



**Another Day Has Passed and I Still  
Haven't Used Pythagoras' Theorem:  
American Education May Need to  
Trade Academic Test Scores for  
Career and Technical Education**

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Cite: A Patrick DeSabato, Another Day Has Passed and I Still  
Haven't Used Pythagoras' Theorem: American Education May Need  
to Trade Academic Test Scores for Career and Technical Education  
(Dec. 14, 2022).

Temple University Beasley School of Law

This research project was completed as part of the  
Temple University Beasley School of Law seminar  
Equity and Bias in Education: Selected Topics

Len Rieser  
Fall 2022

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Equity and Bias in Education | Fall 2022 | Len Rieser  
December 14, 2022

**Another Day Has Passed and I Still Haven't Used Pythagoras' Theorem:**

**American Education May Need to Trade Academic Test Scores for**

**Career and Technical Education**

By A Patrick DeSabato

**I. Overview: Why American Secondary Education’s Focus on Academic**

**Achievement Is Not Working, but Career and Technical Education Might.**

“Education has always been the secret sauce, the secret to America’s success,” but every student charts their own unique educational path to and through it.<sup>1</sup> Despite the individual nature of education, modern American secondary education promotes college as a one-size-fits-all goal for every student. The opportunity to go to college is important, even necessary, for many people based on their goals and abilities. In our modern economy where the labor market is increasingly dependent on skills acquired in higher education, many professions require a four-year degree.<sup>2</sup> College can provide significant returns on investment for all students, and especially for students who are socioeconomically disadvantaged.<sup>3</sup> Based on the significant benefits of acquiring a four-year degree, society has seen college matriculation rates skyrocket since the 1960s.<sup>4</sup> This has resulted in an overemphasis on college preparedness, to the detriment of other areas of opportunity like career and technical education (CTE), or two-year programs at community colleges that offer professional certificates and associate’s degrees.<sup>5</sup>

Despite its benefits, pursuing a four-year degree also has drawbacks and should not be a one-size-fits-all plan for every high school student. Debt is the number one reason a college

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<sup>1</sup> Michael D. Shear, *Obama Promotes Plan for College Affordability on Michigan Trip*, NY TIMES, Sept. 9, 2015, <https://www.nytimes.com/2015/09/10/us/obama-college-tuition.html>.

<sup>2</sup> Lia Epperson, *Bringing the Market to Students: School Choice and Vocational Education in the Twenty-First Century*, 87 NOTRE DAME L. REV. 1861, 1876 (2012)

<sup>3</sup> Michael Greenstone, et al., *The Hamilton Project, Thirteen Economic Facts About Social Mobility And The Role of Education*, June, 2013, [http://www.brookings.edu/~media/research/files/reports/2013/06/13-facts-higher-education/thp\\_13econfacts\\_final.pdf](http://www.brookings.edu/~media/research/files/reports/2013/06/13-facts-higher-education/thp_13econfacts_final.pdf).

<sup>4</sup> Mary Deweese, *Failed: The Myths and Realities of Community Colleges, and How to Fulfill the American Dream Through Community College Reform*, 23 GEO. J. ON POVERTY L. & POL'Y 293, 293 (2016).

<sup>5</sup> *Id.*

degree may not be the ideal solution the American system makes it. Federal loans often make college realistic for students, but most students don't realize the impact that acquiring debt can have or acknowledge the subsequent need to pursue a career that justifies and supports the cost of higher education. Students are told that education is the key to social mobility, but college debt may actually perpetuate social stagnation when it follows a student their entire life, preventing them from pursuing other financial opportunities like property ownership. Many students are ill-equipped to approach this important decision about how to invest in their education at such a young age.<sup>6</sup> The impact of debt can be most harmful for certain borrowers, especially low-income, Black and Latinx students.<sup>7</sup>

To prepare students for college, American secondary education focuses on academic achievement and test scores at the expense of the life skills that support workforce development, like those taught in CTE programs. This focus is perpetuated by The Every Student Succeeds Act.<sup>8</sup> ESSA was the sequel to George W. Bush's 2002 No Child Left Behind Act (NCLB), and its stated purpose is to help create success for students and schools and ensure a quality education for all children.<sup>9</sup> ESSA creates accountability standards for state and local government to follow in creating core standards. These standards, according to the ESSA, should be aligned both with a student's ability to bear coursework in higher education system and achieve the

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<sup>6</sup> Kathryn Knight Randolph, *Student Loans for College: How Much Debt is Too Much Debt?* FAST WEB, May 26, 2022, <https://www.fastweb.com/financial-aid/articles/borrowing-for-college-how-much-is-too-much>.

<sup>7</sup> *Id.*

<sup>8</sup> ESSA, 20 U.S.C. §6301 *et seq.* (West).

<sup>9</sup> Every Student Succeeds Act (ESSA), U.S. DEPT. OF EDUC., <https://www.ed.gov/essa?src=rn> (last visited Nov. 27, 2022). No Child Left Behind Act of 2001, Pub. Law 110-131, 115 Stat. 1425 (codified as amended in scattered sections of 20 U.S.C. and purpose of NCLB Act found at 20 U.S.C. § 6301)

state's CTE standards.<sup>10</sup> Since NCLB, however, federal legislation has placed CTE in the back seat, focusing on academic achievement and college preparedness to the detriment of workforce development and societal contribution. This approach is not working, and today's schools provide the skill set to succeed neither in the labor market nor in higher education.<sup>11</sup>

“Atypical” paths are increasingly common, although they are subject to some stigma, compared to the “ideal” of pursuing a college education.<sup>12</sup> The reality is that most students will not pursue a four-year degree immediately after completing high school.<sup>13</sup> Students may enter the workforce, pursue 2-year degrees at affordable local community colleges where they can earn associate's degrees or professional certificates, or choose to pursue a part-time four-year degree while working full-time. In considering these “alternative” options, students may gain valuable skills, earn money in the process, and build their resume *without* acquiring debt at such a young age. Career and Technical Education may provide students with the resources, tools and skills to pursue these “atypical” opportunities in a successful and profitable way.

Career and Technical Education (CTE) instructs students through real-world vocational education that supports workforce development skills. CTE was originally implemented to benefit the labor market during the industrial revolution, but its history has been checkered with prejudice, segregation and racial, socioeconomic and ableist discrimination. Today, CTE carries significant stigma, which minimizes the potential impact that it can have in the 21<sup>st</sup> Century.

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<sup>10</sup> Association for Supervision and Curriculum Development, *ESSA and Accountability Frequently Asked Questions* (2016).

<sup>11</sup> Epperson, *supra* note 2 at 1876.

<sup>12</sup> Barack Obama, President of the U.S., Remarks by the President at College Opportunity Summit (Dec. 4, 2014) (transcript available at <https://obamawhitehouse.archives.gov/the-press-office/2014/12/04/remarks-president-college-opportunity-summit>).

<sup>13</sup> Nina R. Frant, *The Inadequate Resume of School Education Plans*, 51 *How. L.J.* 819, 860 (2008).

Originally signed in 1984, The Perkins Act (“Perkins Act”, 20 U.S.C. §2301 (1984) governs CTE, implementing accountability for program results, academic and technical integration, connections between education and postsecondary education, and links to business and industry.<sup>14</sup> Even though the modern academic focus of American secondary education is failing to prepare students for career or college, CTE is generally rejected as a viable reform strategy for American education.<sup>15</sup> The modern approach to CTE may provide a much-needed boost to American academic performance if it were designed and prioritized alongside academic measures, rather than below them. This could increase student employability and life skills but may *also* improve academic achievement scores associated with higher education.

College is not for everyone, but every student should have the opportunity to pursue a meaningful, profitable and successful life. Our current system is failing to prepare *any* students for college *or* a career. Students who should not and do not pursue higher education are disadvantaged by an overemphasis on college preparedness. Even students who wish to pursue college are lacking the necessary skills to pursue their goals. American secondary education should focus on preparing students holistically so they will be prepared for whatever their future goals are. While focusing on academic achievement is not doing that, CTE may be able to provide workforce development skills and boost potential earnings for all students while *also* boosting academic performance, retention and college enrollment. All students, whether they seek career or college after high school, will benefit from an increased focus on CTE.

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<sup>14</sup> *Id.* at 825.

<sup>15</sup> *Id.* at 826.

## II. Relevant Provisions of US Educational Law

### a. CTE and The Perkins Act

The Smith-Hughes National Vocational Education Act of 1917 (Smith-Hughes) launched vocational education in America in response to the industrial revolution and the need for students entering the labor force with skills-based vocational training.<sup>16</sup> In the 1960s, President Lyndon Johnson signed the successor of the Smith-Hughes Act, the Vocational Education Act of 1963 (VEA) which, along with subsequent amendments, expanded federal funding for vocational education and shifts its focus to benefit vulnerable and marginalized populations.<sup>17</sup>

Rather than serving those populations, Smith-Hughes was initially a source of inequity, social stagnation and segregation. Originally, the Act mirrored racial and gender stratification in the labor market by eliminating funding for academic instruction from CTE instructors and providing access only to blue-collar employment.<sup>18</sup> This was partly because CTE students received limited training and less academic instruction.<sup>19</sup> As a result, students were developing job skills but no academic or theoretical skills.<sup>20</sup>

Since the VEA was signed in 1963 by President Johnson, CTE stressed skill building and opportunity for marginalized and low-income communities.<sup>21</sup> In a practice calling “tracking,” CTE programs were employed as a way to combat integration, feeding students of color, students with disabilities and lower-income students into the “work track” and limiting their access to

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<sup>16</sup> Epperson, *supra* note 2 at 1864.

<sup>17</sup> *Id.* at 1865.

<sup>18</sup> *Id.* at 1868.

<sup>19</sup> *Id.* at 1867.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.* at 1865.

academic instruction.<sup>22</sup> Tracking strategies reinforced racial and economic segregation and, in many areas, “consigned a disproportionate number of students of color to such ‘blue collar’ tracks, regardless of the students’ ability.”<sup>23</sup> This perpetuated economic inequality by damning low-income and minority students with low expectations, leading members of those groups to poverty and the criminal justice system.<sup>24</sup>

The most recent iteration of the act, The Carl D. Perkins Vocational Education Act (the Perkins Act), was passed in 1984 with the dual objectives of creating a more skilled labor force and increasing labor market participation.<sup>25</sup> The Perkins Act has further expanded focus on the educational needs of disabled and disadvantaged students.<sup>26</sup> The most recent iterations of the Perkins Act aim to highlight and create important connections between secondary and postsecondary education, integrating academic and career and technical instruction, and creating greater opportunities for economic advancement to high-skill, high-wage occupations.<sup>27</sup> Based on today’s economy, many Perkins-funded CTE programs now focus heavily on high-tech industries; computer-related classes now comprise almost one-third of all technical education.<sup>28</sup>

Contrary to the history of CTE, which perpetuated social stagnation and condemned CTE students to poverty, modern CTE programs may create more high-wage opportunities for students pursuing CTE without needing a postsecondary degree. However, its history, combined with the perception that academic achievement and higher education are the keys to social

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<sup>22</sup> *Id.* at 1869. *See also*, Frant, *supra* note 13 at 828.

<sup>23</sup> Epperson, *supra* note 2. at 1869.

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* at 1866.

<sup>27</sup> *Id.* 1866-1867.

<sup>28</sup> Frant, *supra* note 13 at 825.

mobility, minimizes the potential effect of CTE programs as well as stigmatizing the programs themselves.<sup>29</sup>

CTE's perception problem remains today, as many people believe these programs pursue workforce development at the expense of academic achievement. The federal government seems to agree. Although there may be significant benefits to incorporating CTE into educational reform, Congress' focus on CTE has declined in the 21<sup>st</sup> Century. When President George W. Bush found that America's academic metrics were lagging in global competition, he sought to reduce or eliminate CTE funding entirely in favor of academic achievement measures.<sup>30</sup> Bush enacted the No Child Left Behind Act (NCLB), since revamped as the Every Student Succeeds Act (ESSA), partly for states to focus on academic achievement rather than CTE.<sup>31</sup>

#### **b. The Every Student Succeeds Act (ESSA)**

The Every Student Succeeds Act (ESSA) is the most recent iteration of federal education legislation. Originally enacted as the Elementary and Secondary Education Act (ESEA) in 1965, the initial legislation was part of President Lyndon B. Johnson's War on Poverty and part of the effort to realize the desegregation mandate from *Brown v. Board of Education*.<sup>32</sup> The ESEA expanded federal funding for schools, specifically directed toward concentrated poverty and the

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<sup>29</sup> Epperson, *supra* note 2 at 1870.

<sup>30</sup> Frant, *supra* note 13 at 827. *See also*, Epperson, *supra* note 2 at 1870; Barack Obama, President of the U.S., Remarks by the President at College Opportunity Summit (Dec. 4, 2014) (transcript available at <https://obamawhitehouse.archives.gov/the-press-office/2014/12/04/remarks-president-college-opportunity-summit>).

<sup>31</sup> Epperson, *supra* note 2 at 1870.

<sup>32</sup> Derek W. Black, *Abandoning the Federal Role in Education: The Every Student Succeeds Act*, 105 Cal. L. Rev. 1309, 1317 (2017).

locus of segregation in the north's larger cities and in the south.<sup>33</sup> The Act left states and districts "largely free to pursue and deliver education as they saw fit."<sup>34</sup>

The Act evolved over the subsequent decades until it was greatly expanded in 2002 as the No Child Left Behind Act (NCLB).<sup>35</sup> NCLB increased federal educational oversight, creating more requirements and accountability for schools in exchange for an influx of resources.<sup>36</sup> The goal was to boost America's lagging education metrics compared to global competitors.<sup>37</sup> To do this, NCLB focused on test scores, academic benchmarks, and proficiency standards. Bush proposed that CTE funding be redirected entirely to the NCLB goal of bolstering academic achievement.<sup>38</sup> Additionally, in an effort to measure standards and achievement by demographics and focus the education system on equity, NCLB required reporting of test scores disaggregated by gender, race, ethnicity, disability, language status and socioeconomic status.<sup>39</sup> These disaggregated data opens the door to measuring and pursuing more equitable solutions, although there isn't much evidence that any progress has been made.

NCLB's focus on test scores and academic achievement backfired. Rather than creating a national baseline for academic achievement, focusing heavily on testing forced schools to narrow their curricula. Especially low-performing schools (including many schools serving low-income or minority communities) overemphasized test preparation over learning and skill building.<sup>40</sup> In

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<sup>33</sup> *Id.* at 1318.

<sup>34</sup> *Id.* at 1319.

<sup>35</sup> *Id.* at 1323.

<sup>36</sup> *Id.*

<sup>37</sup> Barack Obama, President of the U.S., Remarks by the President at College Opportunity Summit (Dec. 4, 2014) (transcript available at <https://obamawhitehouse.archives.gov/the-press-office/2014/12/04/remarks-president-college-opportunity-summit>).

<sup>38</sup> Epperson, *supra* note 2 at 1870.

<sup>39</sup> Black, *supra* note 32 at 1324.

<sup>40</sup> *Id.* at 1326.

addition, focus on testing drove families away from schools with low or average scores. With students fleeing certain schools, many schools were mischaracterized as failing, and critics complained that the Act “intensified racial and socioeconomic stratification among schools.”<sup>41</sup>

ESSA, the reauthorization of the Act in 2015, was largely meant to be a short-term reaction to the problems of NCLB but it has become the framework for American education.<sup>42</sup>

One of the goals of ESSA was to give more freedom and discretion back to local and state authority; ESSA provided guidelines, and states designed their own goals for student progress.<sup>43</sup>

While the Act allowed more room for broader, non-academic standards, it continued to afford “much greater weight” to the same mandatory test and academic progress factors of the NCLB.<sup>44</sup>

Today, American education retains the NCLB’s basic testing regime, and not much has changed.

While the ESSA does incorporate some additional career readiness standards, the emphasis on college preparedness and academic achievement remains the Act’s primary focus, and it seems that Congress has mostly forgotten about CTE.

### **III. NOT ALL STUDENTS SHOULD GO TO COLLEGE**

#### **a. ESSA and Education’s Focusing on Test Scores and Academic Achievement Is Not Working**

The goal of education *should* be to create productive, employable citizens that contribute to society. Although there are many ways to do that, our current system, governed by ESSA, seeks primarily to prepare high school graduates for higher education. Postsecondary education is a vital part of our education system, and for many it is the key to upward mobility, but it is not

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<sup>41</sup> *Id.* at 1329.

<sup>42</sup> *Id.*

<sup>43</sup> *Id.* at 1333.

<sup>44</sup> *Id.*

the panacea we have made it. ESSA's focus on test scores and academic achievement is not working to achieve its own stated ends: students are graduating high school with neither the skill set to succeed in the economy and labor market nor the skills to thrive in institutions of higher education.<sup>45</sup>

In addition, by designing an educational system that pushes kids toward college, we have created a stigma around “atypical options” like CTE programs, professional certifications and two-year degrees from community colleges. The reality is that college may not be for every student: despite its benefits, many students leave with significant debt, and end up going into trades or businesses that don't require a degree anyway. While “academic rigor is for all students... college may not be.”<sup>46</sup> The good news is, recent data suggests that teaching workforce development skills and promoting academic achievement need not be mutually exclusive: CTE and school-to-work programs that teach important job skills may be able to provide both for all students, regardless of their education and career path.

#### **b. The Double-Edged Sword of Higher Education**

Higher education is increasingly important in today's labor market.<sup>47</sup> A postsecondary degree is one of the best investments an individual can make.<sup>48</sup> Even attending some college can provide a 9% return, while earning an associate's, professional, or bachelor's degree exceeds a 15% return.<sup>49</sup> For a low-income individual, a college degree significantly decreases the likelihood that they will remain in the lowest bracket of the earnings distribution, and increases

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<sup>45</sup> Epperson, *supra* note 2 at 1876,

<sup>46</sup> Frant, *supra* note 13 at 820.

<sup>47</sup> Greenstone, et al., *supra* note 3.

<sup>48</sup> *Id.* at 16.

<sup>49</sup> *Id.*

the chances that they will land in the highest income bracket.<sup>50</sup> Children born into the lowest quintile of income have a 45% chance of remaining there, but a college degree reduces that likelihood to 16%.<sup>51</sup> Accordingly, enrollment in degree-granting postsecondary institutions has skyrocketed in the 21<sup>st</sup> Century, increasing by 38% from 1999 to 2009.<sup>52</sup> At the same time, however, the average cost of attendance rose 40% at public universities and 28% at private universities in the first decade of the new millennium.<sup>53</sup> College has become prohibitively expensive for many, making the investment less worthwhile for some students.

For many students, federal and private loans are the only realistic way to pursue a postsecondary degree. Federal loans are generally the most common, and typically come with lower interest rates than private loans.<sup>54</sup> In 2019-2020, 64% of college graduates in Pennsylvania had some federal student loan debt, with an average debt load of \$39,375.<sup>55</sup> Moreover, when students make the decision to pursue college, they generally do not have a proper understanding of debt nor a strategic plan for how to approach it.<sup>56</sup> Rising education costs means that students are graduating with more debt than they can handle, and they may spend their whole career

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<sup>50</sup> *Id.* at 14.

<sup>51</sup> Deweese, *supra* note 4 at 293.

<sup>52</sup> April Prim, *To Thine Own Self Be True: Why Vocational Education Needs Statewide Support*, 13 TEX. TECH ADMIN. L.J. 187, 188 (2011).

<sup>53</sup> Deweese, *supra* note 4 at 296.

<sup>54</sup> Randolph, *supra* note 6.

<sup>55</sup> Marley Parish, *Pa. ranks among the highest for student loan debt. What to know about the federal forgiveness program*, PENNSYLVANIA CAPITAL-STAR, August 25, 2022, <https://www.penncapital-star.com/blog/pa-ranks-among-the-highest-for-student-loan-debt-what-to-know-about-the-federal-forgiveness-program>.

<sup>56</sup> *Id.*

getting away from it.<sup>57</sup> Students now are borrowing more to attend college, and as a result defaulting more often on their loans.<sup>58</sup>

For a student living in poverty, student loans can be even more of an encumbrance as the student graduates and pursues their career.<sup>59</sup> Based on a report from the Community Service Society (CSS), student debt is most harmful for specific categories of borrowers, including Black and Latinx students, low-income individuals, and those who did not complete their college degree.<sup>60</sup> This makes it more difficult for individuals to make decisions to support their long-term financial health like saving for retirement, buying a home or building wealth through property ownership.<sup>61</sup>

Enrolling in college, therefore, can be a double-edged sword. It may provide opportunities for upward mobility, but it comes with a cost, literally: being tethered to debt that may follow the borrower for their whole life. And still, despite all this, American society and our education system stigmatize those who choose not to pursue a college degree. States continue to cling to the idea that secondary education should prepare students for college, regardless of the students' needs or goals, by focusing narrowly on academic standards.<sup>62</sup> Still, many students will not go to college right away and will instead enter the workforce.<sup>63</sup> Fortunately, heightened

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<sup>57</sup> Greenstone, *supra* note 3 at 17.

<sup>58</sup> *Id.*

<sup>59</sup> Community Service Society, *New CSS Report Documents Impacts of Student Loan Debt Across Age, Income and Race/Ethnicity*, August 18, 2022, <https://www.cssny.org/news/entry/new-css-report-documents-impacts-of-student-loan-debt-across-age-income-and>.

<sup>60</sup> *Id.*

<sup>61</sup> *Id.*

<sup>62</sup> Frant, *supra* note 13 at 820.

<sup>63</sup> *Id.* at 860.

focus on CTE may bridge the inequities created by American society's overemphasis on college preparedness and pursuit of higher education.

**IV. FOCUS ON CAREER AND TECHNICAL EDUCATION MAY IMPROVE**  
**ACADEMIC ACHIEVEMENT AND WORKFORCE DEVELOPMENT**  
**SKILLS FOR ALL STUDENTS**

**a. Career and Technical Education**

Well-conceived CTE programs that are structured to develop students both for higher education and employment could be used to provide marketable skills, improve academic achievement and could do so equitably for all students.<sup>64</sup> CTE programs offer students usable skills and real-world experience, preparing them to be productive and employable members of society, and most importantly to do so without college debt. Furthermore, evidence suggests that CTE programs may improve academic achievement for students with any goals. Data suggests that CTE programs produce substantial positive outcomes and may be an important part of educational reform for all students because the coursework is compatible both with rigorous academic student *and* improved academic achievement.

*i. CTE Programs Offer Real-World Experience and Skills*

The purpose of CTE programs is to create a more capable labor force by offering students marketable skills that will lead to productive employment.<sup>65</sup> CTE programs have a history of being marketed to students labeled as low-achieving (often students in poverty, students with disabilities and students of color) and tracking them toward low-achieving jobs. It is true that low-achieving students are more likely to be vocational “concentrators” by taking a high load of

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<sup>64</sup> Epperson, *supra* note 2 at 1876.

<sup>65</sup> *Id.* at 1869.

CTE courses.<sup>66</sup> However, CTE courses can benefit all students, regardless of their long-term educational and career goal. Students apparently notice the benefits of CTE: nearly all students (over 96%) elect to take at least some CTE courses in high school.<sup>67</sup>

The National Assessment of Vocational Education (NAVE) report found that CTE is highly successful in improving earnings for all students, whether they enter the workforce or work while going to college.<sup>68</sup> This was true for both men and women, students who are economically and educationally disadvantaged, and students with disabilities.<sup>69</sup> The report further found that labor-market benefits increased with greater participation in CTE.<sup>70</sup> In these programs, students learn workforce development skills that are essential life skills for all students such as, “professional communication, timeliness, deadlines, team work, and work experience...”<sup>71</sup> The popular assumption is that CTE is focused on the non-college-bound track rather than being universally applicable.<sup>72</sup> However, these skills can benefit all students and contribute to a more well-rounded young workforce, prepared for the challenges and changes of professional life. And while CTE may offer skills that go beyond academic achievement, it could play a role in educational reform intended to boost academic success as well.

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<sup>66</sup> Gary Hoachlander, Does Vocational Education Have a Role to Play in High School Reform?, *Educ. Week*, Apr. 27, 2005.

<sup>67</sup> *Id.*

<sup>68</sup> *Id.*

<sup>69</sup> *Id.*

<sup>70</sup> *Id.*

<sup>71</sup> Frant, *supra* note 13 at 827.

<sup>72</sup> *Id.* at 828.

*ii. CTE Programs May Also Improve Academic Achievement and Prepare  
Students for College*

CTE curricula has come a long way since it was used to prepare students for low-paying, menial jobs, and specifically to track low-income and minority students into those stagnant economic roles. CTE today fosters “high academic attainment in reading and mathematics and often mirrors the competencies attained in current college preparatory tracks.”<sup>73</sup> By the year 2000, vocational concentrators were achieving higher academic scores and were enrolling in postsecondary education at higher rates.<sup>74</sup> Even using a metric not designed to measure CTE success, standardized testing scores, CTE programs performed no worse than conventional academic curricula.<sup>75</sup> Furthermore, the NAVE report showed that in addition to earnings improvement, students experience higher academic scores and higher matriculation rates to higher education institutions.<sup>76</sup>

Producing academic learning outcomes is not the primary objective of CTE, and little work has been done to determine its specific impact on academic achievement.<sup>77</sup> Still, it appears promising that CTE may benefit all students in earning potential as well as academic measures, especially if more research can be used to design and measure a CTE curriculum to do exactly that.

CTE benefits low-performing students and those at risk of dropping out. CTE concentrators see improvements in performance because of participation and retention. For

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<sup>73</sup> *Id.* at 825.

<sup>74</sup> Hoachlander, *supra* note 66.

<sup>75</sup> Hoachlander, *supra* note 66.

<sup>76</sup> Hoachlander, *supra* note 66.

<sup>77</sup> *Id.*

students who struggle in school and are therefore unlikely to pursue higher education, CTE provides a way to build workforce development skills while acquiring the competencies required to graduate. Some students may find CTE a more intriguing option than calculus. This offers an alternate option and incentivizes retention for students who otherwise may have dropped out.<sup>78</sup>

CTE may also benefit high-performing students. ESSA and American education's focus on testing and academic success is failing to provide the desired outcomes, but modern CTE programs, as demonstrated, maintain an element of academic rigor. Almost all students pursue some CTE courses, an even students who choose to pursue the "traditional" path toward higher education benefit from CTE. Thus, students pursuing a successful traditional academic pedigree may experience a boost to academic achievement from the diverse and functional application of CTE.

Similar promising outcomes resulted from studies of CTE curricula incorporating school-to-work programs in major eastern cities. School-to-work programs place students with businesses, where they acquire real-world expertise, develop interpersonal skills and learn to adapt to workplace challenges.<sup>79</sup> Such programs in Boston and Philadelphia have yielded higher academic achievement, better attendance, and lower dropout rates.<sup>80</sup> In New York, students in a school-to-work program took more advanced math and science courses than seniors in a general academic track.<sup>81</sup> In addition to the academic boost, graduates from these programs were less likely to be unemployed than other high school graduates.<sup>82</sup> These programs often go hand-in-

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<sup>78</sup> *Id.*

<sup>79</sup> Frant, *supra* note 11 at 834.

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

<sup>82</sup> *Id.*

hand with CTE, and show that the modern approach to vocational education can be designed to create productive, employable citizens who will graduate with the tools to pursue college or a career.

**a. Community Colleges and Other Postsecondary Education Options**

Compared to the costly pursuit of four-year education, community colleges providing two-year associate degrees, professional degrees and certificates are a useful and affordable way to pursue career and technical education after high school. Amid the rising costs of postsecondary education, community college tuition is a much more affordable option, averaging only \$3,347 in 2013.<sup>83</sup> A student's return on an investment in community college exceeds even the high returns of obtaining a bachelor's degree, offering an almost 20% return.<sup>84</sup>

Community colleges carry some stigma and shortcomings, many of which mirrors those of CTE.<sup>85</sup> For example, many believe that community colleges are a pipeline to low-paying employment.<sup>86</sup> However, there is a wide range of employment opportunities to which community college education may lead. More than half of all career and technical education certificates nationwide are awarded by community colleges, and the economic focus of community colleges varies state by state.<sup>87</sup> While South Carolina primarily issues certificates that have low economic value (e.g., cosmetology), Wisconsin and Wyoming issue certificates with high economic value (e.g., criminal justice and health care).<sup>88</sup> Furthermore, pursuit of this kind of short-term, high-return certificate has increased in the start of the 21<sup>st</sup> century,

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<sup>83</sup> Deweese, *supra* note 4 at 296.

<sup>84</sup> Greenstone, *supra* note 3 at 16.

<sup>85</sup> Deweese, *supra* note 4 at 304.

<sup>86</sup> *Id.*

<sup>87</sup> *Id.* at 305.

<sup>88</sup> *Id.*

demonstrating an interest in CTE.<sup>89</sup> This interest matched labor market demand, where only four out of thirty of the fastest-growing occupations in 2012 required a bachelor's degree.<sup>90</sup> Higher education focused on CTE, therefore, may be an additional solution for students who wish to pursue a useful degree and gain valuable skills either while working or while minimizing their debt load compared to most four-year institutions.

President Obama saw the value in community college education. In 2015, he announced a proposal to provide two years of free tuition at a local community college. Normalizing community college, including CTE degrees and certificates, provides an affordable, high-yield investment that is realistic for many more students, regardless of demographics or income, to pursue.

## V. CONCLUSION

ESSA's focus on testing and academic achievement provides neither the skills to thrive in higher education nor in the labor market. CTE may be a solution that offers students marketable skills while boosting academic performance, but is mired with a history of discrimination, segregation, and economic stagnation. Well-conceived CTE programs today show promise by boosting academic performance, retention and graduation rates while building real-world skills that students will be able to use regardless of their education and career goals. Regardless of what those goals are, the purpose of secondary education should be to create productive, successful members of the labor force. ESSA is failing to do that: American education does not provide students with the skills to succeed in college or in the workforce. Congress should stop

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<sup>89</sup> *Id.*

<sup>90</sup> *Id.*

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Equity and Bias in Education | Fall 2022 | Len Rieser  
December 14, 2022

ignoring CTE, as it could be a way to equitably provide all students with the tools they need to be successful in college and in their career.