STRATEGIC DATA PROJECT

SDP FELLOWSHIP CAPSTONE REPORT

The State of Career and Technical Education (CTE) in New York

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SDP Fellowship Capstone Reports

SDP Fellows compose capstone reports to reflect the work that they led in their education agencies during the two-year program. The reports demonstrate both the impact fellows make and the role of SDP in supporting their growth as data strategists. Additionally, they provide recommendations to their host agency and will serve as guides to other agencies, future fellows, and researchers seeking to do similar work. *The views or opinions expressed in this report are those of the authors and do not necessarily reflect the views or position of SDP or the Center for Education Policy Research at Harvard University.*

CTE Policy and Background

Little is known about the demographic and academic characteristics of Career and Technical Education (CTE) students in New York State. Even less is known about how CTE programs compare to traditional academic programs. Much of this owes to challenges around collecting comprehensive, high quality CTE data, but part of the problem lies in the fact that there is no universally accepted goal for CTE programs. While some see CTE programs as industry specific job training geared toward preparing students to enter careers directly from high school, others view them as an engagement tool aimed at keeping at-risk students enrolled and still others argue they are extra-curricular opportunities for students seeking to enhance college applications. Certainly most programs exhibit each of these three aspects, but to what degree and in which proportions differ widely across the state. As alternative career pathways for graduating students become an increasingly important education policy issue, NY state and its peers are looking to understand the role of CTE in preparing students for college and career. While the ultimate goal is to answer policymakers' question of "How effective are New York State's CTE Programs?", the inability to implement randomized controlled trial studies or take advantage of quasi-experimental frameworks makes it difficult to evaluate these programs.

Currently much of CTE policy is based on anecdotal notions suggesting that CTE is for low achieving students who have been filtered out of traditional education pathways for being identified as unlikely to attend college. CTE as a "last chance" education alternative has permeated much of the discussion happening in inner policy circles. Advocates have pushed back, arguing that CTE provides non-traditional learners with supports that enhance their academic outcomes. In addition to providing high-level STEM courses to high achieving students, CTE programs arguably intervene at a critical juncture to engage at risk students who exhibit a high likelihood of dropping out of school. In particular, proponents of CTE programs suggest that these programs provide students with disabilities credible pathways toward achieving a high school credential.

My Role as a Strategic Data Project Fellow

My initial assignment was to design college-going metrics that would influence the New York State Education Department (NYSED)'s College and Career Readiness Policy. Shortly after beginning the fellowship, another employee was hired with a very similar task. Our initial attempts to work collaboratively were often complicated by having different supervisors with divergent priorities and differing levels of access to senior leadership. This structure resulted in the duplication of efforts and a misguided messaging to the field on which of us was doing what work. Senior management's solution to

this was to separate the work of College Readiness from Career Readiness. The other employee would work on College Readiness projects while I would work on Career Readiness projects. More specifically, I would work on analytics to promote the agency's policies on offering career pathways credentials through CTE.

Since NYSED's senior managers knew very little about CTE, my work would take on a different form than it did with the more established college-going work stream. The first steps would be to enlist the guidance of Technical and Vocational Education stakeholders in identifying New York's policy levers and key questions around CTE. We presented them with what we believed to be the current context and policy priorities of CTE.

We began with an initial set of assumptions around CTE:

- CTE only provides training in the vocational trades (Plumbing, Carpentry, Automotive).
- CTE acts as a direct job pipeline from high school to career.
- CTE programs design their program offerings based on regional job opportunities.
- Students who are seriously pursuing CTE are not considering a traditional college pathway.
- Most CTE Students attend regional Comprehensive High Schools (BOCES[1]) for CTE instruction.

Key policy questions:

- What are the growing employment opportunities across NY State? If CTE prepares students for post-secondary employment it is essential that programs enable students to find employment after graduation from high school. Identifying the regional employment opportunities across the state is the first step in defining a performance metric that can be used to incentivize CTE programs to offer courses that prepare students to enter the local labor force.
- How are CTE students performing on end-of-course Technical Industry Assessments? The CTE technical exam is the cumulative industry-based assessment for entry-level certification in a chosen technical field. Are CTE students exhibiting content proficiency at an industry-level standard?

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[1] BOCES are Boards of Cooperative Education Services. Under the BOCES model students are bused to regional technical centers where they receive Technical instruction for half of the school day. This was the initial model for Career and Technical Education in NY State, however the development of comprehensive technical high schools and the offering of CTE courses in traditional high school has expanded the option for CTE instruction.

○ How many CTE students attain employment in their area of specialization after high school? If the main purpose of CTE is to train students for entering the workforce in a specific trade, it is crucial to measure how many students gain relevant employment upon program completion.

○ Are CTE programs preparing students with the same academic rigor as non CTE programs? The goal of the Regents Reform agenda is guaranteeing students graduate college and career ready. As a result, students working toward a career credential must demonstrate the same rigor and proficiency as students pursuing a traditional college pathway. How do CTE students perform on Regents Exams compared to NON-CTE students?

Engaging Stakeholders around CTE

Upon introducing our list of policy questions to the field, initial conversations were met with strong pushback. Many argued that the state's policy questions were misguided and based on spurious assumptions about the mission and operation of CTE programs. In particular practitioners stated that the CTE-to-work model was an outdated model that no longer categorized the traditional CTE experience.

These discussions quickly revealed that the state's understanding of CTE differed greatly from the realities of the day-to-day administration of CTE programs. It became increasingly obvious that we could not proceed without investing a significant amount of time into learning the "current state" of CTE programs around the state, before we could begin to craft policies to evaluate their impact.

I embarked on a five-pronged approach to enhance the agency's understanding of its CTE programs: 1) Visited a cross-section of CTE programs across the state to speak with students and teachers around the attitudes about CTE. 2) Participated on the statewide CTE advisory panel of practitioners and administrators. 3) Drafted a survey for CTE Program leaders around critical data elements necessary for the evaluation of CTE outcomes. 4) Revised the guidance around CTE data reporting to improve accuracy and clarity among collected data. 5) Conducted a set of key data analytics to test several assumptions around potential CTE policy initiatives.

I) Program Visits

There is no 'typical CTE student', which make it difficult to develop a universal set of job-related outcomes for all CTE students. Students in CTE run the gamut from Construction and Welding trades to Entrepreneurship Business Management and from Science and Engineering to Hospitality services. In some cases CTE students are taking Special Education "Occupational Skill courses while others are receiving college credit through articulation agreements at 2-year technical trade colleges and 4-year

institutions. Even more interesting is that the background characteristics and academic preparation of students differ widely by specialty area making it difficult to define CTE students in general terms. In fact students spoke freely about plans to use CTE credentialing as a way to improve their college applications while others discussed taking a single CTE course because a popular instructor offered it. Still others discussed taking a range of CTE courses across disciplines as electives without ever choosing a specialty. This was particularly true of programs administered in high schools.

II) CTE Advisory Panel

Practitioners from around the state disagree on the purpose of CTE programs. The advisory panel consisting of CTE administrators, teachers and leaders from business and industry focused on developing recommendations for policy shifts in NYSED's CTE policy. The most important policy agendas were: determining the relationship between College readiness and Career readiness, defining College and Career Readiness and discussing whether the NYSED policy should instead promote "College OR Career Readiness".   The panel remained strongly divided on how to proceed. While some differences in opinion owed to the different contextual challenges faced across the state, many more owed to differences in their directors' core values around CTE and thoughts on what the goal of a CTE program should be.

For example, some programs believe CTE is offered as a credential above and beyond traditional high school requirements while others have presented CTE as a safety net for students who may not have the option of a traditional college pathway. Another group advocate allowing CTE to have scalable standards in which certain technical concentrations (majors) serve to enhance the credentials of high achievers while other concentrations work as a safety net to engage the most at-risk students. To this end, some CTE programs accept students on a first-come-first-served basis, while others have competitive admissions policies in which only high- achieving students are allowed to participate.

III) District Superintendent Survey

Programs disagree with the state on which data elements are critical to program evaluation. Program administrators collect large amounts of data to evaluate their program performance and yet much of this data does not overlap with the CTE data currently collected by the state. In essence, our attempts to measure program performance may fail to take into account key contextual factors that programs consider essential in evaluating CTE. One good example of this is the number of college credits CTE students earn through articulation agreements with local colleges. Programs place a high value on measuring how well students are performing in college- level coursework, however the State

does not collect any of this data. Additionally, the state's conversations around creating alternative pathways for CTE students rely heavily on results from CTE Technical Assessments, when in reality many students take industry certification exams at industry-specific test administration sites that never report those scores to the students' school.

For example, students taking and passing an LPN exam may not receive their examination results until after they have graduated high school rendering the inclusion of technical exam results irrelevant in the graduation process. Finally, CTE programs don't consider job placement as their main priority. Student engagement, college-credit earning and extra-curricular exposure are seen as equally important goals of CTE programs. Program directors argue that the goal of CTE is student specific and that the only universal goal is the enhanced socio-emotional development of students through exposing them to new challenges and skills. This suggests that a metric measuring post-high school employment rates may be misguided.

IV) Review Data Reporting Instructions

CTE has its own nationally recognized and federally mandated programmatic vocabulary; nevertheless, many school-level personnel are unfamiliar with this language and thus improperly report students' CTE status. For example, students who complete 3 units of approved CTE are considered a CTE Completer for federal reporting purposes. Each unit represents a year-long course in a CTE discipline with a minimum of 180 minutes of instructional time per week. However, many misinterpret these definitions and have reported as CTE completers students who completed only 3 *semester-long* courses (1.5 units). In more severe instances students who have completed a single CTE course have been misreported as completers when having *completed* only a single course. What's more problematic is that much of this reporting is done at the district level resulting in large numbers of students being improperly reported. While much of this owes to a lack of familiarity with CTE data and terminology amongst reporting entities, the majority of the issue is the result of reporting instructions that are vague and lack unquestionable specificity. Current guidelines that describe CTE completers as students who "completed a course of study in a CTE Content Area" leave too much room for misinterpretation.

V) Testing Assumptions with Data

The aforementioned assumptions guiding much of CTE policy do not pan out in the data. Much of NYSED's policy has revolved around allowing CTE students to substitute CTE credentials for some portion of the traditional high school academic requirements for graduation. However, analyzing the data reveals that many of the policy initiatives won't actually impact many CTE students.

Consider the following examples:

- ⊙ Policy Concern #1: <u>CTE students graduate with advanced Regents designations at lower rates than non-CTE students</u>[2]. At first glance it is true that 41% of NY State students without an endorsed CTE credential graduate with an Advanced Regents standing while only 16% of CTE endorsed students do. But let's dig deeper. CTE students must take a 3-course curriculum and pass a technical assessment in addition to passing the traditional 5 regents exams. Moreover, many CTE students use a portion of their school day for travel to a regional technical center for CTE course instruction. As a result, any CTE endorsed student who received an advanced Regents designation would not only have to complete 5 traditional regents, take 3 CTE courses and pass a technical exam, but would also have the additional hurdle of taking three additional science/math courses and passing 3 extra regents. In a finite class schedule the unfairness of the comparison becomes immediately clear. As a more fair comparison we compare the regents scores of students with a CTE designation to those without a CTE designation and discover that CTE endorsed students score quite similarly to their non-CTE endorsed peers.

- ⊙ Policy Concern #2: <u>Students should be able to substitute a CTE credential for the difficult-to-pass Global Studies Regents exam</u>. Many in the field have complained that the Global Studies Regents exam is too difficult because the exam covers 2 years of course material. Moreover, many have argued that a large portion of students are only passing 4 of the 5 required Regents exams and failing to graduate because they remain unable to pass the Global Studies exam. In particular the thought has been that this disproportionately impacts CTE students who would be entering the workforce with a high school diploma in hand, were it not for this Global Studies Regents examination. This was billed as a near epidemic and the touted solution was to make sure these students were not prevented from graduating. I looked at the data to determine how many CTE students were passing 4 regents exams, yet managing to fall victim to the Global Studies regents exam policy. The data showed that when CTE students passed 4 Regents and failed their 5th, the failed exam was overwhelmingly (97% of the time) a Math Regents exam. This means that allowing CTE students an opportunity to avoid taking the Global Studies exam would impact 1.15% of the student population.

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[2] Advanced Regents designation is awarded to students who pass the traditional 5 regents required to graduate from high school as well as take 3 additional courses in science and math and pass those respective regents exams.

○ Policy Concern #3: <u>The state should create an alternative pathway for CTE students</u>. Similar to Concern #2, NYSED considered allowing CTE students with demonstrated talent in CTE substitute CTE credentials for traditional Regents credentials. More specifically it would allow students the option of passing 4 Regents exams and 1 CTE technical exam instead of the 5 Regents requirement. How many students would this policy impact? To explore this I calculated the number of students who passed a CTE technical exam and 4 regents but neglected to pass a fifth Regents exam. Only 402 students in a three year period fall into this category[3]. In fact nearly 92% of students passing CTE Technical exams pass all 5 regents exams.[4] The data showed that there is simply not a group of students who demonstrate CTE technical expertise at the level of industry based standards yet fail to meet basic graduation requirements.

Challenges and Lessons Learned

Our efforts to learn about the current state of CTE in New York introduced us to 5 roadblocks NYSED faces in improving its ability to accurately evaluate CTE.

○ CTE data is often not granular enough to answer key policy questions – Currently the data does not distinguish between students enrolled in CTE with the intent of completing a course of study and those who are taking an elective course that is cross-listed as a CTE course. Therefore, any analysis on completion rates for CTE cannot be properly calculated because we lack information to determine which students belong in the denominator.

○ Technical Assessment results are not always available – Any policy involving the substitution of a CTE credential for traditional high school graduation requirements will require the accurate collection of CTE Technical Assessment data from third-party testing sites.

○ Data collected by NYSED is not aligned with practitioner priorities- Without the inclusion of key data elements in the evaluation of CTE programs, NYSED faces serious credibility challenges in any effort it will take to evaluate CTE program quality.

○ Some programs selectively admit and test CTE students- Programs that restrict student access may have much higher student outcomes, but are not comparable to programs with open

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[3] This includes only reported Technical Assessment data. NYSED does not receive data on Technical Assessment not reported by districts or taken at third-party test sites.

[4] The high correlation of passage rates between technical exams and Regents may be linked to the higher requirements for passing CTE industry exams. Industry certification exams often have higher passing thresholds of 70%-80% while Regents exams require only a passing score of 65% . Therefore students capable of scoring 70%-80% on Industry based exams may be well-prepared for scoring 65% on the standardized regents exams.

admissions policies. Moreover, because we cannot determine which programs restrict access to enrollment, we cannot compare achievement outcomes across like programs.

○ Practitioners are unclear on CTE data reporting instructions- This has limited our ability to determine which students should be counted as a CTE student for the purposes of analyses.

Obstacles to Progress

Navigating these policy roadblocks will require embracing the limitations of the political context in which NYSED is working to define its College and Career Ready Policy initiatives.

○ Local control prevents CTE curriculums from being standardized statewide.

○ CTE program outcomes are difficult to measure using traditional academic outcome measures.

○ Desire to create alternative pathways allowing students to substitute a CTE technical credential in place of a traditional academic credential remains controversial.

○ Providing Special ED students in CTE viable pathways to graduation raises issues around equity.

○ Senior Management still has antiquated notions of how CTE programs operate.

○ CTE policy questions and agenda based on old understanding of Vocational Education.

Guiding Questions

We are limited by a political climate in which we are afraid to pose the **Tough Questions**:

○ What do policy makers mean when using the term Career Ready? Are career ready skills the same as college ready skills? Since CTE programs graduate a large number of students with college credit, is it accurate to view CTE as related only to Career Readiness?

○ Is NYSED prepared to state that a proven technical skill-set is acceptable in lieu of proven academic accomplishment for receipt of a high school credential? If so, how much credit should be attributed for technical skill acquirement and for which traditional academic requirements can they be substituted?

○ What is the realistic expectation for students being directly employable post high school? If CTE policy remains driven by the notion of CTE-to-Work, how plausible is employment directly out of high school when post-secondary training is increasingly becoming the gold-standard for entry into industry?

○ What is the non-negotiable bar for academic achievement? As NYSED works to provide safety nets to students who may not meet traditional requirements, where does it draw the line to maintain the integrity of the high school credential? What is the level of achievement below which a student simply should not receive a high school credential?

Next Steps

Crafting a policy to more fully evaluate CTE will take some time, as CTE advocates and education policy makers navigate political concerns. In the interim, there are additional steps NYSED can take to further consensus around understanding on the status of CTE across the state. Among them are the following:

- Defining Career Ready.
- Determining if NYSED's goal is to graduate students "College and Career Ready" or "College or Career Ready".
- Improving data collection techniques to capture a more accurate story of CTE in NY State.
- Establishing the minimum threshold for receiving any graduation credential from NY State.
- Agreeing to what extent a career credential merits the fulfillment of a traditional high school academic credential.