



PATH TO THE FUTURE

Strengthening Career and Technical Education to Prepare Today's Students for the Jobs of Tomorrow

A Report by:



Office of

Bill de Blasio

PUBLIC ADVOCATE FOR THE CITY OF NEW YORK

Prepared by:

Ursulina Ramirez
& Edith Anne Sharp

EXECUTIVE SUMMARY

Career and technical education (CTE) programs are meant to combine rigorous academic standards for graduation with opportunities for career pathway education. In order to be effective in meeting high standards for post-secondary success, the CTE programs that serve 26,000 students in New York City must be dynamic and forward-looking, emphasizing areas of study that provide students entry into high-wage, high-growth industries and provide opportunity for a career in the globalized economy.

To ensure New York children participating in CTE schools are graduating ready to compete, the Office of Public Advocate Bill de Blasio analyzed the academic trends of the New York City's designated CTE high schools, reviewed the types of programs offered to students and analyzed the current job trends to assess the alignment of CTE programs with current economic trends. He found that too many students participating in a CTE program are leaving New York City schools unprepared for success in either college or the workplace. Specifically, the Public Advocate's analysis revealed:

There is a distinct performance gap amongst current CTE designated high schools.

- In the analysis, 50% of the designated CTE high schools included in the sample have been on the New York State Education Department's persistently low achieving list at some point in the past several years.¹
- Of the approximately 30,000 CTE students enrolled in the 2010-2011 academic year, over 10,000 attended struggling schools. These students were half as likely to attend college as their peers at well-ranked schools.

CTE programs are not aligned with growing industries.

- The City's most numerous CTE programs are Arts, A/V technology and Communications (18%) and Business management and administration (14%). The number of jobs in these fields will only grow by 3% and 2% respectively by 2018—two of the lowest growth rates of any career cluster.²
- Jobs in Human Services will grow faster than any career cluster in New York State by 2018 (18%), but only accounts for 1.5% of CTE programming.
- Jobs in health science will increase 17% by 2018, yet this career cluster is ranked fifth in number of programs offered in New York City schools.

The City does not track the success of specific CTE programs and career paths pursued by CTE students.

- Student test scores are tracked by school, not individual CTE program—making it impossible to measure the success of specific programs, or differentiate between the progress made by CTE and general education students at mixed schools.
- No data is officially published to indicate whether CTE students are successful in finding jobs within their desired field.

¹ Schools that fall into the "Persistently Low Achieving" cohort are any schools that have been included in New York State's list of Persistently Low Achieving Schools at any point since the 2008-2009 school year. Some schools were considered PLA for multiple years, and others have since been removed from the list. Information can be accessed at: <http://www.p12.nysed.gov/irs/accountability/LowAchieve/home.html>

² *Career Clusters: Forecasting Demand for High School Through College Jobs, State Data*. Georgetown University, Center on Education and the Workforce (November 2011), 54. Accessed at: <http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/clusters-states-complete-update1.pdf>

New York City has one of the largest CTE programs in the country, and yet the Department of Education's (DOE) commitment to addressing failures within the CTE system has been uneven at best. In response to a Mayoral Task Force review in 2008, there was an expansion of CTE programs, yet many CTE designated high schools continue to struggle. Investments following the task force findings have been concentrated in new schools, and innovative programs were not scaled to impact the entire CTE system.

After ten years of half-measures, Mayor Bloomberg announced plans during the State of the City to strengthen the CTE system in New York. While this is welcome news, the Mayor's proposed solutions continue to miss the mark on addressing the needs of each and every CTE school in the City. Most notable is the Mayor's continued use of his trademark formula to shut down or subvert underperforming schools – even if progress is being made. This method does not identify and address the systemic problems holding back some schools, and instead privileges some schools at the expense of many others.

Time and again, Mayor Bloomberg and the DOE have failed to pursue reform measures that would truly benefit all CTE students. In an effort to comprehensively address this, Public Advocate Bill de Blasio recommends the following reforms be implemented by the DOE to enhance and sustain New York City's CTE programs so all students are prepared for entry into the high-wage, high-growth industries of the future:

1. Develop a pilot program that creates partnerships between successful CTE high schools and struggling CTE high schools from similar career clusters. High-performing programs in each career category should partner with low-performing programs for the 2012-2013 school year, developing peer-to-peer trainings, mentorship opportunities and professional development to spread best practices.
2. The twelve new CTE schools announced in the State of the City must fill the deficit of program offerings in high-demand, high-wage and high-skill sectors. These schools should include programming in Information Technology and Health Sciences.
3. Engage the Department of Small Business Services, the New York State Economic Development Corporation, NYC Labor Market Information Service and the New York State Department of Labor to track job trends and ensure programs and internship opportunities are aligned with future jobs.
 - My office will introduce legislation that will mandate an interagency task force that assesses job trends in New York State and City with relevant agencies at the table.
4. Develop internships and fellowships programs within City agencies, unions and business partners to allow students in Human Services, Public Administration, Business and Management to get hands-on experience in their field. The DOE and Advisory Council for Career and Technical Education should develop a comprehensive guide for businesses and labor unions providing internships.
 - My office will launch an internship opportunity for New York City students interested in human services and public administration.
 - CTE programs should be linked to the Department of Youth and Community Development Summer Youth Employment program.
5. Create a public-private scholarship fund to help finance CTE students' industry certification following graduation.

6. Improve tracking methods for the academic and professional progress of CTE students to optimize educational results, including:
 - Progress reports specific to individual CTE programs with benchmarks to determine programmatic success;
 - Disaggregated data from students with CTE backgrounds to evaluate college readiness and the effectiveness of CTE programs;
 - A partnership between the New York City Department of Education, the New York State Education Department, and the United States Department of Education to develop an evaluation system that tracks which fields CTE students are entering following graduation.

INTRODUCTION

The United States is currently experiencing a paradigm shift in Career and Technical Education (“CTE”): moving away from a model predicated on a different type of economy in which high school vocational training could lead to a well-paying job with benefits. Global economic changes have changed the character of the American workforce, and it has become increasingly important for high school graduates to be prepared for some form of post-secondary training in order to pursue a quality career. Instead of training students on a strictly vocational level, CTE programs must face the challenge of ensuring all high school graduates leave school ready for career *and* college readiness. Public Advocate Bill de Blasio believes that CTE programs should reflect the 21st century economic landscape, and must therefore be dynamic, rigorous, and prepare its graduates for post-secondary success.

The Department of Education (“DOE”) has placed increased emphasis on CTE programs, most notably following a report by the Mayoral Task Force on Career and Technical Education in 2008.³ A number of new, innovative CTE schools have been opened over the past decade that reflect 21st century demands, and the first available progress reports on these schools demonstrate strong performance. But while these are commendable steps, the evidence shows many of the current programs are not adequately preparing our students for success – leaving large numbers of New York City’s youth at risk of being unprepared for a career or college. The recent announcements by the DOE and Mayor Bloomberg are welcomed initiatives but much more work must be done to increase the efficacy of CTE programs.

The Office of Public Advocate Bill de Blasio analyzed the academic trends in New York City’s designated CTE high schools, reviewed the programs offered to students, and analyzed the current job trends to assess the alignment of CTE programs with anticipated sectors of economic growth.

BACKGROUND

Evolution of CTE – Early Models

Career and Technical Education – previously known as vocational education – has a long and complex history within the national education system. It has taken myriad forms across time and regions, and has been greatly influenced by both economic changes as well as shifts in dominant educational philosophies. At the turn of the century, CTE was transformed to keep pace with 21st century educational and economic demands. Far from being a vocational program that leads high-school students directly into post-secondary work, modern CTE increasingly focuses on preparing students for career *and* college readiness.

Early models of career and technical education have their origin in the Smith-Hughes Act of 1917, which provided federal funds for the growth of vocational education programming in public schools. These funds expanded access to education in the trades, manufacturing, industrial education, and home economics. At the same time, the Smith-Hughes Act effectively instituted an “institutionally segregated system... [which] contributed to the isolation of vocational education from other parts of the comprehensive high school curriculum.”⁴ The Act created a Federal Board for Vocational Education and mandated that states would need to create a board to plan, oversee, and

³ “Next Generation Career and Technical Education in New York City: Final Report and Recommendations of the Mayoral Task Force on Career and Technical Education Innovation” (July 2008). Accessed at: http://schools.nyc.gov/NR/rdonlyres/91B215BF-21F8-4E11-9676-8AFCFBB170E0/0/NYC_CTE_728_lowres.pdf

⁴ Hayward, G.C. and Benson, C.S., *Vocational-technical education: Major reforms and debates 1917-present*. United States Department of Education, Office of Vocational and Adult Education (Washington, DC: 1993), 3.

implement vocational education in order for individual states to benefit from the new funding.⁵ It placed limits and restrictions on the funding and mandated minimum credit requirements for students enrolled in vocational courses.⁶ This division created a system that seemed to 'track' students into either a career or college-bound trajectory.



However, this dual system has been increasingly challenged over the past twenty-five years, as vocational education programs have undergone significant transformations to keep up with an increasingly globalized economy and a heavier emphasis on testing and college readiness. This trend began to change most markedly in the 1980s, when assessments of the nation's education system – including reports by the National Assessment of Vocational Education and *A Nation at Risk*⁷ – greatly influenced vocational educational programs. These assessments demonstrated poor investment in vocational programs and argued that the education system as a whole lacked educational vigor, ultimately undermining U.S. productivity and competitiveness.

Similarly, the 1980s and 1990s witnessed a shift in education philosophy, translating into a growing emphasis on increasing academic standards and emphasis on secondary schooling as preparation for college rather than a career. As a consequence, vocational education programs fell out of the spotlight and registered fewer students. Increasingly, vocational programs were perceived to be the 'dumping ground' for children who were not considered college ready. The false division between college and career readiness greatly undermined the efficacy of vocational programs and shortchanged many students who participated in them. The number of students who considered themselves to be vocational students dropped from 21% in 1980 to 7.4% in 1990.⁸ Over the same period, the average number of credits high school graduates earned in academic subjects increased by 22%, while credits earned in technical or career subjects decreased by 17%.⁹

The Carl D. Perkins Vocational Act of 1984 sought to address these deficiencies by modernizing vocational education and ensuring attention to more disadvantaged populations, but did not do enough to raise the bar for vocational education. By the end of the 1990s, policy makers and education leaders began to call for a reversal in the slow decline of vocational education.¹⁰ On the Federal level, this was complemented by the 1998 and 2006 reauthorizations of the Perkins Act, which gave states greater autonomy and flexibility in the administration of their career and technical education programs and in return demanded greater accountability. Further, national coordination deepened in the late 1990s and early 2000s. The National Career Clusters Framework emerged as a

⁵ *The National Vocational Education (Smith-Hughes) Act*, Pub. L. No. 346, see § 5, 6, and 8.

⁶ *Ibid*, §11.

⁷ This report, created under direction of the Secretary of Education, is widely credited for having a significant impact on the education reform movement in the United States. *A Nation at Risk: The Imperative for Educational Reform*, The National Commission on Excellence in Education (April 1983). See: <http://www2.ed.gov/pubs/NatAtRisk/index.html>

⁸ Manserus, 1994. Referenced in Hughes and Bailis, "Teaming Up for School Improvement in New York City: Civic Strategies, the Board of Education, Vocational High Schools, and Unions" IEE Working Paper No. 16 (June 2001), 4. Accessed at: <http://www.tc.columbia.edu/iee/PAPERS/workpap16.pdf>

⁹ Figures from the National Center for Education Statistics. Referenced in Lozada, Marlene. "All in Good Time," *Techniques* 74 no. 8 (pp 14-19) N/D 1999.

¹⁰ Fischer, David Jason. "Schools that Work", a report published by the Center for an Urban Future (May 2008), 7. Accessed at: http://www.nycfuture.org/images_pdfs/pdfs/SchoolsThatWork.pdf

way to define the skills and knowledge needed across all industries and careers, formally distinguishing between 16 career clusters and their associated career pathways.¹¹ In 2001, New York State issued a new CTE program approval mechanism in an effort to raise the bar for CTE programs.¹² These initiatives, along with the most recent Perkins reauthorizations, made a more rigorous academic focus and career pathways emphasis explicit.¹³

Partly as a result of these sustained efforts, CTE programs continue to play a significant role in many students' educational trajectories. Figures from the National Center for Education Statistics show that 5% of all high schools nationwide are full time CTE high schools, and that the majority – 88% - of all public high schools offer at least one occupational program.¹⁴ However, the nature of career and technical education has changed markedly since the older model of the 20th century. While the overall number of students taking at least one occupational course remains high – 92% of the 2005 graduating class¹⁵ – the number of students specializing in an industry has declined: one-fifth of all high school students in 2005, down from one-third in 1982.¹⁶

Changes to CTE- the past decade

Over the past decade, career and technical education programs across the country have shifted their standards and methods of accountability to place greater emphasis on post-secondary readiness. The need for these reforms has grown all the more pressing given the seismic shifts in the global economy and increasing irrelevance of outmoded CTE programs, in tandem with the accountability movement and expectations under No Child Left Behind (“NCLB”). CTE needed to adapt not only to the changing shape of the American economic landscape, but also the new pedagogical models and academic philosophies of the general education system.

The reauthorization of the Perkins Act in 2006 reaffirmed this need for change by requiring states to report on technical skill attainment using assessments aligned with industry-recognized standards. Concurrently, student academic achievement was measured under the same standards adopted under NCLB.¹⁷ These new standards encouraged CTE instruction to adopt course sequences that ensured a “coordinated, non-duplicative progression of courses to align secondary education with postsecondary education to adequately prepare students to succeed in post-secondary education.”¹⁸ At present, these reforms are most clearly demonstrated in the evolution of CTE programs from traditional “shop” classes towards “courses that require cutting-edge technology and focus on emerging programs of study that prepare students for ‘high-skill, high-wage, high-demand’ careers and the jobs of the future.”¹⁹ As a result, industry standards and educational expectations have been aligned much more coherently within the CTE system than in the past, thereby creating enormous potential for practice-based learning within secondary education.

¹¹ “The Future of Career and Technical Education (CTE) Assessment: A white paper of the CTAC SCASS, CCSSO” accessed at: <http://www.ccsso.org/Documents/CTE%20Assessment%20White%20Paper%20-%20Final.pdf>. For more information on Career Clusters and Pathways, see: <http://www.careertech.org/career-clusters/clusters-occupations.html>

¹² See: <http://www.p12.nysed.gov/cte/ctepolicy/ctepolicy.html>

¹³ *Carl D. Perkins Vocational and Applied Technology Education Act of 2006*. Pub. L. No. 109-270. See: <http://www2.ed.gov/policy/sectech/leg/perkins/index.html>

¹⁴ National Center for Education Statistics, “Highlights from CTE Statistics Publications”. Accessed at: <http://nces.ed.gov/surveys/ctes/highlights.asp>. Note: figures reflect 2002 data.

¹⁵ National Center for Education Statistics, *Career and Technical Education in the United States: 1990 to 2005*, U.S. Department of Education (NCES 2008-035), 26

¹⁶ *The Economist*, June 17 2010. Accessed at: http://www.economist.com/node/16380980?story_id=16380980

¹⁷ Castellano, Marisa, et. al, *State Secondary CTE Standards: Developing a Framework out of a Patchwork of Policies*. National Research Center for Career and Technical Education (St Paul, MN: University of Minnesota, 2007), 3.

¹⁸ *Carl D. Perkins Vocational and Applied Technology Education Act of 2006*. Pub. L. No. 109-270, §122

¹⁹ Castellano, 1.

However, the schism that resulted from the Smith-Hughes act of 1917 – which effectively created a different category for career and technical education – persists to this day. CTE has failed to receive the attention it deserves – nationally, statewide, and within New York City – which would ensure every school is able to make transformations necessary for the 21st century. While there are a number of innovative and high-performing CTE schools, including many in New York City, there is an incredible inconsistency in performance. This must change. CTE schools have enormous potential in their ability to prepare students for post-secondary success, and should be brought into line with industry standards and employment projections in order to best prepare our youth for the opportunities ahead of us.

Career and Technical Education in New York City

Career and technical education in New York City combines rigorous academic standards for graduation with career pathway education. Students enroll in CTE-designated high schools through the New York City High School Choice process. Graduates of CTE programs must meet the same graduation criteria as other high school students, including passing Regents exams. A wide range of programs are available to students, but CTE programs share common elements including course sequencing, integrated content, and preparation for industry-recognized credentials or certificates. CTE programs are comprised of a minimum of three CTE courses that together form a cohesive concentration.²⁰

“CTE has long been one of the most overlooked, underfunded, and misunderstood parts of the city’s education system.”

*- David Fischer, former Project Director,
Center for an Urban Future*

The Department of Education currently lists 30 CTE designated high schools in New York City and 125 CTE programs of study.²¹ All programs in CTE-designated high schools are dedicated to CTE education paths. Within other comprehensive high schools where CTE programs exist, students may enroll in approved programs of study or take CTE-related classes. Approximately 30,000 students in New York City are enrolled in a CTE designated high school, and many more are exposed to career pathways.²²

New York State Education Department (“NYSED”) introduced a new system for CTE program approval in 2001. The program approval process was designed to ‘raise the bar’ for CTE performance, in part by creating a common set of criteria necessary for state approval. The DOE adopted a new approach to encourage NYSED CTE program approval in 2010, and has since made a push to ensure all programs are meeting the state standards for approval.²³

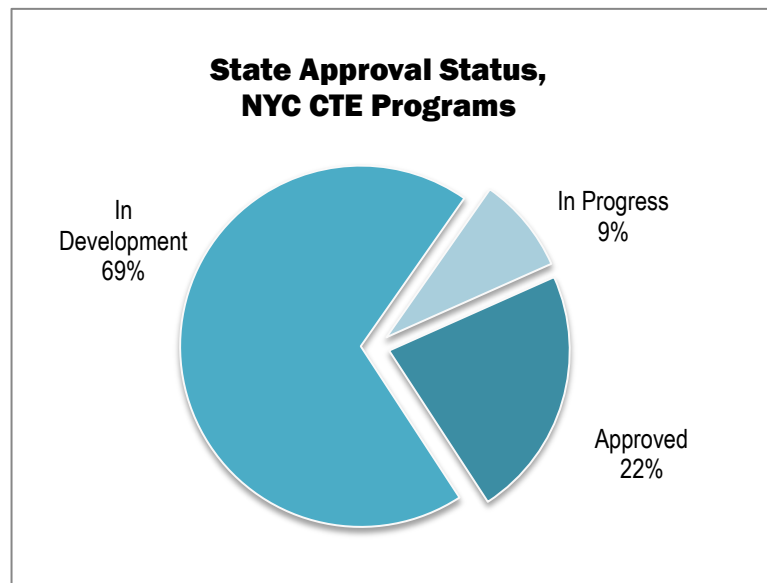
²⁰ New York State Education Department. See: <http://www.p12.nysed.gov/cte/Data/home.html>

²¹ New York City Department of Education. See: <http://schools.nyc.gov/ChoicesEnrollment/CTE/ParentsandStudents/default.htm>

²² Ibid.

²³ Office of Postsecondary Readiness, “CTE Program Approval 201”, New York City Department of Education. Accessed at: <http://schools.nyc.gov/NR/rdonlyres/4B67E5AD-7E19-4C26-9900-E8DF96D8D83E/114970/10SteposPA201.pdf>

The New York State career and technical education approval process is designed to ensure the quality and rigor of CTE programs; it involves ongoing reviews of program delivery and outcomes, subject to renewal every five years.²⁴ This process requires schools to write a letter of intent, conduct self-evaluations and submit program applications to the DOE and New York State Education Department.²⁵ In the process, schools must review curricula, teacher certification, technical assessment, work-based learning opportunities, employability profiles, and postsecondary articulation. Students participating in a State-approved program of study are eligible for a technical endorsement on their diploma, which requires minimum credit completion, passing grades on five required Regents examinations, and completion of a three-part technical assessment.²⁶ The additional technical endorsement demonstrates high competency and indicates a student has completed a program beyond a Regents diploma – making program approval crucial to increasing the rigor of CTE programs.²⁷



The State approval process is an important mechanism to ensure all CTE programs meet a common high standard. However, only 73 of the 325 CTE programs in New York City are state approved, 224 are “in development,” and 28 are “in progress”.²⁸ With 22% of schools approved by the state, this represents only a slight increase over the 15% approved in 2007.²⁹

The above figure illustrates the current status of CTE programs in New York State. CTE schools can have an 1) application in progress, 2) an application in development or 3) an approved program. This status comes into review every five years to ensure instructional quality.

New York City made a significant step towards strengthening its commitment to CTE education in 2008 when Mayor Bloomberg convened the Mayoral Task Force on Career and Technical Education Innovation. The report produced by the task force affirmed that there were a number of significant challenges facing CTE schools, including:³⁰

- Tradition and negative perception in the City;
- Uneven performance across the City’s CTE schools

²⁴ New York State Education Department, Career and Technical Education. See: <http://www.p12.nysed.gov/cte/ctepolicy/>

²⁵ New York City Department of Education, Career and Technical Education. See: <http://schools.nyc.gov/ChoicesEnrollment/CTE/CTEReapproval.htm>

²⁶ Technical assessments are industry-developed, and consist of a written examination, student project(s), and demonstration of technical skills to “measure proficiency in a specific technical field through the application of national standards”. See: New York State Education Department, Career and Technical Education, Regents Policy: <http://www.p12.nysed.gov/cte/ctepolicy/ctepolicy.html>

²⁷ New York City Department of Education. See: <http://schools.nyc.gov/ChoicesEnrollment/CTE/ParentsandStudents/default.htm>

²⁸ Figures from the New York City Department of Education Career and Technical Education Programs of Study Inventory, last updated July 2010. More recent figure were not available through the DOE website. Status definitions are consistent with this inventory and reflect those programs that are pending approval, in development, and State approved. See: <http://schools.nyc.gov/ChoicesEnrollment/CTE/ParentsandStudents/default.htm>

²⁹ Fischer, 19.

³⁰ *Next-Generation Career and Technical Education in New York City*, Final Report and Recommendations of the Mayoral Task Force on Career and Technical Education Innovation (July 2008), 4.

- Limited access and opportunity to enroll in innovative programs in the City
- Insufficient preparation for postsecondary success
- Inadequate integration in classroom instruction
- Seat time versus competency-based pathways to graduation
- Definitions of student success
- Disjointed management of industry engagement
- Disproportionate distribution of resources, and
- Limited opportunity for CTE innovation.

The Task Force also set out a broad vision for improving the CTE system, and included key recommendations to accomplish these goals. In some areas, the DOE has made serious progress in meeting the challenges set forth in 2008. For instance, the Task Force recommended efforts to “create innovative courses and programs of study” as well as to “increase emphasis on successful student transitions.”³¹ In this regard, it is clear that many of the new programs are

rooted in innovative, cutting-edge education models that hold great promise for student success. One example of this is Quest to Learn, which plans to enroll grades 6-12 and emphasizes a curriculum rooted in new technology and media.³² Similarly, the Task Force made a series of recommendations for engaging and empowering industry leadership, including the expansion and strengthening of work-based learning opportunities. The administration has implemented programs like “Scholars at Work,” which connected high school students to 14-week paid internships with New York City employers in the transportation industry.³³ The program has expanded from its original small size, and now includes 47 students and includes job placement services for graduating seniors.³⁴

While the Task Force called for a strong commitment to CTE programs and made specific recommendations to improve them on a systemic level, investments have been concentrated primarily in new schools, and innovative programs have not been scaled to impact the entire CTE system. This is despite the fact that the Task Force made clear that improving the performance of existing CTE schools was central to the larger aims of improving student

Pilot Programs & Grace Dodge Phase Out:

One of the reforms touted in the 2008 Mayoral Task Force on CTE Education Innovation was the development of pilot CTE innovation schools. These pilots were intended to “integrate new instructional ideas with rigorous academics to prepare graduates for success in the 21st century workplace.”

At the time, former Chancellor Klein stated:

“These demonstration site schools will not only help improve the quality of Career and Technical Education in our City, they will also pilot innovations that will help us see beyond a model of educating high school students that has little changed in more than a hundred years...When they receive their diplomas, students graduating from these schools will have skills that our global economy demands. I want to thank the Mayor’s task force for their recommendations and the demonstration site school leaders for leading the way in this exciting initiative.”

Questions to the Department of Education:

- What lessons have been learned from this model?
- What support was given to this school?

³¹ Ibid, 6-7.

³² See Sara Corbett, “Learning by Playing: Video Games in the Classroom,” *The New York Times Magazine* (September 15 2010). Accessed at: <http://www.nytimes.com/2010/09/19/magazine/19video-t.html?pagewanted=all>

³³ See “One System for One City,” The City of New York Office of the Mayor (2011), 31. http://home2.nyc.gov/html/adulted/downloads/pdf/one_system_one_city_2011.pdf

³⁴ Ibid.

performance and graduation rates.³⁵ One example is especially illustrative in this regard. Following the Task Force report, the DOE launched four “demonstration sites” to model new approaches for CTE, intended to be a “culmination of a vision to transform Career and Technical Education.”³⁶ One of the schools selected was Grace Dodge Career and Technical High School, which has since received funding as a “transformation school” as well as grants from the iLearn NYC initiative. Despite the attention, this school has been proposed for phase-out beginning in the 2012-13 school year, leaving serious questions regarding the DOE’s commitment to this school’s success.³⁷ Similarly, the Task Force called for transformation in the gender balance of enrollment in non-traditional sectors.³⁸ However, of the 10 new schools³⁹ listed on the DOE’s website, only two have near-equal gender balance. The remaining 8 have significantly more male than female students, some with close to 80% male enrollment versus only 20% female.⁴⁰ Clearly, not enough has been done to capitalize on the Task Force’s momentum to create meaningful, system-wide reforms.

On January 12, 2012, Mayor Bloomberg announced plans to expand CTE program offerings, primarily through the creation of new CTE schools. In addition, on January 19, 2012, in a New York City Council oversight hearing on college readiness, the DOE announced several initiatives suggesting additional CTE reforms. These include the opening of new schools with industry partnerships, providing teachers with externships, implementation of a data-driven program approval process and an increase in industry consortiums.⁴¹ These efforts, while commendable, do not address the comprehensive needs of New York’s CTE programs.

By 2018, 63% of all jobs in the U.S. will require some form of post-secondary education and training, and most long-term careers will involve post-secondary education

The Importance of CTE programs

The most effective CTE programs successfully prepare students for post-secondary success. This implies that students who graduate from CTE programs should be able to meet the academic requirements for post-secondary readiness for both college and careers. Academic postsecondary readiness means the ability to meet college-level course requirements without the need for remedial education. Similarly, career readiness implies that students graduate with hard skills in language arts, math, and science necessary for a lifetime of learning, in addition to critical thinking, creativity, teamwork, and communication skills necessary for career success.⁴²

³⁵ The Task Force stated that it was “equally important [to] improve the performance of existing New York City CTE schools,” and that New York City needed to “ensure that the existing portfolio of schools are aligned to the Task Force’s vision.” *Next-Generation Career and Technical Education in New York City*, 5-6.

³⁶ See http://schools.nyc.gov/Offices/mediarelations/NewsandSpeeches/2009-2010/CTE_demonstration_sites.htm

³⁷ See <http://schools.nyc.gov/community/planning/changes/bronx/proposal?id=85>

³⁸ *Next-Generation Career and Technical Education in New York City*, 6.

³⁹ Researchers defined “new” school as those that do not have three years of data.

⁴⁰ Data from New York City Department of Education “School Demographics and Accountability Snapshot”, accessed at: <http://schools.nyc.gov/Accountability/data/default.htm>. Schools included in the above reference include those listed on the DOE’s CTE website under “New CTE High Schools” in addition to Construction, Trades, Engineering, and Architecture (which has only two years of accountability data). See: <http://schools.nyc.gov/ChoicesEnrollment/CTE/ParentsandStudents/default.htm>

⁴¹ New York City Council Committee on Education and Higher Education, Testimony of the NYC DOE on College Readiness

⁴² Arne Duncan, speech given to NASDCTEc/OVAE Spring Meeting 2011 (May 4, 2011). Accessed at <http://www.youtube.com/watch?v=qYn1an3v5Yc>

Top Ten Fastest Growing Occupations - Nationally

1. **Biomedical Engineer:**
 - Job growth 72%,
12,000 new jobs by 2018
 - Mean salary: \$82,550
 - Bachelor's degree
2. **Network Systems and Data Communication Analyst**
 - Job growth 53%,
156,000 new jobs by 2018
 - Mean salary: \$76,560
 - Bachelor's degree
3. **Home Health Aide**
 - Job growth 50%,
461,000 new jobs by 2018
 - Mean salary: \$21,620
 - Short-term on-the-job training
4. **Personal and Home Care Aide**
 - Job growth 46%,
376,000 new jobs by 2018
 - Mean salary: \$20,280
 - Short-term on-the-job training
5. **Financial Examiner**
 - Job growth 41%,
11,000 new jobs by 2018
 - Mean salary: \$71,000
 - Bachelor's degree
6. **Medical Scientist**
 - Job growth 40%,
44,000 new jobs by 2018
 - Mean salary: \$84,760
 - Doctoral degree
7. **Physician Assistant**
 - Job growth 39%,
29,000 new jobs by 2018
 - Mean salary: \$85,000
 - Master's degree
8. **Skin Care Specialist**
 - Job growth 38%,
15,000 new jobs by 2018
 - Mean salary: \$13 median hourly wage
 - Postsecondary vocational award
9. **Biochemist and Biophysicist**
 - Job growth 37%,
9,000 new jobs by 2018
 - Mean Salary: \$88,550
 - Doctoral degree
10. **Athletic Trainer**
 - Job growth 37%,
6,000 new jobs by 2018
 - Mean salary: \$41,340
 - Bachelor's degree

Source: Bureau of Labor Statistics, *Employment Projections (U.S., projected 2008-2018)*. See: www.bls.gov/emp/ep_table_103.htm

Post-secondary readiness

Increasingly, college readiness preparation has taken center stage in high-school curricula. Indicators for “college readiness” have been included in New York City Progress Reports for high schools, and will count towards a school’s overall grade beginning in the 2012-2013 school year. Graduation requirements for New York City students have risen over the past decade, and the DOE has focused on increasing the rigor of academic courses. Soon the entire school system will transition to the Common Core standards, which more clearly outline the skills and knowledge necessary for postsecondary success in school or work.

However, much work remains. Too many students are leaving New York City schools unprepared for success in either college or work. Data from the City University of New York (CUNY) demonstrates that a full 74 percent of

New York City high school graduates who enroll in the CUNY system place into remedial classes.⁴³ The statistics on college completion in the CUNY system are equally startling: after six years, a full 63% of students drop out, 9% are still enrolled, and only 28% are awarded an A.A. or B.A. degree.⁴⁴ While the reasons behind these high drop-out rates are myriad, research conducted by the CUNY system has found a strong correlation between the level of college preparedness and college completion. In other words, students who must take remedial courses upon entering the CUNY system have much higher drop-out rates than those who test immediately into college-level courses, while those who enter college prepared are more likely to graduate.⁴⁵

Current economic landscape

New York City's youth also face significant challenges preparing for success in such a difficult economy. Youth unemployment hit a record high of 19.1% in 2010, and now hovers around 18%.⁴⁶ Additionally, youth labor force participation rates this past July were the lowest on record at 59.5%.⁴⁷ The numbers vary considerably by demographics: white and Asian youth face an unemployment rate between 15-16%, versus 20.1% for Hispanic and Latino youth and 31.0% for Black or African American youth.⁴⁸ The long term impact of youth unemployment is significant; given two men with the same socioeconomic background and education levels, "if one of them spends a year unemployed before the age of 23, ten years later he can expect to earn 23% less than the other."⁴⁹ In this context, successful CTE programs that teach students important career readiness skills have an important role to play in alleviating youth unemployment.

However, in order to ensure that CTE students are fully equipped to face the 21st century economic landscape, policymakers must ensure proper alignment with career clusters and postsecondary demands. Some important improvements have been made in this regard. New accountability requirements for New York's CTE programs require that school districts report CTE performance data using a career-cluster emphasis. This enables policy-makers to more clearly link CTE Programs of Study to trends in future employment and post-secondary education needs. Recent statistics clearly demonstrate that some post-secondary education will become increasingly important for employment in every sector and finding stable employment with only a high school diploma will become more and more difficult. By 2018, 63% of all jobs in the U.S. will require some form of post-secondary education or training, and most long-term career jobs will involve post-secondary education.⁵⁰ Similarly, in the areas that face the best growth prospects, between 70 and 94% of workers will need postsecondary education or training. Given these changing employment prospects, CTE programs are uniquely positioned to align programs of study with high-skill, high-wage, and high-demand occupations, thereby preparing high school students for the future.

Aligning CTE programs with areas of anticipated growth benefits both CTE graduates and industry partners. Students have better opportunities to work with industry leaders and learn cutting-edge skills in high-demand occupations, and employers can be assured of a capable, well-trained workforce. There are a number of strong partnerships that demonstrate the mutual success of such programs, such as the Edward J. Malloy Initiative for Construction Skills which integrates union apprenticeships and on-site training, with classroom instruction, enabling

⁴³ Center for an Urban Future, *Mobility Makers* (November 2011), accessed at: http://www.nycfuture.org/images_pdfs/pdfs/MobilityMakers.pdf. Page 13.

⁴⁴ *Ibid*, 12.

⁴⁵ *Ibid*, 13.

⁴⁶ Data refers to the national average for individuals aged 16-24. Bureau of Labor Statistics, "Employment and Unemployment Among Youth – Summer 2011", United States Department of Labor. Accessed at: <http://bls.gov/news.release/youth.htm>

⁴⁷ *Ibid*.

⁴⁸ *Ibid*.

⁴⁹ *The Economist*, "Left Behind", September 10, 2011. Accessed at: <http://www.economist.com/node/21528614>

⁵⁰ Carnevale, Smith, Strohl. "Help Wanted: Projections of Jobs and Education Requirements Through 2018," Center on Education and the Workforce (2010). Accessed at: <http://cew.georgetown.edu/jobs2018/>

students to pursue careers offering good wages and benefits.⁵¹ Similarly, Pathways in Technology Early College High School (P-Tech) holds great promise as a new effort to link high school with college and post-secondary employment. P-Tech was created as a joint effort between the Department of Education, CUNY, and the IBM Corporation and its students will take college-level courses at City Tech and benefit from mentorships with staff at IBM or related corporations.

Looking to the future, there is strong potential to overcome the Smith-Hughes divide between career- and academic-readiness through the Common Core standards. These new standards emphasize rigorous content and applied learning, and are aligned with college and work expectations. In the best CTE schools, many of the Common Core objectives are already being fulfilled, so the transition to high-quality education environments will be relatively seamless. As the DOE plans to open new CTE schools in New York City, these schools will have the benefit of incorporating the multidisciplinary focus of the Common Core from their inception. In other struggling CTE schools, it will be imperative for the DOE to support a transition to the Common Core at each step.

FINDINGS AND ANALYSIS

Methodology

Using public data from the DOE's website, the Office of Public Advocate Bill de Blasio conducted a thorough review of CTE programs, including a count and analysis of the current programs offered to students. Researchers analyzed both CTE programs within comprehensive high schools and CTE designated high schools to reach the following conclusions. The DOE's website currently lists contradictory information regarding the number of CTE-designated high schools that exist within the school system; so the researchers used the thirty CTE designated high schools listed on DOE's CTE webpage for parents.⁵²

In addition, the researchers looked at all CTE-designated high schools and analyzed all schools with at least three years of performance data. These criteria reduced the sample size to twenty schools; leaving ten CTE designated schools out of the analysis.

Persistently low achieving schools

For the purposes of this report, schools that fall into the "Persistently Low Achieving" (PLA) cohort are any schools that have been included in New York State's list of PLA Schools at any point since the 2008-2009 school year. Some were considered PLA for multiple years, and others have since been removed from the list.⁵³ The PLA cohort included ten schools⁵⁴ -five of which currently qualify for School Improvement Grants. These include: Automotive High School, Chelsea Career and Technical Education High School, Grace Dodge Career and Technical Education High School, Queens Vocational and Technical High School, and William E. Grady Career and Technical Education High School. Of the ten schools that fall into the PLA cohort, four of them have recently been engaged for phase-out discussions, and three have been formally proposed for phase out. These include: Grace Dodge Career and Technical Education High School, Jane Addams High School for Academic Careers, and Samuel Gompers Career and Technical Education High School.

⁵¹ Accessed at: <http://www.constructionskills.org/pages/au.html>

⁵² Accessed at: <http://schools.nyc.gov/ChoicesEnrollment/CTE/ParentsandStudents/default.htm>

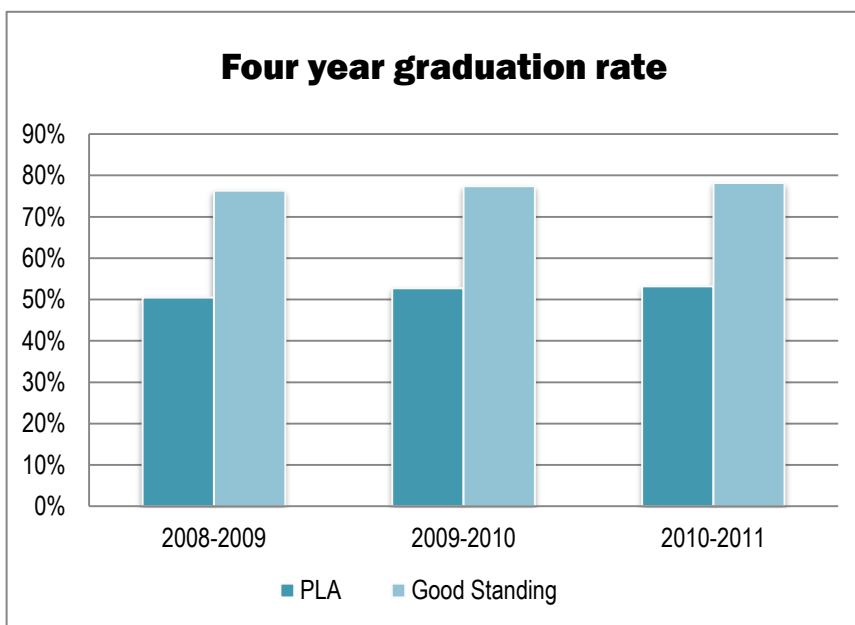
⁵³ Information can be accessed at: <http://www.p12.nysed.gov/irs/accountability/LowAchieve/home.html>

⁵⁴ Full list of schools analyzed can be reviewed in the appendix.

Schools in Good Standing

Ten schools in this analysis of twenty schools fall into the category “In Good Standing.” These are schools with at least three years of performance data and which have not been subject to significant attention or resource allocation due to poor performance.

While CTE programs have expanded over the last several years, many existing CTE-designated high schools are struggling. As this research will illustrate, 50% of CTE designated high schools analyzed have been considered PLA at some point since 2008, leaving many New York City youth unprepared for both a career and college.



It is clear that the DOE must be doing more to prepare graduates for post-secondary success, given the recently reported indicators on low levels of college readiness and college enrollment. Unfortunately, not enough attention has been given to the unique role of career and technical education as a potential avenue for post-secondary success. CTE schools can boost educational outcomes for at-risk youth,⁵⁵ and can provide alternative pathways for students interested in non-traditional post-secondary options – such as some college study or industry certification – leading to high-demand, high-wage occupations.⁵⁶

In order to be effective in meeting high standards for post-secondary success, CTE programs must be dynamic and forward-looking while also emphasizing areas of study that provide students entry into high-wage, high-growth industries and provide career opportunities. These opportunities increasingly involve some form of post-secondary education.

FINDING #1 – Many CTE’s under-perform

There is a distinct performance gap among New York City CTE schools. An analysis of twenty CTE designated high schools reveals 50% have been designated by the State as a PLA school, while the other half of the schools remain in good standing.⁵⁷ Some schools are performing very well according to State and City standards; many are so successful they have made multiple lists of the top 100 schools in the country.⁵⁸ The United States Secretary of Education Arne Duncan went so far as to highlight Aviation High School as a model CTE program in a major education policy speech.⁵⁹ But on the other end of the spectrum, other CTE-designated high schools are among the

⁵⁵ Fischer, “Schools that Work”, 9.

⁵⁶ Duncan, speech given on May 4, 2011.

⁵⁷ Research conducted by the Office of the Public Advocate excluded schools that did not have at least three years of available progress reports. A full inventory of CTE schools can be found on the Department of Education’s website. See: <http://schools.nyc.gov/ChoicesEnrollment/CTE/ParentsandStudents/default.htm>

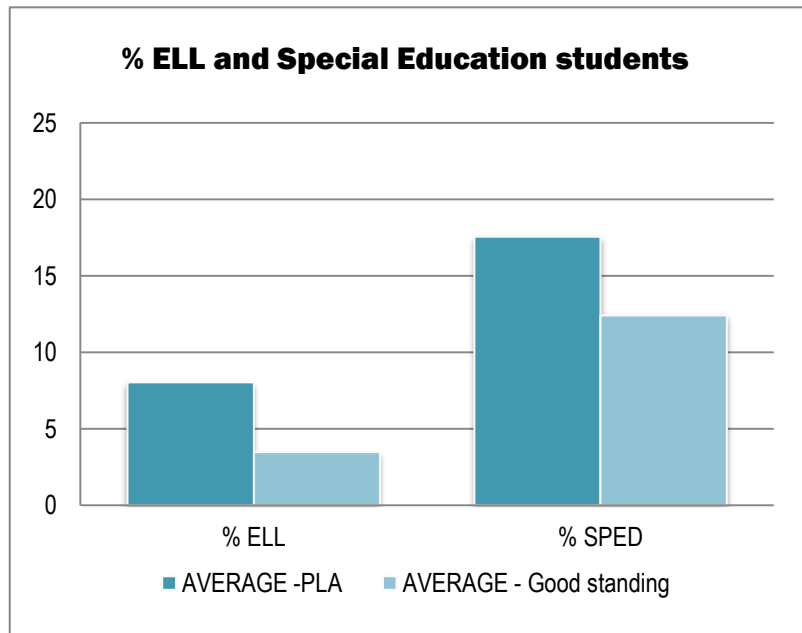
⁵⁸ Fischer, 8.

⁵⁹ Arne Duncan, speech given to NASDCTEc/OVAE Spring Meeting 2011 (May 4, 2011). Accessed at <http://www.youtube.com/watch?v=qYn1an3v5Yc>

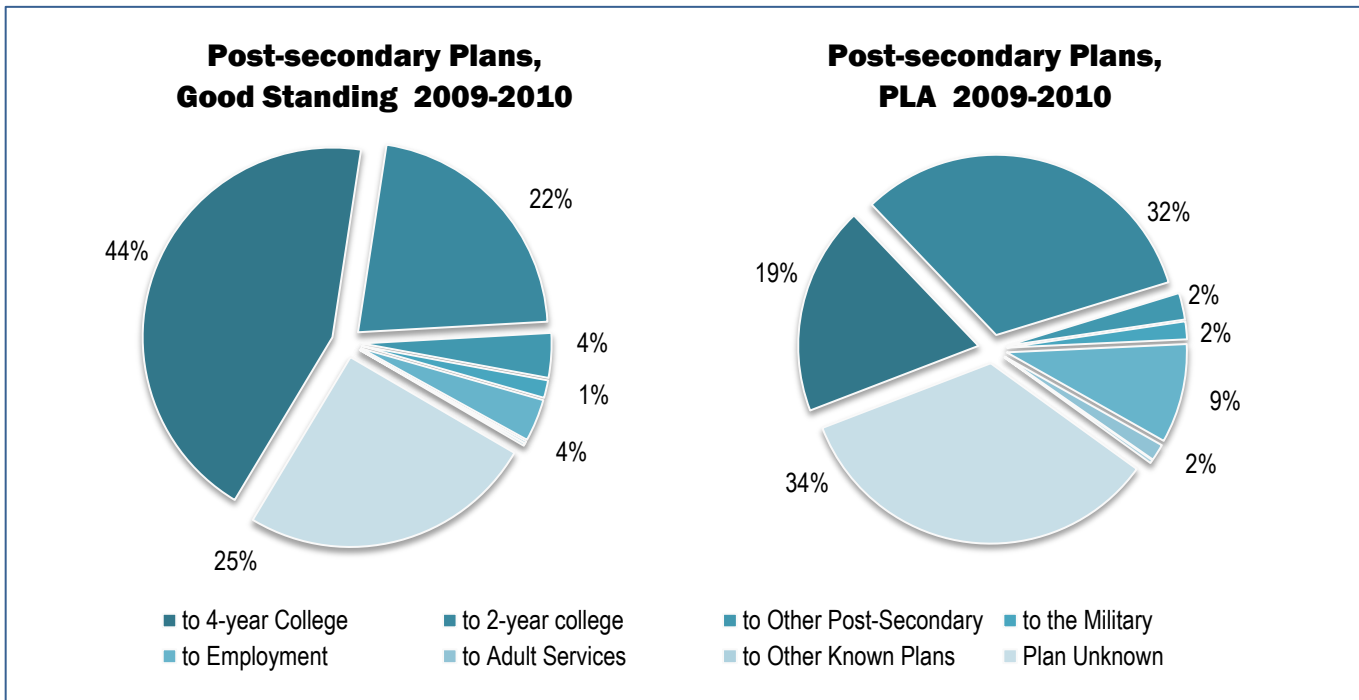
lowest performing in the City. Most notably, the DOE has proposed three CTE-designated high schools for phase-out this year alone,⁶⁰ and others have made the State's list of persistently low achieving schools.⁶¹

The Public Advocate's analysis of publicly available accountability reports – such as progress reports and school environment surveys – reveals a distinctive split in terms of school performance and post-secondary readiness.

Education officials acknowledge that the gap in CTE performance is one of the major obstacles to wide appeal and continued funding for CTE programs, and the DOE has since integrated high standards into the new CTE designated high schools opened in the past decade.⁶² But older school's continue to suffer- the figure above illustrates the difference in graduation rates between PLA schools and schools in good standing over the past three years.



The differences in college enrollment, academic performance, and college readiness levels are clear and point to the necessity for improved support from the DOE, City agencies, and the business community.



⁶⁰ Anna M. Phillips, "25 Schools Could be Closed or Truncated" *The New York Times*, 9 December 2011. Accessed at: <http://www.nytimes.com/schoolbook/2011/12/09/25-schools-could-be-closed-or-truncated/>

⁶¹ See: Information and Reporting Services, New York State Education Department. Accessed at: <http://www.p12.nysed.gov/irs/accountability/LowAchieve/home.html>

⁶² Arne Duncan, speech given to NASDCTEc/OVAE Spring Meeting 2011 (May 4, 2011). Accessed at <http://www.youtube.com/watch?v=qYn1an3v5Yc>

There are also distinct enrollment differences between the two cohorts- as seen in the figures to the right, schools in need of improvement, or those who had been considered PLA at some point during the past three years, tend to have larger percentages of English language learners, special education students, and students who receive free or reduced-price lunch.⁶³

Statistics on college readiness also reveal a significant range in the academic preparation offered through CTE-designated schools. Likewise, PLA schools have an average college enrollment rate of only 25%, compared to 53% for schools in good standing.

PLA schools have college readiness indicators significantly lower than their more successful counterparts: schools in good standing have a low college readiness index of 23%, while PLA schools have a significantly lower average index of only 5%.

In addition, there is a distinct difference between students' post-secondary plans in the PLA and Good Standing schools.⁶⁴ As seen above, 44% of students attending good standing schools plan to attend a four-year college after they graduate from high school, compared to only 19% in PLA schools. Interestingly, more students at PLA schools plan on going straight into the workforce than students who attend schools in good standing. Yet, in both the PLA and the good standing cohort, over 50% of students aspire to attend either a two-year or four-year college.

FINDING #2- Programs are not currently aligned with growing industries

While the City continues to open new CTE schools, it fails to align these schools with the economic promise of growing industries. The chart below suggests an overrepresentation of CTE programs in several fields with small anticipated growth rates and an underrepresentation of CTE programs in fields with high growth rates. These statistics suggest that current CTE programs are failing to adequately prepare students for national industries that are: 1) in high demand, 2) offer high wages or 3) require high skill levels.⁶⁵ The graph on the following page outlines *national* trends in each career cluster:

Multiple economic forecasts predict to have high rates of employment growth in New York State consistent with national trends, as shown in the above table. Among the three 'high demand, high wage, high growth' sectors, New York is slated to experience high *rates* of job growth in Health Science (17%), Information Technology (14%), and Law, Public Safety, Corrections, and Security (8%).⁶⁶ In terms of the overall *proportion* of jobs in New York State, the three largest sectors are anticipated to be in Business management and Administration; Marketing, Sales and Service; and Hospitality and Tourism. These three clusters will comprise 41% of all jobs in New York State by 2018.⁶⁷ On the other end of the spectrum, two clusters are anticipated to have negative growth rates due to a loss of jobs: Transportation, Distribution, and Logistics (-2%), and Manufacturing (-10%).⁶⁸

⁶³ New York City Department of Education, "School Demographics and Accountability Snapshot", accessed at: <http://schools.nyc.gov/Accountability/data/default.htm>

⁶⁴ NYSED School Report Cards, Comprehensive Information Report 2009-2010 (accessed at: <https://reportcards.nysed.gov/schools.php?district=all&year=2010>)

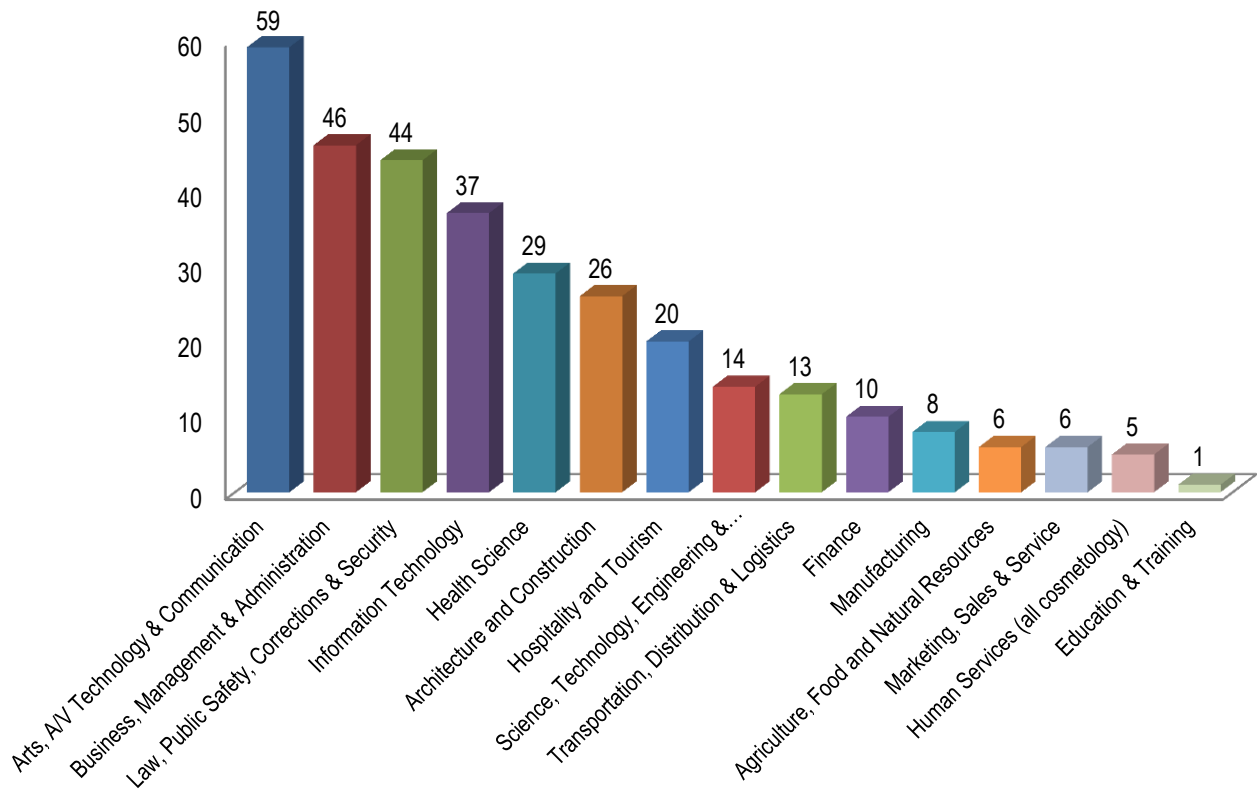
⁶⁵ Based on national data, which can be accessed at: <http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/clusters-complete-update1.pdf>

⁶⁶ *Career Clusters: Forecasting Demand for High School Through College Jobs, 2008-2018: State-Level Analysis*, 54. See: <http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/clusters-states-complete-update1.pdf>

⁶⁷ *Ibid.*

⁶⁸ *Ibid.*

Number of programs, by Career Cluster



| Career Cluster ⁶⁹ | Number of NYC CTE Programs | Growth Rate (employment) 2008-2018 | Yearly Wages (2009) | Postsecondary Education (%) | High Demand | High Wages | High Skill |
|--|----------------------------|------------------------------------|---------------------|-----------------------------|-------------|------------|------------|
| Arts, A/V Technology, and Communications | 59 | 5% | 49,000 | 76 | | | X |
| Business, Management, and Administration | 46 | 6% | 64,000 | 74 | | X | X |
| Law, Public Safety, Corrections and Security | 44 | 14% | 69,000 | 77 | X | X | X |
| Information Technology | 37 | 23% | 71,000 | 93 | X | X | X |
| Health Science | 29 | 21% | 63,000 | 80 | X | X | X |
| Architecture and Construction | 26 | 7% | 45,000 | 35 | | | |
| Hospitality and Tourism | 20 | 12% | 29,000 | 37 | X | | |
| Science, Technology, Engineering and Mathematics | 14 | 9% | 74,000 | 89 | | X | X |

⁶⁹ "Career Clusters: Forecasting Demand for High School Through College Jobs, 2008-2018," p. 79

| Career Cluster ⁷⁰ | Number of NYC CTE Programs | Growth Rate (employment) 2008-2018 | Yearly Wages (2009) | Postsecondary Education (%) | High Demand | High Wages | High Skill |
|---|----------------------------|------------------------------------|---------------------|-----------------------------|-------------|------------|------------|
| Transportation, Distribution, and Logistics | 13 | 4% | 40,000 | 37 | | | |
| Finance | 10 | 10% | 64,000 | 80 | | X | X |
| Manufacturing | 8 | -1% | 41,000 | 38 | | | |
| Marketing, Sales, and Service | 6 | 11% | 51,000 | 57 | X | | |
| Agriculture, Food, and Natural Resources | 6 | 3% | 44,000 | 42 | | | |
| Human Services | 5 | 19% | 42,000 | 65 | X | | X |
| Education and Training | 1 | 14% | 46,000 | 91 | X | | X |
| Government and Public Administration | 0 | 8% | 50,000 | 68 | | | X |

The distribution and total number of Career Cluster programs offered in New York City demonstrates the significant room for improvement in aligning program offerings with the opportunities of the future. Arts, A/V Technology and Communication offers the most CTE programs in New York City but is predicted to have a growth rate of only 3% by 2018.⁷¹ But, the three ‘high demand, high wage, high growth’ sectors fall into the third, fourth, and fifth ranking in terms of program offerings. Finally, despite anticipated *negative* growth in sectors that are neither high wage nor high skill, New York City still offers twenty-one programs in the Manufacturing, Transportation, Distribution, and Logistics clusters. The below chart demonstrates this deficit in program offerings:⁷²

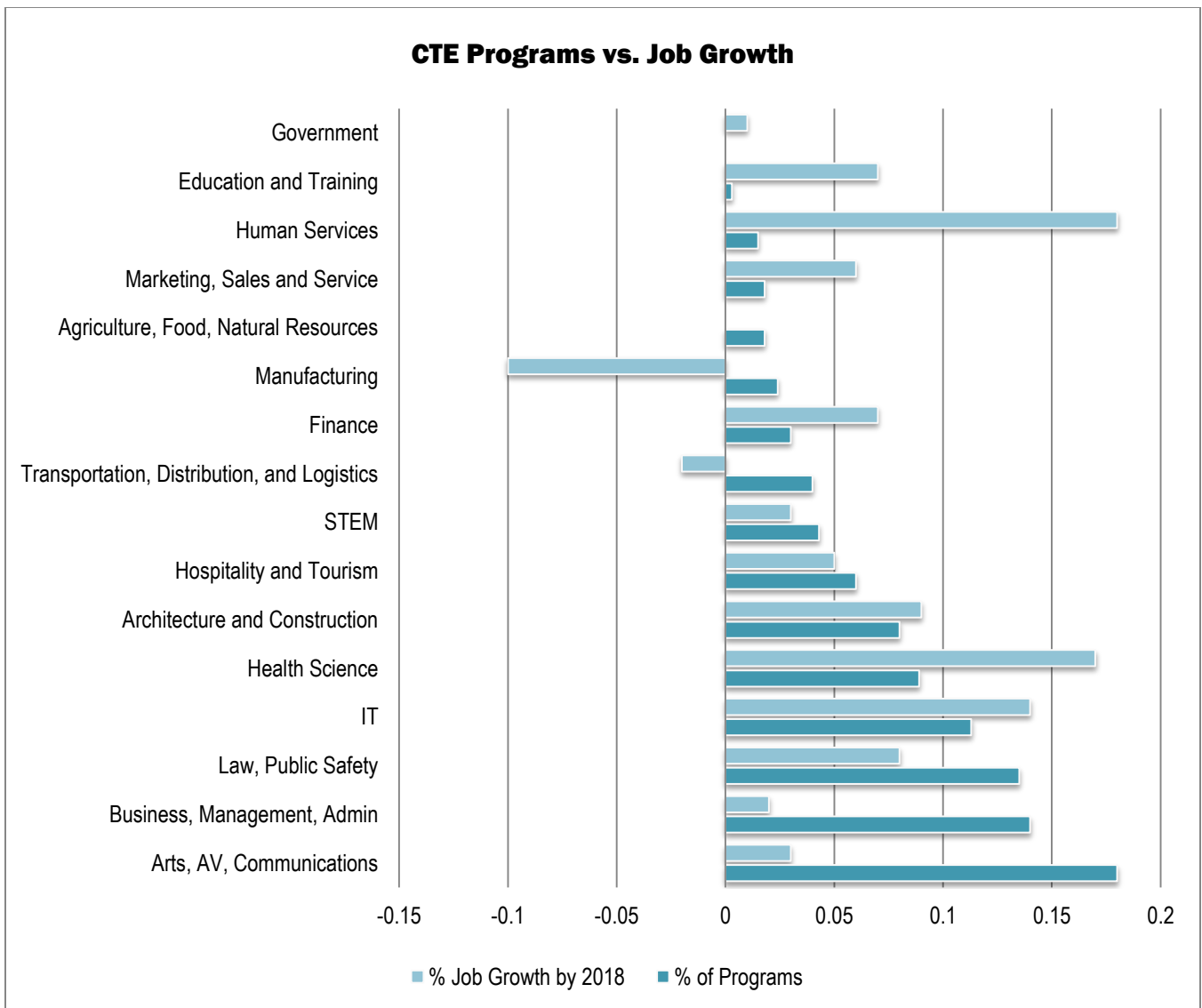
Additionally, of the schools that have been opened in recent years, the trends and growth in programs still do not adequately reflect the industries of tomorrow. As seen here, most new schools⁷³ still do not align with growing industries. Only two new programs have been introduced in science and technology, while no programs have been introduced in health sciences.

⁷⁰ “Career Clusters: Forecasting Demand for High School Through College Jobs, 2008-2018,” p. 79

⁷¹ Ibid.

⁷² Please note: percent of job growth reflects a trend, whereas percent of programs reflect a proportion of a total. Data sourced DOE program inventory and from *Career Clusters: Forecasting Demand for High School Through College Jobs, 2008-2018: State-Level Analysis*, 54. See: <http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/clusters-states-complete-update1.pdf>

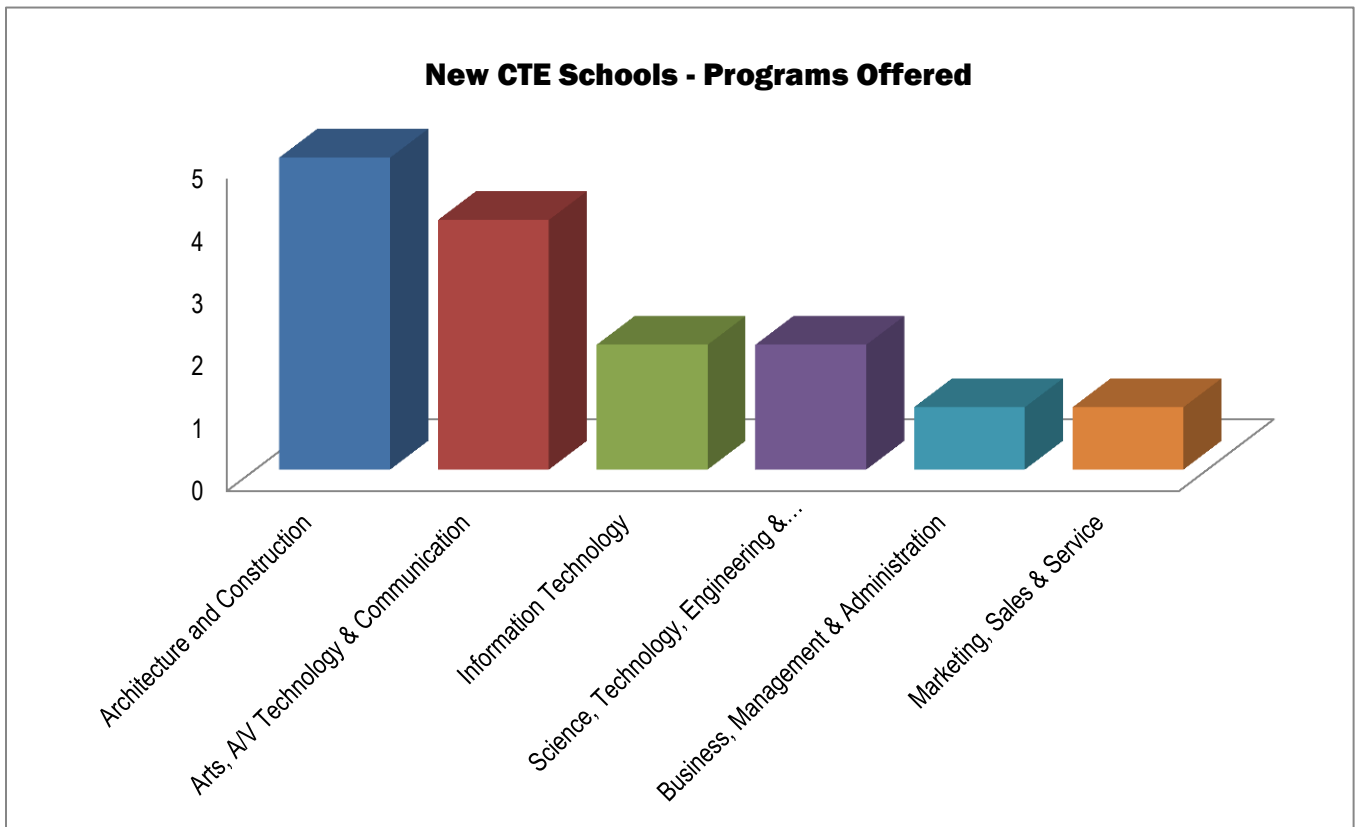
⁷³ New school is defined as a CTE high school that does not have three year’s worth of performance data- total of 10 schools.



FINDING #3- The City does not adequately track CTE programs or students

There is a serious dearth in public data on the performance and impact of CTE programs, limiting the extent to which they can be assessed or evaluated. Similarly, there is also a clear need for a deeper understanding of the long-term career trajectories of students enrolled in CTE programs. Improvements in data collection and analysis of post-secondary trends for CTE students would greatly expand the ability of policy-makers and education leaders to craft successful, data-driven CTE success models.

The Department does not include CTE-specific indicators on its annual Progress Reports compiled on school performance. Despite the fact that CTE programs offer a unique array of education opportunities and practice-based learning, it is impossible to gauge the efficacy of these initiatives within each school in the absence of CTE-specific indicators. Similarly, there is no method for assessing the strengths and weaknesses of CTE programs when the program is located within a comprehensive high school, as this disaggregated data does not exist. Similarly, while the Department has taken important steps forward in improving its system for post-secondary success through its partnership with CUNY and the GraduateNYC! Initiative, there are limits to what this data tells



us of CTE-related outcomes. While this important research tracks the outcome of New York City high school graduates within the CUNY system, it does not publicly disaggregate information based on CTE programs.

Ultimately, efforts to increase the efficacy of CTE programs will be perpetually hamstrung if data and research on long-term outcome of CTE students is not carefully documented.

Promising Practices Beyond New York City

New York City has the largest CTE program in the United States but other jurisdictions offer insights into how New York City can improve its own CTE system. School districts across the United States and in other countries have developed innovative ideas that comprehensively support CTE programs within their schools. Below are several examples of jurisdictions that have innovative ideas relating to comprehensive CTE support.

Across the country, a number of examples have illustrated how to effectively aid in a student's transition from high school to post-secondary options. Florida, for example, offers students in CTE programs the ability to earn college credit and certifications for college.⁷⁴ Similarly, Chicago also offers students in select CTE tracks college credit for their high school course work.⁷⁵ Although this is offered in some New York City CTE programs, all New York City students enrolled in CTE programs should be provided the same chance to receive college credit for their work.

⁷⁴ Florida CTE program can be accessed at: <http://www.cte.osceola.k12.fl.us/fcat.shtml>

⁷⁵ Chicago, Illinois CTE programs can be accessed at: http://cps.edu/Programs/Pathways_to_success/CollegeCareer/CTE/Pages/CTE.aspx

Maryland has proven to be a leader in fully implementing large-scale support to CTE programs. Baltimore school officials have developed articulation plans and agreements with local colleges.⁷⁶ This not only allows students to positively transition into post secondary success, it also allows local colleges to report on the data and track the impact of CTE. This level of commitment both from the Baltimore public schools and community college system has been encouraged by the State of Maryland.⁷⁷

Similarly, other countries approaches to CTE are especially illustrative of best practices. According to research on CTE by Harvard University⁷⁸, in Austria, Denmark, Finland, Germany, the Netherlands, Norway, and Switzerland, “after grade 9 or 10 between 40 and 70 percent of young people opt for an educational program that typically combines classroom and workplace learning over the next three years.”⁷⁹ Engaging young people and connecting them with the workforce at an early age is a regular practice in many European countries. While these programs differ tremendously from the U.S education system, there are lessons to be learned in how they build relationships with businesses and industries, especially in the apprenticeship programs. For instance, according to Finland’s Ministry of Education and Culture, industry aligned vocational education and training (VET), is delivered to approximately 146,000 students a year.⁸⁰ More specifically, the largest fields in Finland are Technology and Transport, Business and Administration and Health and social services.⁸¹

LOOKING FORWARD – THE FUTURE OF CTE

1. Develop a pilot program that creates partnerships between successful CTE high schools and struggling CTE high schools from similar career clusters. High-performing programs in each career category should partner with low-performing programs for the 2012-2013 school year, developing peer-to-peer trainings, mentorship opportunities and professional development to spread best practices.
2. The twelve new CTE schools announced in the State of the City must fill the deficit of program offerings in high-demand, high-wage and high-skill sectors. These schools should include programming in Information Technology and Health Sciences.
3. Engage the Department of Small Business Services, the New York State Economic Development Corporation, NYC Labor Market Information Service and the New York State Department of Labor to track job trends and ensure programs and internship opportunities are aligned with future jobs.
 - o My office will introduce legislation that will mandate an interagency task force that assesses job trends in New York State and City with relevant agencies at the table.
4. Develop internships and fellowships programs within City agencies, unions and business partners to allow students in Human Services, Public Administration, Business and Management to get hands-on experience in their field. The DOE and Advisory Council for Career and Technical Education should develop a comprehensive guide for businesses and labor unions providing internships.

⁷⁶Baltimore County Public Schools and the Community College of Baltimore County Articulation agreement, can be accessed at: <http://www.bcps.org/offices/cte/pdf/Articulation-Agreement/2012.pdf>

⁷⁷ Accessed at: <http://mdctedata.org/cc/index.htm>

⁷⁸ *Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century*, Harvard Graduate School of Education (February 2011). Accessed at: http://www.gse.harvard.edu/news_events/features/2011/Pathways_to_Prosperty_Feb2011.pdf

⁷⁹ *Pathways to Prosperity*, 15

⁸⁰ Accessed at: http://www.minedu.fi/OPM/Koulutus/ammattillinen_koulutus/?lang=en

⁸¹ Accessed at: http://www.minedu.fi/OPM/Koulutus/ammattillinen_koulutus/?lang=en

- My office will launch an internship opportunity for New York City students interested in human services and public administration.
 - CTE programs should be linked to the Department of Youth and Community Development Summer Youth Employment program.
5. Create a public-private scholarship fund to help finance CTE students' industry certification following graduation.
6. Improve tracking methods for the academic and professional progress of CTE students to optimize educational results, including:
- Progress reports specific to individual CTE programs with benchmarks to determine programmatic success;
 - Disaggregated data from students with CTE backgrounds to evaluate college readiness and the effectiveness of CTE programs;
 - A partnership between the New York City Department of Education, the New York State Education Department, and the United States Department of Education to develop an evaluation system that tracks which fields CTE students are entering following graduation.

APPENDIX

Schools in Need of Improvement:

| School Name | PLA - Year(s) | Progress Report Grade - by year | | | | |
|---|---------------|---------------------------------|-----------|-----------|-----------|-----------|
| | | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 |
| Alfred E. Smith Career and Technical Education High School | 2010 | C | C | C | C | C |
| Automotive High School | 2009 | F | B | B | C | C |
| Chelsea Career and Technical Education High School | 2009 | F | F | C | C | B |
| Grace Dodge Career and Technical Education High School | 2010 | C | C | D | D | F |
| High School of Graphic Communication Arts | 2009, 2010 | C | C | C | D | F |
| Jane Addams High School for Academic Careers | 2009, 2010 | C | D | C | C | F |
| Queens Vocational & Technical High School | 2009 | C | B | B | A | B |
| Samuel Gompers Career and Technical Education High School | 2010 | B | B | D | C | F |
| William E. Grady Career and Technical Education High School | 2009 | C | B | C | D | B |
| William Maxwell Career and Technical Education High School | 2009, 2010 | F | D | D | B | A |

Schools in Good Standing:

| School Name | Progress Report Grade - by year | | | | |
|--|---------------------------------|-----------|-----------|-----------|-----------|
| | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 |
| Art and Design High School | B | B | B | B | B |
| Aviation High School | A | A | A | A | A |
| Clara Barton High School | B | B | B | C | C |
| Food and Finance High School | N/A | A | A | A | A |
| George Westinghouse Career and Technical Education High School | C | B | B | D | D |
| High School of Computers and Technology | N/A | A | A | A | A |
| High School of Fashion Industries | A | A | A | A | A |
| Ralph McKee Career and Technical Education High School | B | A | A | A | B |
| Thomas Edison Career and Technical Education High School | B | B | B | A | A |
| Transit Tech Career and Technical Education High School | B | B | B | B | B |

