.

# B. More of the Same?

When Horace Mann designed a model for public education in the 1850s, he didn't rely on learning theories and research; that body of knowledge didn't exist. Instead, he looked around and modeled his school on the most successful system of the day, which was, of course, the factory. Even though it's been 170 years since that time, our schools largely follow the factory model format, with an emphasis on "mass production" that moves students through a predefined set of courses until they either fall off the assembly line or get shipped out the door. The only change is that our end goal is no longer the factory floor, but rather the four-year college campus.

If Mann was with us today, he would realize that the factory model of the 1850s is woefully out of sync with the world in which we live; that is particularly true for our "four-year college for all" focus. And yet, for lack of a national discussion or consensus, it is one we will continue to follow until we find the willpower to change, or until a change is unavoidable.

Assuming we do nothing, where do the trends noted above take us? We will certainly see student engagement continue to decline, first and foremost. Despite that, our children will increasingly decide (with strong encouragement) to enter a four-year institution. Whether they graduate or not – and approximately half do not – they will be left with more debt, less direction, and less opportunity than ever. And on the workforce side, employers will face ever-greater challenges in finding employees with the skills that are actually in need, as their skilled Boomer employees head into retirement and the younger generations come in unprepared to replace them, and indeed even unaware of the opportunities that exist. This is hardly the recipe for a strong economy, or for a fulfilled, self-sufficient populace.

Of course, it is important to remember that workforce preparedness is hardly the sole purpose of education. Education is a noble goal in and of itself. But most would agree that it makes eminent sense to connect the two to some degree. If employers can't find people needed to do important jobs, they cannot grow and succeed. If students are not prepared for the opportunities present in the workforce, they will not be able to earn the money needed to build and sustain families. And if both come to pass – if we have unprepared graduates and companies constrained due to a lack of workers – then America becomes an also-ran country, unable to compete in the world, and poorer as a result.

Unless this outcome is acceptable to you as a student, a parent, an educator or an employer, it's time to consider an alternative approach. And that's where Career Connected Learning offers some desperately needed solutions to the challenges we face.



**Figure 2: Jobs and Workers by Skill Level, United States, 2015**
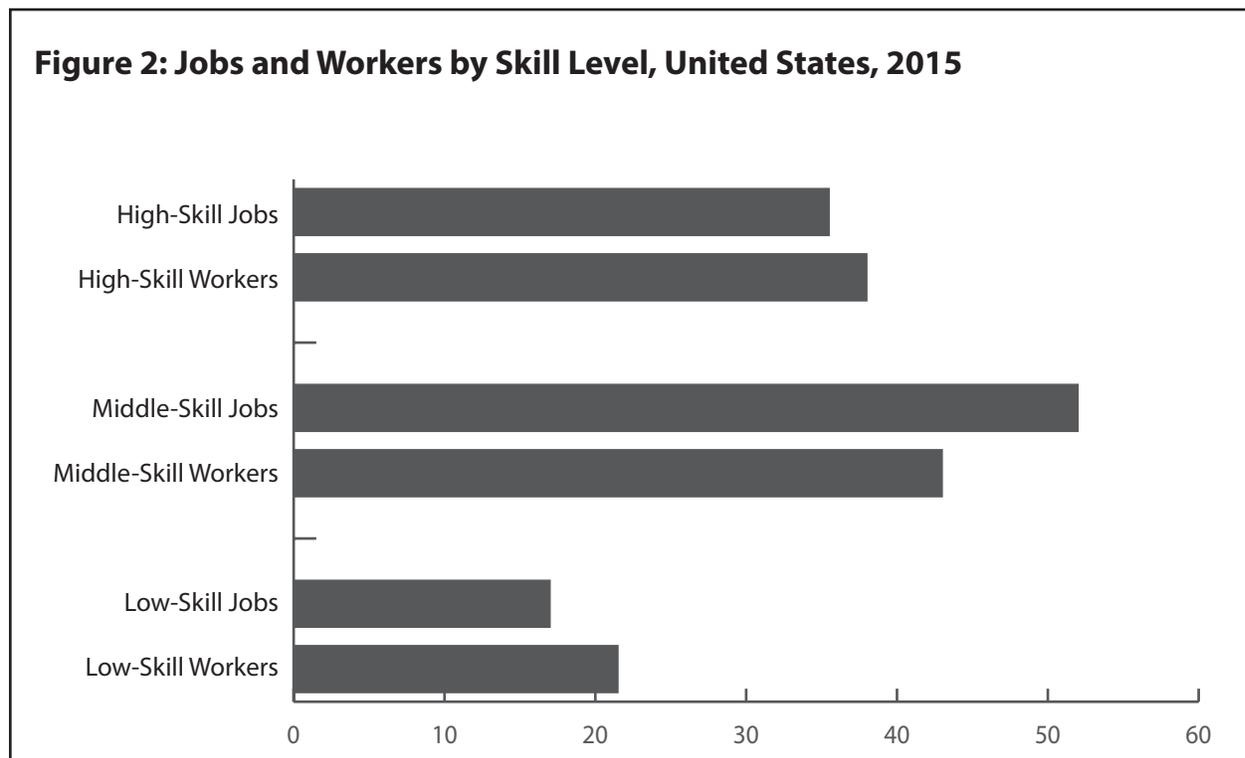
# II. The Path Already Traveled – Steps and Missteps

## A. The Path of Education

### Pre-1960s

As most educators know, the public education system in America got its start in Massachusetts in the 1850s, thanks to the work of Horace Mann. What most do not realize, however, is that it was industry, not government, that provided the launching pad. Mann approached state legislators with his idea, and was rebuffed; it wasn't until he approached industry leaders with the following pitch that he got the support needed to enact his vision for public schooling:

> *"My object is to show that education has a market value; that it is so far an article of merchandise, that it may be turned to a pecuniary account: it may be minted, and will yield a larger amount of statutable coin than common bullion. It has a pecuniary value, a price current. Intellectual and moral education are powers not only insuring superior respectability and happiness, but yielding returns of silver and gold. This is my idea."*
>
> *- Horace Mann[16]*

The thinking at the time – a time of factories and a mostly unskilled workforce made up of recent arrivals from all over the world – is that a common baseline of literacy and knowledge, brought together as a public with a common American story, would produce a prepared workforce for Massachusetts while at the same time creating a capable and involved citizenry. And it did, fueling a rapid rise in prosperity and national identity as the idea of public schooling took hold across the country.

Through the decades, the dual purpose of education began to split into separate tracks of academia and vocational preparation, a move accelerated by the push in the early part of the 20th century for standalone vocational efforts. Driven in part by an ever-increasing need for skilled workers and the abolition of child labor, industry pushed for federal support and got it in the form of the 1917 Smith-Hughes Act.

The Depression came and went, as did our involvement in World War II, which left us with a post-war economic hegemony across much of the world but also locked in a Cold War and Space Race with the Soviet Union. We experienced a national shock when the Soviets leap-frogged us by launching Sputnik, the first orbital satellite, and education came to the national forefront, with a call for heavy investment in the sciences to build our national capacity. That call was answered with more federal investment, via the National Defense Education Act in 1958, which fueled secondary and postsecondary education with a billion dollars in new funding (a fortune in 1958) for math and science. (It should be noted, however, that this investment was aimed at promoting math and science achievement among the relatively small percentage of students with an exhibited natural facility in math and science; it was not designed to promote widespread math and science literacy among American youth.)

## 1960-Present

It was after the NDEA that American education shifted course, more by the flow of events and less by intention. We retook the lead in the space race, ultimately landing a man on the moon, and faced no other serious international challenges to our technological prowess. Thanks to the scores of highly prepared scientists and technicians produced via NDEA and the large general track output of our public schools, employers had a huge pool of skilled professional, technical, and middle-level workers from which to choose (more on that point soon). Being generally satisfied with the workforce pipeline, American business and political leaders became somewhat disengaged from the workforce and international competitiveness implications of education. Within education, the focus shifted to hard fought battles for equity and access, beginning in 1954 with Brown vs. Board of Education but fully pursued through Civil Rights-era initiatives, women (Title IX, 1972), and students with disabilities (Individuals with Disabilities Education Act, 1975).

Throughout the 20th Century, one of education's darker legacies is that of tracking, in which minorities and economically disadvantaged students were discouraged from academic pursuits and steered towards a general track of "life adjustment education" or watered-down vocational training. With the legacy of tracking, efforts to increase equity for underserved populations in the 1960s, 70s, and 80s were directed at eliminating all tracking, enhancing academic achievement, which included a concerted effort to have every student pursue a postsecondary degree (which, disproportionally, was interpreted as a four-year college degree). With the support of new federal assistance for higher education tuition and the creation of student support programs like Upward Bound and Talent Search, the civil rights movement focused on college-for-all as the perceived solution to promote economic and social

**Figure 3: College Participation Rates, 1940 to 2009**
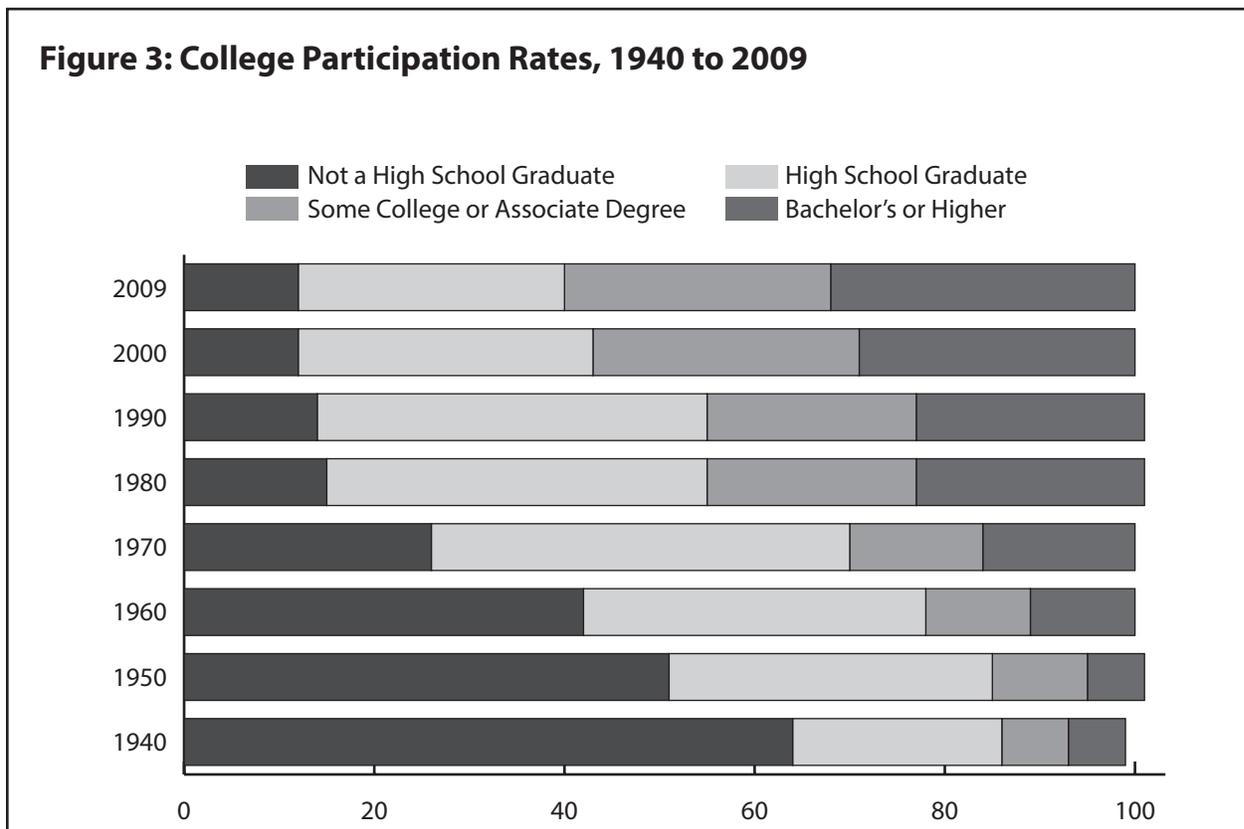
mobility. College access was seen as a way to right the wrongs of legalized discrimination against blacks and other minorities that prevailed during most of the 20th century.

In light of the legacy of tracking, students from disadvantaged backgrounds were actively encouraged to enroll in four-year college programs in favor of technical training and two-year colleges. The pendulum swung to the extent that almost any form of guidance encouraging students to consider vocational or technical education was viewed with deep suspicion – as evidence of lingering racism and classism.

There was a confluence of social, economic, and policy factors that drove the increase in college participation throughout the late 20th century, including: federal funding in grants and loans for post-secondary education; a cultural connection between the "American dream" and college participation; parental aspirations for a better life that reacted against the difficulty, danger and drudgery of factory employment and low-skilled employment; civil rights programs and women's rights movement sentiments that actively promoted four-year college participation to help youth access professional jobs that had been off-limits to most African Americans and women; and for young men in the Vietnam era, a legal form of draft avoidance. This graphic from The College Board shows the increasing momentum for college-participation beginning after the 1950s:[17]

This focus on academic achievement and college aspiration was cemented by the 1983 A Nation at Risk report. This landmark report shifted the focus on education back to workforce and economic competitiveness, reacting to a new international threat – the economic and manufacturing resurgence of Japan and Germany that visibly threatened the stagnant U.S. automotive industry. The report lamented the failure of education to prepare a competitive workforce but provided recommendations solely focused on improving academic performance, including goals relating to content, standards and expectations, time, teaching, and leadership and fiscal support.[18]

Once this new direction was locked in, all additional reform efforts were focused on increasing academic rigor and student achievement which would increase the ability of students to enroll in and succeed in college. The idea for curriculum standards was broached as a voluntary national guidance by George H.W. Bush in 1989 (and which moved to state-level mandated standards not long after); The Goals 2000 initiative of the Clinton Administration (1994), which gave the federal government direct influence over state and local academic improvement efforts; the 2001 No Child Left Behind Act (President George W. Bush), which brought a strong accountability effort to instruction, including explicit reporting on disaggregated subgroups. No Child Left Behind was not just driven by conservative lawmakers; it was also driven by a strong current of social justice, fighting against the "soft bigotry of low expectations" and the belief that every child deserved to be taught to high academic standards. The Common Core Standards movement continued the momentum to create uniform rigorous academic standards across the states. While nominally a voluntary initiative, adoption of the Common Core standards and associated testing was incentivized through federal funding under President Barack Obama.

As one might expect, this relentless focus on academic achievement and postsecondary attainment had an adverse impact on Career and Technical Education. The number of CTE credits students earned declined from an average of 4.2 to 3.6 per student over a 20-year period (1990-2009), while academic credits proportionally increased.[19] In many communities (especially rural and urban ones), as vocational education lost its status, there was also an underinvestment in vocational education, allowing programs to lose their direct connections with business and industry until they became little more than dumping grounds for low-performing students. This under-investment created a self-fulfilling

prophecy so that enrollment in vocational education offered very poor prospects for social and economic mobility. Since the 1990s, there has been a gradual transformation of vocational education into a revived, relevant Career and Technical Education model; until very recently, this transformation has slipped the notice of most parents and educators, who remember the vocational education programs of their formative years.

While there have been encouraging developments connecting students to industry (such as the growth of Career Academies and other Pathways systems and a renewed approach to Career and Technical Education), the majority in the American education system continue to be taught with an almost wholly academic focus; students are told, both verbally and through countless subtle signals, that the path to future success lies in attaining a four-year college degree.

# B. The Path of Workforce Development

### 1960-Present

As noted, American industry in the 1960s was blessed when it came to its workforce: Thanks to federal, state and local investments in education fueled by healthy economic growth, coupled with the arrival of the largest population cohort in history (i.e., the Baby Boomers, born between 1946 and 1964), employers had access to a very large labor pool made up of capable people well matched to a small percentage of management, professional and skilled trades, and a large majority of moderately skilled jobs in the manufacturing sectors. With little international competitive pressures and high levels of union participation, wages for moderately skilled jobs allowed entry into America's middle class.

As a result, employers were satisfied with the results of a "leaky pipeline" when it came to workforce development. Even though most students left school with relatively low levels of skills and never advanced beyond high school, the labor pool of moderately skilled workers and professionally trained

managers was still so large at each skill level that employers could pick and choose who they wanted to hire.

This strategy worked in the 1960s and 70s, given the limited use of technology in industry. But as time went on, just about every major industry began to incorporate advanced processes and technologies into their businesses, raising the level of knowledge and skill required of workers. And, once computers and the Internet were widely adopted, our economy, and the industries that comprise it, changed even more rapidly.

As a country, throughout the 19th and 20th centuries, America was very good at producing physical goods – an abundance of food and mass-manufactured goods; but increasingly, economic value in the U.S. has shifted to a focus on intellectual property. The Council on Competitiveness notes that, "…35 years ago [ed: in 1980], about 80 percent of the market value of the S&P 500 was represented by tangible assets—brick, mortar, equipment, and inventory. Today, about 80 percent of the value is represented by intangible assets—patents, trademarks, brands, research, and software."[20]

Even that dramatic change understates the impact that technology has had on business since the businesses that still produce those tangible assets have also been completely transformed over the years. Consider agriculture, for example. In the 1960s, agriculture was still a labor-intensive enterprise relying on centuries-old practices. Today, the livestock and crops have been genetically designed for maximum production and disease resistance; livestock have automated feed and climate control systems; sophisticated programs, supported by satellite imaging, tell farmers where to water and where to focus on weed and pest control; and robotic milking machines are milking cows.[21]

The changes in our economy, and in our individual industries, require much higher levels of knowledge and skills from workers, but our "leaky pipeline" model of education and workforce preparation cannot accommodate that change. Industry has been able to avoid dealing with the consequences of America's faulty workforce strategy for a long time, thanks to the size of the Boomer labor pool, and through strategies like offshoring and automation. But many industries are now facing severe hiring challenges, particularly for qualified middle-skill workers. And, as the Boomers retire, the challenge is only going to get worse – much worse.

Roberts Jones, former Assistant Secretary of Labor, summed up our challenge perfectly in a US Chamber of Commerce blog post:

> *"The environment surrounding our workforce and education system is changing faster than institutions, policy makers, government, employers, and citizens can adapt. America's slow population growth, its increasing diversity, and the increasing retirement eligibility of the current workforce is confronted with major escalations in the academic, technical, and applied skill expectations of today's workplace.*
>
> *For the first time in our history, the American economy is creating more skilled job opportunities than there are well educated and prepared job applicants available.*
>
> *However, employers, educators, and job applicants are attempting to navigate this new world through workforce, education, and labor market information systems that were designed for the 'social policy' era of the 1960s. These programs were designed when we had far more applicants than jobs available and it was important to ensure that everyone had equal opportunity and access."[22]*

# III. Career Connected Learning: The New Path

## A. What Is Career Connected Learning?

Career Connected Learning (CCL) is a common-sense notion with huge implications.

Historically, our approach to education has been fragmented. In the real world, subjects like science, social studies and literature are deeply interwoven, but in the classroom, we break them apart, ensuring that these connections are hard to uncover. We cover academic content while rarely highlighting connections to students' experiences or their futures. And in a larger sense, systems that should be working together on shared goals, including the K-12 education system, postsecondary system, and industry, instead operate in silos, again missing the impact that collaboration would bring.

Career Connected Learning is an effective counter to those issues. While it is done in many different ways (more on that below), its focus, in all its forms, is to connect learning to the real world, ensuring students can understand academic content in terms that are relevant to them, and providing them a platform to develop the knowledge, skills, and experiences to help them enter the world after school.

With Career Connected Learning, students are exposed to some aspect of the world of work during the learning process. It might be as a bridge to academic content, such as teaching math skills using examples from the construction industry or having students research the development of the railroads and how they impacted the settling of the old west. It might involve teaching essential work (and life) skills such as teamwork and planning by having students participate in a group project using project management tools. Very often it involves collaboration with partners from the business community, such as local employers hosting site visits or serving as project mentors. The relevance and the community engagement makes learning relevant and improves both academic and life outcomes.

It is also important to state what it is not: Specifically, it is not work training. Students participating in Career Connected Learning are more likely to pursue – and complete – a postsecondary education. Connecting instruction to the real world does not mean students are being prepared for a specific job. Though of course, it does allow them to be exposed to different roles and industries, giving them a chance to find and pursue opportunities that line up with their strengths and passions.

## B. Types of Career Connected Learning

We think of Career Connected Learning happening in two camps: Programs and Activities. Programmatic work is the most intensive: Here, schools have integrated CCL into instruction, ensuring students receive regular exposure tied into graded instruction. Career and Technical Education programs are an example of a programmatic approach (though hardly the only example). Activities are standalone efforts, such as career fairs and company tours; these are often incorporated into CCL programs but can also be done on their own.

Both have value, though the program model offers a much more rigorous experience. Think of it as the difference between joining a basketball league versus participating in a pickup game on a Saturday. For those serious about basketball, the league experience offers regular practices and coaching culminating in a series of refereed games. But you wouldn't say the pickup game offers no value: It offers a chance to work on your skills in a less structured environment, also giving you more freedom to try new things. Similarly, students can benefit from any form of CCL, but we encourage people to pursue a program model if they want the strongest, most immersive experience.

## Career Connected Learning Programs

Formal CCL models can be found across the country, including the following:

### Career and Technical Education Programs

Most people are aware of Career and Technical Education (CTE) programs, and in fact most students – 94 percent – have taken at least one CTE class over the course of their high school careers,[23] though far fewer, under 20 percent, are considered "concentrators" with three or more occupational classes under their belts.[24]

CTE classes offer both broad preparation for post-graduation living (general business instruction, consumer or family sciences) as well as occupational preparation for specific fields. In all cases, CTE classes include strong academic components, and outcomes for students who pursue a CTE program of study are consistently better than for non-CTE students, including higher graduation rates and matriculation rates.[25]

**Pathways Models**

Many people are familiar with the Career Academy model, in which schools offer one or more in-dustry-themed small academies that completely integrate academics and CTE. These are one of the best-known examples of the College and Career Pathways model, which leverages strong support from local industry partners to achieve strong results on both academic and industry preparedness. Many school districts build their own Pathways initiatives – the Nashville, Tennessee school district is an often-cited example of this – while others work with an established program such as those offered by Project Lead the Way[26] or the National Academy Foundation.[27]

**Student-Run Enterprises**

Many schools offer students an opportunity to participate in a business run through the school. These businesses might be a school radio station, credit union, catering operation, IT support, or any of a number of other interesting models. These are often managed in partnership with a local business, with students handling all of the management and operational aspects of the business, including sales and accounting. Students without access to an actual business on campus might participate in a Virtual Enterprise class,[28] which simulates the running of a business and can be offered as a year-long, credited class.

**Career and Technical Student Organizations**

Career and Technical Student Organizations, or CTSOs, serve more than two million students[29] in areas such as business and entrepreneurship, family and consumer sciences, agriculture, health science, technology, and trade, technical and skilled service occupations. These organizations offer students additional exposure to, and preparation for, their field of choice through industry partnerships, group activities, and leadership and competitive opportunities.

**Capstone Projects**

A Capstone Project is defined as a semester-long, large scale project, in which students identify an im-portant question or challenge and spend the semester researching and then presenting an answer or a response. While Capstone projects are not typically connected to specific occupations or industries, the experience provides students with an opportunity to develop many of the skills they will need in the workforce, including planning, time management, critical thinking, and communication skills.

**Career Connected Learning Activities**

There is a tremendous range of CCL activities, which can either be used within a CCL program or done on a standalone basis. Some examples include:

◊ **Work-Based Learning** – There are many different types of work-based learning, ranging from hosting guest speakers and participating in site visits to the hands-on experiences offered through internships and apprenticeships. In each case, experiences are developed and imple-mented in collaboration with an industry partner and are designed to achieve certain objec-tives depending on where students are in the continuum of career exploration and prepared-ness.

◊ **Career Exploration** – Students need an opportunity to learn about their passions, their strengths, and the occupations that match with their interests. This can be done through classroom and extracurricular activities. There are also powerful online tools, such as those of-

fered by Kuder,[30] Xello,[31] and VirtualJobShadow[32] that provide student interest inventories and career information that help students consider their futures.

◊ **Student Portfolios** – Student portfolios, in which students record their experiences, thoughts, and work products as they narrow in on their occupational and life interests, are important tools in the exploration and planning process. Many online tools (such as those named above) offer portfolio tools as part of their services, but students can also develop their own in either online or print forms.

◊ **Advisory Boards** – While not a student activity, advisory boards consisting primarily of industry and community partners exist to help CTE programs, career academies, and other educational bodies understand the current landscape of industry, including where opportunities will lie in the future and what kinds of knowledge, skills, and experiences students will need to be successful in those areas. As engaged partners in the educational process, many advisory board members also provide resources and student opportunities as part of their service.

◊ **Teacher Externships** – While this is also not a student activity, teacher externships have the potential to impact hundreds of students. Sending a teacher into industry, particularly when they cover occupations within that industry, for as little as a week or two makes it possible for them to stay up-to-date on the state of their occupations, including current practices and current technology, and allows them to develop relationships with their business counterparts that can pay ongoing dividends through partnerships activities.

◊ **Career Fairs** – Many communities organize career fairs, allowing students to meet with dozens or even hundreds of employers to learn about local industries, occupations, and near-term opportunities such as internships or summer jobs. In some cases, these are set up by school districts; in many other cases, however, local business leaders, working through a Chamber of Commerce or other organization, will do the work to create these fairs and invite students from multiple schools and districts to participate.

◊ **Creating Profiles of the Career & Life Ready Learner** – Communities come together to identify a profile, or portrait, of a Career and Life Ready Learner.  This profile shifts to conversation from simply acquiring credits for a diploma or degree to the actual knowledge, skills and attributes that an individual must develop to be successful in careers and life.  The profile includes academic skills, employability skills and attitudes, interpersonal skills, as well as sometimes overlooked skills like career navigation skills, financial literacy, and a commitment to civic engagement.[3334]

# C. Stages of Career Connected Learning

Career Development Education (CDE) encompasses four stages that help students move from the abstract to the experiential.

## Career Awareness

Career development begins with career awareness. Through career awareness experiences, children, teens, and adults learn about the types of businesses and organizations that exist in the local, regional

and national economy. They explore the occupations of the people who work in those businesses and organizations, about the educational steps needed to prepare for desired careers, and about the ways that people shape their career paths. They learn about trends in the labor market and jobs that are in demand in a range of occupations and industries.

Career awareness experiences begin in elementary school and continue through high school. They happen in the classroom, on field trips, after school, or in summer enrichment programs. They may be hands-on experiences or they may consist of reading or writing activities. Students begin to formulate career aspirations during the awareness phase.

As students progress in their learning and/or maturity, a deeper approach to career awareness should begin. Students should start to have more deliberate, structured college and career awareness experiences in middle school and continue through high school. Many high schools offer students a range of career awareness opportunities:

◊   Career interest inventories/assessments

◊   Job market information on websites and in publications

◊   Career speakers

◊   Career day or career fair

◊   Career-related camps, after-school or summertime

**Career Exploration**

As students begin to identify their interests, they can learn more about specific career options through career development activities:

◊   Career exploration workshops or classes

◊   Opportunities for students to do "job shadows" in areas of interest

◊   Opportunities for informational interviews with local professionals

◊   Career-related research projects

◊   A variety of other classroom and community projects that support career development

In quality CDE, career development is complemented by a process of reflection, supported by influential adults such as guidance counselors, advisors, classroom teachers, workplace supervisors, parents, etc. Many schools use a formal college and career planning process (also referred to as a college and career plan, an education and career plan, or an individual learning plan), using print-based or electronic systems for students to track their experiences, define next steps, and continually reflect on and refine their short-term and long-term goals.

**Career Application/Immersion**

Through career application and immersion experiences, students participate directly in career-related activities. Career application/immersion experiences include the following:

◊    Career Pathway Programs of Study

◊    In-depth work in a career-related class

◊    Career-related clubs and after-school activities

◊    Career-based Internships or cooperative education placements

◊    Capstone projects focused on areas of career interest

◊    Any other experience in which students are learning through active participation in a career-related role.

These hands-on career application/immersion experiences are complemented by formal instruction, including classes, workshops, or one-on-one coaching. Again, reflection is a key component, with students having opportunities to reflect on what they are learning; to evaluate the skills they are gaining; and to continually revisit, refine, and reflect on short-term and long-term goals. Quality career application/immersion experiences also incorporate an assessment of skills gained, through an industry-recognized or valid educational assessment.

**Work Ethic and Life Skills Development**

Some work-based activities for youth may be very valuable in developing general employability and life skills, but they may not qualify as "career application/immersion" experiences because they do not help a student "try out" a career area of interest.  Depending on whether the activity involves immersion in a career exploratory interest, or is just a positive learning experience, it could either qualify as career application/immersion or as work ethnic/life skills development.

These general experiences might include:

◊   Entrepreneurial projects

◊   School-based businesses

◊   School-based volunteer work

◊   Community-based volunteer work

◊   After-school and summer jobs

**Career Management and Entrepreneurship**

Career management is the process of securing career-related employment, keeping that job, and performing the necessary requirements to progress in a career. Career management preparation involves training in resume preparation, writing cover letters, conducting an effective phone interview, conducting a face-to-face and a virtual (video over the internet) interview, and following up on the interview process. Career management also entails negotiating for salary and other employment terms and learning how to identify opportunities for enhanced responsibilities, job promotion within a firm, and advancement opportunities with other firms in the same field. Further, career management entails engaging advisors and mentors, identifying lateral moves within an industry or to similar jobs in a different industry, and determining when and how external education and training can document existing skills or gain new knowledge and skills to advance to higher levels of responsibility and earnings.

Entrepreneurship is the process of organizing, managing, and assuming the risks of a business or enterprise. While a few individuals start a new enterprise at a young age with little prior work experience, most adults start new companies after first gaining a level of work experience and expertise working for others and then venturing out on their own as a solo entrepreneur or in partnership with one or two other individuals.

Entrepreneurship education helps students understand the characteristics of an entrepreneur and the process of developing a business plan. This gives students the skills to create the job they want and to learn to think like an entrepreneur.

Entrepreneurship education provides the student with the concepts and skills to recognize opportunities that others have overlooked and of having the insight, self-esteem, and knowledge to act where others have hesitated. It includes instruction in recognizing opportunity, marshaling resources in the face of risk, and initiating a business venture. It also includes instruction in business management processes such as business planning, capital development, marketing, and cash flow analysis.

# D. Is Career Connected Learning Effective?

Career Connected Learning is nothing new; in fact, the various components of a strong CCL system have been in place for decades and have a strong body of research proving their impact on student's academic, social, and professional outcomes. When we advocate for Career Connected Learning, we are not calling for a "new" strategy: We are only suggesting that the established and effective strategies used with some students be made available to all.

Data analyses and research have been done in the areas of Career and Technical Education, career development, Pathways initiatives, structured career-related supports, and the many forms of employer engagement. Organizations including the Association for Career and Technical Education, National Research Center for Career and Technical Education, MDRC, Education and Employers, and of course, the U.S. Department of Education (among many others) have each conducted or compiled research that demonstrated the effectiveness of Career Connected Learning.

## Pathways Initiatives Help Improve High School Graduation Rates

Based on a 2007 study conducted by ConnectED California and other partners, we know that graduation rates were better for those attending California Partnership Academies, with 96 percent of academy seniors graduating compared with only 87 percent of high school seniors statewide. This research also indicated that Hispanic/Latino and Black academy students, respectively, graduated at rates 12 and 15 percentage points higher than their counterparts in the general student population. White and Asian academy students also graduated at higher rates than their counterparts in the general student population, but these differences were smaller.[35]

In 2005, the graduation rate in Metro Nashville Public Schools was 55 percent. In 2015, after full-scale implementation of the Academies of Nashville model, the graduation rate was 81.6 percent.[36]

## CTE Elevates Achievement and Graduation Outcomes

A 2016 report released by the Fordham Foundation explores the impact of CTE. The report, entitled Career and Technical Education in High School: Does It Improve Student Outcomes?,[37] draws upon connected secondary, postsecondary, and workforce data from Arkansas that clearly demonstrates positive outcomes for students enrolled in a sequence of three or more CTE courses during high school.

Among the key findings cited are:

◊ Students with greater exposure to CTE are more likely to graduate from high school, enroll in a two-year college, be employed, and earn higher wages.

◊ CTE is not a path away from college. Students taking more CTE classes are just as likely to pursue a four-year degree as their peers.

◊ Students who focus their CTE coursework are more likely to graduate high school by 21 percentage points compared to otherwise similar students and they see a positive impact on other outcomes as well.

◊ CTE provides the greatest boost to the kids who need it most—boys—and students from low-income families.

## Career Academies Boost Post-Graduation Earnings

The career academy model has a strong component of employer involvement and the long-term economic effect for career academy graduates is profound. According to a long-term study conducted by the research organization MDRC, academy group members earned 11 percent more (about $2,100) per year than non-academy students. The benefit to young men of color is particularly strong. Young black men who participate in a career academy earn 17 percent more after ten years than their peers who did not participate in an academy. Researchers hypothesize that giving these young men an early programmatic connection to the world of work and helping them develop social connections to business people allowed these career academy graduates, many of whom also went on to postsecondary education, to make a more successful transition to the world of work, and thus accelerated their earning capability.[38]

The MDRC study also indicates that academy students are 33 percent less likely to drop out of high school than their peers who attend traditional schools. In another study, data shows that participation in a career academy can raise academic achievement in high school (as measured by GPA), decrease the need for postsecondary remediation in English, and increase the likelihood of at-risk students graduating from a university.

These are but a handful of examples proving the value of a Career Connected Learning strategy. There are many others, each of which reinforces the experiences of educators, parents, employers, and students across the country.

# IV. Call to Action

Moving from a traditional schooling model to a Career Connected Learning structure may sound daunting to some. K-12 schools, like their postsecondary and industry counterparts, have operated in a silo of sorts for decades; making the connections required, and coordinating efforts to provide students with a truly broad base of experiences, can feel like new and unfamiliar ground. The good news is that it's possible – many have done it already – and that the rewards more than justify the effort. Here are some practical steps you can take:

## 1. Continue to Educate Yourself on Career Connected Learning

Starting a Career Connected Learning initiative feels a bit like climbing a mountain: It's challenging work and you may feel alone at times. But the thousands who have come before you have left markers on the trail, and their prior journeys have tested the strategies and equipment you rely on in your journey, allowing you to benefit from their experience.

You can join associations focused on Career and Technical Education, career academies, pathways development, counseling, and other related areas; most have publications, online resources, webinars, conferences, and standards and/or coursework you can use to become better informed. You can explore the many books and guides on various facets of Career Connected Learning, including but not limited to pathways development and employer engagement. You can look at the established models such as Project Lead The Way or the National Academy Foundation (among many others). Or you can simply call up educators leading, or working in, successful CCL programs; you'll more often than not find them to be extremely forthcoming and helpful. Just remember that you're not alone; others have gone before you and have made it easy to navigate the path.

## 2. Establish Authentic "Career and Life Readiness" as Your Core Education Outcome

The purpose of education is to prepare young Americans for their futures; that includes their intellectual futures but also life as citizens, neighbors, and people generating a family-sustaining wage. But a quick look at high school state graduation requirements and the course schedules of most students reveals a focus almost entirely on academic outcomes. While some states have developed career and life readiness standards, few have incorporated them into the requirements students need to meet in order to graduate.

If you take a step back, you can appreciate that these graduation requirements are simply a baseline; there's no reason you can't set additional expectations. And in fact, your parents and community members would welcome an enhanced focus on career and life readiness beyond those academic expectations.

Start talking with your peers, parents, and industry and community counterparts about the reasons why we educate and work to build consensus on a broader, more relevant set of expectations. Working together, you can come up with a definition of a truly prepared graduate – and by involving others in this discussion, you'll be laying a foundation that will allow them to feel bought-in to the process and compel them to participate as active partners.

We suggest thinking about the following areas as constituting a strong foundation of "Career and Life Readiness:"[39]

◊   Applied Academic Skills

◊   Employability Skills

◊   Career Navigation Skills

◊   Postsecondary Navigation Skills

◊   Financial Know-How (aka Financial Literacy)

◊   Business Basics

◊   Civic Engagement Commitment and Skills

# 3. Emphasize "Career Navigation Skills" or "Career Competence" as Part of Career and Life Readiness

When we talk about helping students develop skills, we typically think in terms of academic skills, critical thinking, or skills related to the workplace. When defining Career and Life Readiness, make sure to include Career Navigation Skills or Career Competence to the list as an essential skill for students to gain. Given the number of times that students will change jobs in the future, and particularly those who will be partaking in the "gig" economy, students need to become active managers of their career paths, which includes understanding their skills and interests, reviewing current industry needs, and following a path of proactive self-improvement to remain marketable in an ever-changing field.

Just to provide some additional clarity, Career Development is the strategy that schools employ; "Career Navigation Skills" or "Career Competence" is the outcome the student gains.

# 4. Define Your Starting Point

Few people start their Career Connected Learning efforts from scratch. The odds are very high that your school is already doing some great things in this area and it's smart to build on those existing successes.

One of your first steps should, therefore, be conducting an asset inventory – identifying the programs and activities already in place that could serve as the starting point for a broader Career Connected Learning strategy. Your assets, connections, and experiences from existing or past efforts, regardless of scope, will prove to be invaluable as you go forward. Look particularly at your Career Technical Education programs, student organizations, counseling efforts, work-based learning activities, community boards (particularly CTE advisory boards), student competitions, and programs such as student-run enterprises and capstone projects. Each of these connects instruction to the outside world in some way and can provide a solid foundation going forward.

# 5. Emphasize a Systems Approach (school-wide, district-wide or regional)

Historically, Career Connected Learning has been an immersive experience for around 20 percent of students in a Career and Technical Education program, with the remaining 80 percent of students having little to no access to a CCL environment. If you want all students to benefit, you cannot limit those opportunities to one part of the building or one program area. It's not a matter of expanding CTE access; it's about creating a culture shift by incorporating Career Connected Learning throughout the building and in every classroom.

Of course, this may represent a major shift in thinking from educators who have been immersed in subject-specific instruction throughout their entire professional lives. So, invite them in as critical partners to the planning process. Share the research and the vision; listen to their questions, concerns, and ideas. A collaborative, inclusive process is by far the best way to build the kind of strong team that can create change across the building.

To help implement Career Connected Learning on a larger scale, NC3T offers a pathways system model which ties together 6 critical components. First, the outcome is developing learners who embody Career and Life Readiness. The five other components support accomplishing the first. They are: Career Development; Career Pathway Programs of Study; Employer and Community Engagement; Dynamic Teaching and Learning; and Cross-Sector Collaboration. [40]

Whether your focus of action is an individual school, a school system, or a regional partnership of many school districts and other partners, a systems approach helps identify gaps, works on individual components while keeping the big picture in mind, brings coherence to the work, and ultimately takes the work to scale to reach all students.

# 6. Engage, Engage, Engage

Career Connected Learning is integrated learning: Working collaborative with postsecondary, community, and employer partners to fully serve our students. You cannot get there if you simply look at your non-school partners as checkbooks and volunteers; if that's your approach, their commitment will be short-term and superficial. For them to become fully involved – to commit to this shared work – they need to be full partners in the education process.

That doesn't mean you abdicate your role as a school leader, nor does it mean that your expertise in school management and instruction is to be discounted in any way. What it does mean is that we return to the days when the public schools were the public's schools; community members felt ownership of the schools as well as the obligation to support them. To get there, community members must have a role in setting outcomes and expectations (as noted in the earlier action step, "Establish Career and Life Readiness as an education outcome"), and that they have a full and active voice in how those goals are met. They may not have pedagogical expertise, but they can tell you what skills and knowledge are needed in the workforce, for example. And by listening to them, and acting on their guidance, you'll create committed and active collaborators who will fully support the work that you're doing.

# 7. Figure Out Your Numbers

Every school and district is accountable for a varying set of reports on student performance, including graduation rates, attendance rates, the passage of state assessments, and others. Working with your community partners, it would be smart to also identify a handful of metrics you'll track when it comes to career and life readiness. It might be the number of work-based learning experiences each student has completed, or perhaps an annual review of their career and life plans. You might consider tracking the number of professional certifications earned. Regardless of the metrics (which should be identified with your community partners), remember the saying that "What gets measured, gets done," and plan on finding some ways of tracking student performance in these areas.

# 8. Connect Students to Industry and Their Communities

It's wonderful to bring the community into the school; it's just as important to get students out into the community, participating in career awareness, exploration, and preparedness opportunities. Guest speaker visits and trips to local companies allow students to see firsthand the kinds of opportunities available in their communities, while various types of work-based learning, ranging from job shadowing to apprenticeships, give them a chance to experience and develop the kinds of knowledge and skills they'll one day need as workers. These types of experiences support their career development efforts, helping them build capacity, develop professional contacts, and further hone in on the types of work that they would most enjoy in the future.

# Conclusion

As Steven Covey explained in The 7 Habits of Highly Effective People, each of us has a Sphere of Control, a Sphere of Influence, and a Sphere of Concern.  The questions are, "what do I control" and "what and whom can I influence?"  As an education or community leader, you may already have a pretty large sphere of control.  But for Career Connected Learning to take hold, a command-and-control approach to change is unlikely to work.  Career Connected Learning requires a big mindset shift and ultimately a cultural change, not just implementing a few programs or activities.  While you may be able to mandate change, you will need to see this work through two lenses – technical challenge (actions, strategies) and adaptive challenge (mindsets and beliefs).

We encourage you to begin taking simple action steps to engage in the adaptive challenge as soon as possible.  A straightforward step is to share this paper with others, discuss its implications, and think about joint action that you and your colleagues can foster.

And of course, explore the resources that we, the authors, have created at www.NC3T.com and let us know how we can help.

Thank you!

# About the Authors

## Hans K. Meeder, President, NC3T

Hans Meeder is a recognized expert in Pathways for Career and Life Success, as well as Career Technical Education (CTE) and STEM (Science, Technology, Engineering, Math) education. He has conducted original research on these topics, authored numerous reports, articles, and books, including The Power and Promise of Pathways. Hans is also the author of the cutting-edge blog about career-connected learning, CCL In.Sight.com. Hans is available to provide compelling keynote addresses and to facilitate leadership forums among key education leaders and influencers.

Prior to his work with NC3T, Hans served as Deputy Assistant Secretary for Education in the U.S. Department of Education; in this role, he led the Department of Education's High School Initiative, and also guided policy development for the implementation of the Perkins Act and the Adult Education and Family Literacy Act. Prior service includes roles with the U.S. House of Representatives, the 21st Century Workforce Commission, and the National Alliance of Business.

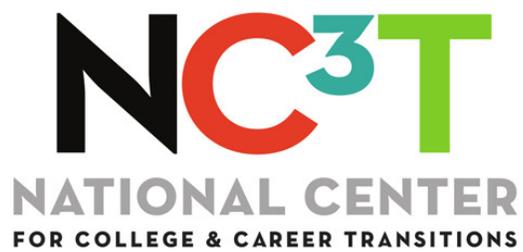## Brett Pawlowski, Executive Vice President, NC3T

Brett is the co-founder of NC3T and Executive Vice President. He is published widely on the topic of business/education engagement and has worked with businesses, nonprofits, and others on building effective education engagement programs.

He has also served as a visible advocate of partnerships, publishing extensively on the subject and hosting conferences, trainings, and webinars. Pawlowski is the author of the Employer Engagement Toolkit (published by NC3T), and also the lead developer of Seamless WBL, an online platform to help educators and employers effectively coordinate their work-based learning activities.[41]

# Endnotes

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