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Educational Stakeholder Sensemaking on Preparing CTE Students for Sub-Baccalaureate Pathways

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Abstract

Careful implementation of Career and Technical Education (CTE) programs is necessary in order for programs to achieve the policy goal of college and career readiness, which involves expanding student opportunities for career-relevant learning without limiting their academic preparation for postsecondary degrees. As programs become more widespread, little work has examined how practitioners actually implementing CTE make sense of programs' intended outcomes. Through interviews and observations with 52 education leaders and their partners in workforce development, I found that education stakeholders believed CTE was important for providing students with the option to pursue financially low-risk pathways toward middle-skill careers that didn't require bachelor's degrees. Yet in their efforts to valorize sub-baccalaureate (sub-BA) pathways, they sometimes exaggerated the long-term returns to sub-BA credentials, leaving students with inaccurate information on which to base their postsecondary goals.

Keywords

educational equity, policy adaptation, rural education, secondary education

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"We want fewer students going to college."

– District Superintendent

As educators and policymakers grapple with preparing youth for careers in a technologically advancing economic landscape, enthusiasm is growing for widespread Career and Technical Education (CTE). The "CTE" label signals a transition from the low-quality job training for non-college-bound students that characterized vocational education of the past. Instead, the CTE model combines broad technical learning with high academic rigor and an increased emphasis on readiness for postsecondary education. As imagined by policymakers, CTE provides pathways for students to pursue a range of postsecondary certificates, associate degrees, and other sub-baccalaureate credentials in addition to bachelor's degrees (BAs). At the same time, CTE has been hailed as an alternative to "college for all" (CFA) approaches to educational equity, which have been criticized as upholding an overly narrow vision of postsecondary success premised on BA attainment (Rosenbaum, 2001). In response to the growing interest in and support for CTE, researchers have called for attention to the ways participation in CTE programs dismantles and/or reproduces stratification in students' postsecondary outcomes (Hodge et al., 2020; Puckett & Gravel, 2020).

Despite the centrality to CTE policy of ensuring students are prepared to pursue any level of higher education, the current study shows that those enacting CTE in schools may have very different conceptions of CTE's purpose and design. Findings are based on interviews and observations with comprehensive high school leaders, including superintendents, principals, assistant principals, and school counselors, along with their partners in industry and workforce development. Results show that many of these education stakeholders felt a primary goal of CTE was to help students, particularly those from low-income households, explore and prepare for careers that did not require a 4-year degree. At the most extreme, some school leaders went so far as to set a goal to have fewer graduates enrolling in 4-year college. This goal is shocking from a progressive perspective, which over the course of the 20th century has conceived of educational equity as equal opportunity to pursue social mobility through higher education (Labaree, 1997). In this paper, I interrogate how and why these educational stakeholders made sense of CTE's goals in ways that differed so sharply from those set out in policy.

Understanding educator perspectives on CTE is increasingly important. Following increased flexibility for measuring college and career readiness granted by the Every Student Succeeds Act (ESSA) in 2015, a number of

states have changed school performance measures and graduation requirements in ways that de-emphasize academic performance indicators and increase the weight of career readiness measures, including CTE participation. This has resulted in more and more comprehensive high schools reinvesting into their CTE programs and promoting CTE to students. Yet, as Hodge et al. (2020) point out, offering CTE coursework with a separate set of graduation requirements may create de facto tracks between vocational and traditional academic students within the same school. Little is known about how comprehensive high schools are implementing CTE or how educators conceive of CTE's goals as they seek to support diverse groups of students.

The current study addresses this gap through a case study of how education stakeholders conceptualize the goals of CTE and college and career preparation more broadly in a semi-rural region of Pennsylvania that I call "Oaksburg." While the technical-rational perspective that dominated early studies of education reform assumed a process of replicating policy with fidelity to the model and aims set forth by policymakers, researchers have since studied reform implementation as a process of adaptation (Century & Cassata, 2016; McLaughlin, 1990). *Sensemaking* theory (Coburn, 2001; Spillane et al., 2002; Weick et al., 2005) holds that the beliefs and interactions of principals, teachers, and other school-based actors shape collective understandings of reform and its enactment at the school level. I draw on the sensemaking framework to analyze how school leaders in the pseudonymous Oaksburg region understood CTE's goals in relation to the problems they aimed to solve and how this shaped the ways they designed programs. In this context, I asked:

1. How do comprehensive high school leaders, in partnership with local industry representatives, make sense of CTE's goals and its implications for educational equity?
2. How do these sensemaking processes shape the ways education stakeholders share information about CTE and advise CTE students, and is their messaging consistent or inconsistent with broader CTE policy goals?

My data show that education stakeholders framed CTE as a solution to both a local skills gap as well as the perceived shortcomings of the CFA movement. They embraced state policy messaging about CTE and sub-baccalaureate education as providing financially low-risk pathways to sustainable and rewarding careers. Partners in local industry and workforce development agencies reinforced these interpretations. They emphasized industry need for a pipeline of students prepared to enter local middle-skill occupations,

especially in manufacturing, construction, and other traditional vocational fields that were projecting worker shortages. Administrators and counselors worked to elevate CTE's status in schools, at times exaggerating the long-term returns of pursuing a sub-baccalaureate credential relative to a bachelor's degree.

I argue that an opportunity structure characterized by untenable student debt levels, high college dropout rates, and inflation of competitive degrees left participants skeptical toward conceptions of equal opportunity premised on leaving open doors to the highest levels of education. They felt that this belief system benefitted primarily students who were already most equipped with the cultural and financial resources to navigate higher education institutions, while leaving those who do not earn bachelor's or advanced degrees with few fallback options. Instead, education stakeholders asserted a framework of equal opportunity as ensuring students had access to low-cost training for sub-baccalaureate careers with sustainable wages and opportunities for advancement. They celebrated CTE for providing pathways toward these careers and worked to increase social recognition of sub-baccalaureate work, challenging the bachelor's degree as the benchmark of class-based merit. Above all, education stakeholders argued that a "one size fits all" approach to postsecondary preparation should be replaced with an approach that allows students to pursue the pathway that best matches their personal interests and long-term goals. Yet, to the extent that they misrepresented sub-baccalaureate degree earnings, educators' efforts may have been insufficient for providing students with accurate information on which to base the development of post-secondary aspirations that actually aligned with their personal goals.

Background

"College for All" and the Drawbacks of Educational Credentialing

CTE's popularity has risen as discourse on educational achievement nationally has increasingly questioned whether college is still "worth it" (e.g., see Kerr, 2019). CTE enthusiasm is in some ways a response to the decline of the CFA movement. CFA gained momentum in the 1980s and 1990s following increased recognition that marginalized students were disproportionately tracked into lower-level coursework (Bowles & Gintis, 1976; Gamoran, 1996; Oakes & Guiton, 1995), including so-called "vocational" courses that, due to a confluence of historical factors, were divorced from industry, underfunded, and provided little in the way of either academic or vocational learning (Hansen, 2011). The ensuing movement to de-track schools and expand

access to rigorous college-prep coursework for all students has led to substantial increases in the proportion of low-income and ethnic minority students who enroll in 4-year colleges (McFarland et al., 2019).

In recent years, concern has grown about the levels of debt that students who enroll in 4-year colleges are taking on. Even if tuition is heavily subsidized through scholarships and grants, enrolling in college poses a significant financial burden for most low-income students (Huelsman, 2018). Fueling the perception that college may not be worth it is the long time horizon required for college graduates to see a substantial return on their investments into BAs (Carnevale et al., 2011). This means that in the early years of adulthood, at a time when many expect to achieve milestones like home ownership and family formation (Silva, 2012), students who attend college are more likely to be paying off high debt loads.

However, the most concerning aspect of CFA, according to its critics, is that despite success in expanding college enrollment, college graduation rates have remained stubbornly low for at-risk student populations (Newman & Winston, 2016; Rosenbaum et al., 2017; Symonds et al., 2011). Due to the financial, academic, and institutional barriers they disproportionately face (Allensworth & Clark, 2020; Belasco, 2013; Bound et al., 2009; Carnevale et al., 2018; Ciocca Eller & DiPrete, 2018; Dynarski et al., 2018; Dynarski & Scott-Clayton, 2013; Hoxby & Avery, 2012; Roderick et al., 2011; Rosenbaum et al., 2017), fewer than half of low-income students who enroll in 4-year colleges go on to complete their degrees within 8 years (National Center for Education Statistics, 2020). These low graduation rates indicate that the most economically vulnerable students are the least likely to see a return on any investments they make in higher education.

Labor market researchers have also called into question whether the knowledge and skills conferred by a 4-year college education are necessary for many jobs that now stipulate a BA as a minimum educational qualification. Inspired by Weber's writing on status group competition and social closure, Collins (1979) argued that as increasing numbers of students from disadvantaged groups gain access to higher educational degrees, the minimum qualifications for elite careers correspondingly rise. As a result of this process of degree inflation, well-resourced social groups maintain monopolies over these careers, which stay out of reach for those with limited investments to make into the increasing financial, social, and cultural capital that high-status credentials require. In turn, intergenerational rates of social mobility are maintained over time, even as every successive generation gains higher and higher levels of education.

The U.S. has seen an increasing proportion of workers with bachelor's degrees who are underemployed, working in jobs that have increased degree

requirements but have not changed skill demands (Burning Glass, 2014; Fuller & Raman, 2017). At the same time, workers without BAs, who are primarily from economically disadvantaged and ethnic minority backgrounds, increasingly face a wage penalty (Fuller & Raman, 2017). This group, representing over a third of the young adult population nationally, is relegated to low-wage labor primarily in the service sector, where they experience few benefits and high rates of employment instability (Abel & Deitz, 2014; Rosenbaum et al., 2017).

Despite its admirable intentions, CFA has come under scrutiny for contributing to degree inflation, continuing the cycle of excluding disadvantaged groups from access to well-paying careers even as their educational attainment increases (Brown & Bills, 2011; Labaree, 1997). Importantly, not all education systems have experienced degree inflation over time to the extent found in the United States (Hansen, 2011; Shavit & Müller, 1998). Hansen (2011) explains how Germany's vocational certifications for well-paying middle-skill careers, developed and trusted by industry representatives, limit incentives for students to pursue ever-higher credentials in order to distinguish themselves. Yet European vocational systems often involve formally tracking students in ways that conflict with American ideals of equality through contest mobility (Turner, 1960). According to Turner's classical theorization, the role of the school in the U.S. has been idealized as protecting equal opportunity to compete in a winner-take-all competition for a limited number of the most highly valued social positions. As a result, educational resources are disproportionately allocated toward helping students advance in this competition toward the most prestigious careers, rather than toward meaningful learning opportunities for students to pursue careers at all degree levels. Advocates of vocational education point to European systems as a lesson for the U.S., demonstrating alternative ways to balance opportunity for continued education and access to applied, marketable knowledge and skill-sets for all students (Newman & Winston, 2016; Symonds et al., 2011). Through such advocacy, CTE has gained prominence as a potential solution to degree inflation and income polarization.

CTE and the Potential for Tracking

The bipartisan reauthorization of the Perkins Act in 2006 (Perkins IV), and again in 2018 (Perkins V) reflected American legislators' commitment to a system of vocational learning that avoided the tracking associated with prior American and many European systems. This legislation ties federal funding for CTE to increased academic accountability requirements, stronger links between high schools and postsecondary institutions, and improved

partnerships with industry. It also recognizes that CTE encompasses a broader variety of career fields than past vocational education. In addition to traditional fields such as manufacturing and construction, CTE includes STEM, healthcare, computer science, and other fields that require postsecondary training.

CTE advocates emphasize the well-paying and technologically cutting-edge careers that modern CTE can prepare students to acquire. They recognize, as Coleman (1968, p. 7) put it decades ago, that "an [exclusively] academic program in high school has not only the effect of keeping open the opportunities that arise through continued education, but also the effect of closing off opportunities that a vocational program keeps open." Rather than preparing students either for college or careers, the CTE model imagined by policymakers aims to keep all doors open to students at all times. Ideally, coordinated secondary and postsecondary programs would provide opportunities to gain applied career skills and academic competencies, confer industry certifications and college credits, and create multiple avenues back into the education system once students enter the world of work (Castellano et al., 2003; Rosenbaum et al., 2017).

However, a growing body of evidence on secondary CTE suggests that despite its positive impacts on work-related outcomes, including early employment and earnings, it has mixed impacts on students' preparation for higher education. Some studies have found negative impacts on enrollment in 4-year colleges (Brunner et al., 2019; Cowan et al., 2019; Dougherty et al., 2018; Giani, 2019), especially for students in manufacturing, transportation, construction, and other traditional vocational fields (Giani, 2019). Additionally, as Hodge et al. (2020) point out, studies with the strongest causal support for these findings have taken place at whole-school models of CTE, where all students take CTE coursework. It is less clear how CTE participation in comprehensive high schools, where a subset of students participate in CTE coursework, impacts students' work- and academic-related outcomes. De facto tracking may emerge in comprehensive high schools between vocational and college-bound students. De facto tracking could also emerge between high- and low-status CTE, with higher-achieving students concentrated in STEM, computer science, and healthcare coursework and lower-achieving students concentrated in manufacturing, construction, and other trades (Hodge et al., 2020; Malkus, 2019).

Such tracking could thwart CTE policy goals of flexibility and support for continuing education, instead promulgating low educational expectations for CTE students in traditional vocational fields (Gamoran, 1986). CTE participants in rural areas may be particularly likely to have low aspirations for higher education, in part due to geographic isolation from universities, which

contributes to lower knowledge levels about college admissions and financial aid (Carr & Kefalas, 2010; Dynarski et al., 2018; Meece et al., 2013). Additionally, rural students from low socioeconomic-status families may be encouraged by their parents to consider trade school or local work opportunities, which are less likely to require higher education (Carr & Kefalas, 2010; Meece et al., 2013). Vocational tracking in rural schools, therefore, may be especially likely to exacerbate low knowledge about and aspirations for higher education among CTE students. For these reasons, it is important to examine how rural schools in particular frame the goals of CTE and share information about postsecondary options. If, for example, educators consider CTE students to be exclusively bound for sub-baccalaureate careers, they may fail to share sufficient information about applying to 4-year colleges, undermining the broader goal that students will choose postsecondary pathways based on informed exploration of all the options available to them.

Sensemaking About CTE

Schools as organizations, through the work of principals, counselors, teachers, and others, construct interpretive frameworks about CTE's meaning and purpose in ways that can be consistent or inconsistent with broader policy goals. Researchers of school reform recognize that implementation of reforms in response to policy is not a top-down process. Instead, they show that reform is a local, contextualized, collective process in which actors at the school level interpret a reform's goals, mechanisms of change, and outcomes, and they enact it based on these interpretations (Coburn, 2001, 2006; McLaughlin, 1990; Spillane et al., 2002). This *sensemaking* perspective holds that pre-existing beliefs and worldviews of individual actors in school contexts shape their interpretations and actions (Coburn, 2001; Spillane et al., 2002; Weick et al., 2005). Sensemaking theory also recognizes that individuals' interpretations are developed through interactions with colleagues, which are often structured by professional organizations, as well as through participation in broader cultural belief systems and social structures (Coburn, 2006). These interactions lay the foundation for the collective beliefs, routines, and organizational cultures through which school reforms take shape.

Puckett and Gravel (2020) show that collective interpretations of vocational education's goals can have profound implications for educational equity. They analyze the case of a comprehensive high school that successfully implemented a CTE course in engineering without de facto tracking. The authors argue that engineering's dual categorization in the broader policy sphere as both vocational and academic provided support for teachers, counselors, and administrators to categorize their engineering courses in a similar

way. They enacted this categorization through organizational processes that created overlapping academic and vocational spaces, teachers, and activities. In turn, engineering students were exposed to peers who were exceptionally diverse in socioeconomic status, race, and achievement levels, as well as coursework that was both academically and technically rigorous.

Schools that offer CTE in engineering, computer science, healthcare, and other STEM fields, which have clear relevance for college-level coursework, may be particularly successful at categorizing CTE as a way to promote college and career readiness. However, not all CTE overlaps with college-relevant fields in this way. It is less clear how vocational courses in manufacturing and the trades, which are more likely to prepare students for sub-baccalaureate careers, could be formulated in ways that also enhance preparation for students to pursue bachelor's degrees. Additionally, students who tend to gain the most from CTE – low-achieving male students least likely to attend 4-year colleges—often concentrate in these traditional vocational fields because of their very prioritization of learning for careers that do not require college (Malkus, 2019). For these courses, it is unclear what equitable CTE looks like.

School leaders, as actors in positions of authority, have a particularly important role in framing interpretations of reform policies (Coburn, 2006). Their sensemaking processes shape how they filter policy messaging from state, district, and other sources, deciding which aspects of policy to emphasize and which to de-emphasize as they allocate resources and put forth interpretive frameworks about reform goals (Coburn, 2005). School leaders who are able to mobilize resources in support of their interpretive frameworks are especially successful at institutionalizing specific approaches to education reforms (Anagnostopoulos & Rutledge, 2007). Drawing on frame analysis, Coburn (2006) shows that an important aspect of school leader sensemaking is the way in which they define problems and their causes and propose solutions to them.

Schools in rural communities, reflecting the needs of local industry, are more likely to incorporate traditional vocational coursework into their CTE offerings (Sutton, 2017). Local business advisory boards and other school partners in workforce development make up an important part of the context in which school leaders interpret CTE's goals. These industry partners could provide both interpretive frameworks and resources for school leaders to justify learning opportunities that may not derive their status from college relevance. Analyzing educational stakeholders' sensemaking, including that of schools leaders and partners in industry and workforce development, can shed light on how and why school leaders mobilize resources for CTE, develop coursework, and advise students in ways that reproduce and/or mitigate stratification in learning opportunities.

Methods

Setting

In Pennsylvania, students face some of the highest 4-year public college tuition and debt levels in the nation (Gonzalez et al., 2019). At the same time, state lawmakers for the past several years have grown increasingly concerned about a growing statewide "skills gap" in middle-skill technical qualifications, reflecting concerns shared nationally (Fuller et al., 2014). In 2016 the Pennsylvania Department of Education (PDE) "concluded that current graduation requirements too narrowly define postsecondary success," and in 2017 and 2018 the state revised its college readiness-focused graduation requirements so that students could demonstrate career readiness in lieu of passing state graduation exams (Students must also earn a passing grade in the courses associated with each state graduation exam.). During these same years, Pennsylvania also revised its school evaluation system and distributed millions of dollars to schools, industries, and workforce development organizations to support industry-relevant career education. Low-income students participate in these programs slightly more than the overall student population. During the 2017 to 2018 school year, economically disadvantaged students made up 45% of students statewide but 53% of CTE participants (Applied Engineering Management Corporation, 2021; Comprehensive Center Network, 2021).

The fieldwork for this study took place in the direct wake of these career education initiatives, between 2018 and 2019. Oaksburg is a middle- and working-class collection of small rural towns and the small city they surround. The primary industry in the Oaksburg region is manufacturing. The PA Department of Labor and Industry (2020) expects that the region will experience growing demand for jobs in manufacturing, construction, transportation and material moving, and healthcare through 2026.

At the time of data collection, public school leaders and other education stakeholders were revamping existing CTE and other career readiness programs and implementing new ones. Reflecting local industry needs, especially the needs of businesses most eager to partner with schools and donate funding and supplies, many of the new CTE facilities at comprehensive high schools were focused on manufacturing and trades. That said, most schools offered courses that any student could take across the majority of the 16 pathways included in the National Career Clusters Framework (Advance CTE, 2021), including information technology, health science, and STEM. Students could either dabble in elective courses across the pathways, or they could concentrate in CTE by taking three or more courses in one pathway.

Articulation agreements with local community colleges allowed students to apply vocational coursework credits toward certificate and applied associate degree programs. Additionally, students at most schools could participate in regional pre-apprenticeship programs in manufacturing or construction, or they could design their own work-based learning experience at a company within another career cluster.

Sample and Recruitment

The study sample comprised 24 school leaders from 15 districts in the Oaksburg region along with 28 local education stakeholders in industry and workforce development. I invited the school leaders, including superintendents, principals, assistant principals, and/or school counselors, at each of the 25 districts within the region to participate in semi-structured interviews and ethnographic observations, and 24 school leaders from 15 of the districts volunteered to participate. All of the educators were involved in CTE programming or advising to some extent, although their levels of involvement ranged from those whose jobs revolved entirely around CTE, to those who oversaw all school or district programming. Most districts housed between 3,000 and 4,000 students, with between one third and one half of students participating in the Free/Reduced Lunch (FRL) program. In all schools, the vast majority (at least 80%) of students were white. Non-participating districts had similar demographic profiles. See Appendix A for additional demographic information about participating and non-participating districts.

On average, 52% of students participated in "rigorous courses of study," which were comprised primarily of Advanced Placement (AP) or International Baccalaureate (IB) courses. Among students in FRL, the proportion that participated in rigorous courses of study was 34%. Postsecondary enrollment rates averaged 61% among all students and 49% among students in FRL.

With the help of school leaders, I used snowball sampling to recruit other educational stakeholders who worked to develop postsecondary exploration experiences for youth, particularly but not exclusively through Career and Technical Education. The snowball sampling technique reflected the goal of the study to understand how education stakeholders dynamically constructed interpretations of career education and postsecondary readiness within their pre-existing networks (Noy, 2008). These stakeholders included employers in manufacturing and construction along with apprenticeship instructors, leaders of postsecondary readiness organizations, and members of workforce development organizations ($n=28$). All of these educational stakeholders directly partnered with high schools to provide career- or college-related exploration and development, such as pre-apprenticeship programs for CTE

students. Recruitment of educational stakeholders continued until I reached a theoretical saturation point (Glaser & Strauss, 1967; Patton, 2002), resulting in interviews with a total of 52 educational stakeholders, including school leaders. Together, the interview participants constituted not a representative sample of educators and educational stakeholders across the region, but rather a "panel of knowledgeable informants" (Weiss, 1995, p. 17) about local efforts to promote postsecondary readiness efforts, including CTE.

Interviews and Observations

The interviews focused on how participants defined postsecondary success, student obstacles to postsecondary success, interpretations of the goals of career education and training, implementation of career education programs, and student advising about postsecondary exploration and planning. Because the state's career education legislation was motivated by the PDE's conclusions that schools' focus on 4-year college preparation was too narrow, participants were also asked to share their opinions on whether all students should be prepared for 4-year college. The interview protocols were semi-structured, with questions on these topics coupled with follow-up probes. Specific interview questions and probes are listed in Appendix B. Interviews took place at locations of the participants' choosing - personal offices, conference venues, coffee shops, or the participant's home. Each interview lasted between 60 and 120 minutes and was audio-recorded and transcribed with permission. As a token of gratitude, participants were provided a $10.00 gift card at the start of the interview. No identifying information about participants has been reported in this study.

Participants also allowed me to observe administrator meetings about CTE, chamber of commerce meetings on pre-apprenticeships and apprenticeships, educator-employer CTE partnership meetings and celebrations, student career fairs, counseling meetings, and other career readiness meetings and events. Administrators and counselors also frequently gave me tours of their schools or CTE classes. In total, I completed 115 hours of observations.

Analysis

Interview and observation data were analyzed qualitatively with thematic analysis using both theory- and data-driven approaches to identifying and interpreting patterns within the data (Boyatzis, 1998). Using the structure outlined by MacQueen et al. (1998), I developed a codebook that covered the topics included in the interview protocol and trained two graduate research assistants on using NVivo to apply the codes to the interview transcripts. The

coders and I continually met to review points of disagreement, revise the codebook to better match participants' own language and mental categories, and recode. We continued this process until we reached a Cohen's Kappa score of at least .45 (indicating fair to good agreement) on six consecutive transcripts (representing 11% of all transcripts). Approximately one third of the codes included in the final codebook were CTE-specific. The research assistants coded the remaining interview transcripts, and I then reviewed all the coding. I independently coded observation notes using the final codebook.

I then sorted the codes across educators, employers, and members of workforce development organizations, with attention to patterns of declaration, frequency, omission, and corroboration across participants (LeCompte & Schensul, 2010). Coded passages related to CTE in particular made up approximately 40% of content in transcripts and observations, although this proportion ranged from 11% to 100%. I narrowed code patterns to central themes relevant to the research questions, including perspectives that CFA commitments had a harmful impact on many students, optimism that subbaccalaureate career preparation could provide students with promising career options, and dedication to raising the status of CTE. I interpreted these themes through the lens of sensemaking theory, with special attention to how local context shaped the ways school leaders and other educational stakeholders understood the goals of college and career preparation and, specifically, CTE.

Findings

"We Want Fewer Kids Going to College."

The educational stakeholders who participated in this study were unanimous in the belief that local schools' previous commitments to preparing all students to enter a 4-year college had been misguided. As one school director put it:

> "If you'd have done this [study] several years ago, we'd still be in the college-for-all mode. 'Let's ship them all to college.' But I don't know what happened to turn the tide. I don't know if it's all the college loans or all the college-educated kids who are baristas or whatever it is, but we finally woke up. . . So I was working when we tore all the shops out of the schools in the '90s, early '90s. Now we're trying to put them all back. Everybody seemed to have woken up, and there's a shortage of workers."

In this observation, the director succinctly summarized three major factors in "waking up" to CFA's shortcomings that every interview touched

on at some point: rising college debt loads, increasing degree inflation, and perceptions of growing opportunity in middle-skill careers that don't require 4-year college degrees. Stakeholders were increasingly becoming aware that many of the students who took on student loans to pursue BAs failed to graduate. At the public 4-year colleges frequently attended by Oaksburg students, six-year graduation rates in 2019 ranged from 51% to 85%, with a median graduation rate of around 55% (Carnevale et al., 2019). These schools as a group performed slightly worse than typical 4-year colleges nationally, which had a median six-year graduation rate of 62% in 2019 (National Center for Education Statistics, 2019).

Even students who did graduate from 4-year colleges were not guaranteed financial security, participants explained. At one graduation ceremony for a pre-apprenticeship program in a trade, a superintendent urged a room of students and parents, "Ask your waiter or waitress next time you go out to eat what college they went to. We don't want to create all the waiters and waitresses in the world." He urged students to continue pursuing a career in the trades, which were in strong demand, rather than taking on college debt only to find themselves overeducated and underemployed. One school counselor explained, ". . .especially my generation and the previous generation, a lot of times if you did have a 4-year degree, that was a ticket to success. But that is not playing out today."

Exceptions to the frustration with CFA occurred at two of the districts in the region with the wealthiest student bodies, which had FRL rates below 23%. These districts were located within commuting distance of nearby large cities. Many of the parents in the districts held college degrees (39% and 46%, respectively, compared to 33% in the region overall (U.S. Census Bureau, 2020). In turn, they had higher expectations that the schools would prepare their children to do the same, according to the educators that I spoke with. While these educators were personally in support of the shift away from CFA, they explained that it had taken a long process to convince their school board members and teachers that investing in alternatives to college prep pathways wouldn't threaten their reputations for strong academic achievement.

At the extreme other end of the spectrum, a small number of rural districts went so far as to set reduced 4-year college enrollment as a goal. "We want fewer kids going to college," stated one superintendent, as he explained to members of a trade union that reducing graduating students' enrollment in any postsecondary institution from just over 60% down to 50% would signal that more students were being intentional and realistic about their career pathways. A principal from the same district argued:

> ". . .before we were pushing kids into four-year schools that shouldn't go to four-year schools, and quite frankly probably didn't want to go to four-year schools. So by sending fewer kids there. . . it's not depriving kids of opportunity. We're just steering them in a direction where they will be more successful. So it's not about shutting doors, but it's about opening the right ones."

In this principal's view, reducing 4-year college enrollment would signal that schools were helping students to optimize decisions about their postsecondary options. But who, specifically, were the youth educators felt "shouldn't go to 4-year schools," and how did they advise on which doors are "the right ones"?

Some education stakeholders maintained that if students made choices based primarily on their occupational goals, keeping in mind the cost-benefit ratio of various degrees in their chosen fields, a large proportion would find pursuing a bachelor's or advanced degree to be unnecessary: "There's no reason that someone needs to go do four years of school if they only need two years to do the job they're interested in anyway." According to this point of view, the students who should not be going to 4-year schools are simply those whose career goals do not require it, and the "right doors" are those that provide the training necessary for their chosen careers at the lowest price.

On the other hand, a smaller group of educators communicated that students' socioeconomic status played an important role in their thinking about who was most likely to benefit from pursuing 4-year degrees and who was not. According to one principal:

> "Generally speaking, those people that have that expectation [to go to a four-year school] have the resources to provide support to do that. . .. If you look at the data, what we're finding is that those kids that go to college without support systems and without direction don't last. Essentially, they are the ones that drop out. On top of that is that when you dig into the numbers, when you look at. . . crushing student debt, student debt just doesn't go to those that graduate. What happens is that you have kids that come from economically disadvantaged families. They think they're going to go to college and things work out for them. They don't, and now they don't have any income, but they have this debt and it's a double-edged sword."

In this statement, the principal argued that imposing 4-year college expectations ignores low-income students' differing likelihood of degree completion as well as the economic realities of debt for those with no financial safety net. In Pennsylvania, low-income students face some of the highest 4-year college debt loads in the country (Cochrane & Ahlman, 2017). These same students are also less likely than their peers to graduate. Of low-income students

at the public 4-year colleges most commonly attended by Oaksburg students, just 50% graduate (US News & World Report, 2020), leaving the remaining half in serious debt with no degree. A principal at a school where the majority of students were economically disadvantaged argued, "our kids have been marginalized and put down," referring to overly narrow standards of success that stigmatized non-BA options but failed to take into account their students' disproportionate financial risk.

Most education stakeholders I spoke with had views that landed somewhere in between the stance that 4-year college alternatives were purely a way to support a wider range of student career interests for all youth and the stance that these pathways were primarily for youth from low-income families. When students were set on careers that required a BA or higher, the educators with these mid-range views reported advising on scholarship applications and ways to accumulate college credits while still in high school through dual enrollment programs. Yet for students who did not have clear goals, they encouraged exploring a range of options, taking into account financial considerations as well as personal interests and talents. Education is "not one size fits all," almost every administrator and counselor I spoke with insisted. "Instead of we know what's best for you, it's a more personalized approach," one principal explained when recounting the differences between the CFA era and the current focus on exploring careers at all levels. Some educators were concerned that by making college the expectation, they could be upholding a system that had benefitted themselves regardless of its impacts on different groups of students: "The reason [our teachers] are really here isn't necessarily for the system. It's for the kids. So, we need to make sure that what we're doing fits what our kids need to be successful," explained an assistant principal. Foundational to the view that non-college postsecondary options could lead to success was the promise of well-paying opportunities in middle-skill careers.

"One of the Worst Posters I See Is, 'The More You'll Learn, the More You Earn.'"

The educators were in regular contact with employers and workforce development partners, who served on districts' business advisory boards and participated in other educator networks to inform schools about the needs of local industry. At school-industry partnership events, corporate representatives made it clear that local businesses, particularly in manufacturing and the trades, were "desperate," "screaming for help," and "dying for people" to fill middle-skill positions due to a wave of Baby Boomer retirements and a shortage of workers with the skills to replace them. At one of these events, a career

services director from a local community college implored high school educators to encourage students to consider careers in the trades. In the prior year, she explained, her college's 40 graduating mechatronics students had received a combined 695 job offers. Graduating students could expect competitive pay, earning around $50 thousand in annual base pay plus an additional $15 to $20 thousand in overtime.

In line with the conclusions drawn by PDE, these workforce partners and educators alike attributed industry skill shortages to years of schools focusing too narrowly on preparing students for 4-year colleges. The educators' thinking was particularly influenced by Kevin Fleming, an educational consultant who spoke at several events sponsored by PDE. After school leaders from Oaksburg watched Fleming's viral YouTube video, *Success in the New Economy*, at PDE convenings, they circulated it widely at professional development sessions, parent meetings, and student assemblies. In the video, Fleming pulls on an argument first formulated by K. C. Gray and Herr (1995) that workforce education requirements follow a 1:2:7 ratio: for every job that requires an advanced degree, two positions require a bachelor's degree and seven require an occupational certificate, 2-year degree, or less. Fleming goes on argue that overeducated and underemployed young people had missed out on developing lucrative technical skillsets for sub-baccalaureate careers.

One in every three educators I interviewed referred to this video in explaining why they believed schools should be providing students with more exposure to career options through CTE. The director of one high school's CTE program, like many of the people I spoke with, felt that it was misleading to simply present students with the average returns to differing education levels: "One of the worst posters I can see is, 'The more you'll learn, the more you earn,'" he lamented, describing a poster displaying average earnings for associate, bachelor's, master's, and professional degrees. "I'm like, 'No it isn't. Try telling that to a second-year electrical apprentice who's making forty grand.'" Others felt that it was important to explain that training for well-paying sub-baccalaureate positions often involved little or no financial risk due to the relatively low tuition of community colleges, opportunities to "earn while you learn" in apprenticeships, and high school coursework that allowed students to earn credits toward technical certifications and degrees.

In their enthusiasm for sharing information about low-risk, high-reward learning opportunities, participants didn't always communicate a complete picture about how the expected earnings of different postsecondary degrees compared. They emphasized the variation in earnings across career fields that made some associate degrees more lucrative than some bachelor's degrees, but they rarely pointed out the greater earnings of higher degrees

within fields. For example, one school administrator emphasized that a certificate in information technology (IT) could yield a starting salary as high as that of a first-year teacher at his school, but he didn't mention that a person with a bachelor's degree in IT could earn almost double that of the certificate-holder.

In fact, participants frequently underestimated the long-term premium of bachelor's degrees relative to sub-baccalaureate degrees. In interviews and at the meetings I observed, it was not uncommon to hear participants share exaggerated estimates of the average 4-year degree debt load. They implied that by avoiding this debt and starting work earlier, young people could come out ahead of their more highly educated peers. In the words of one pre-apprenticeship instructor:

> "I tell most of the kids, your buddy that's going to go to college is going to probably be in the hole for close to a quarter of a million dollars or something like that. Where if you look at the wages you're going to be making in those four years [as an apprentice], you'll probably have made almost that much money."

"If I'm Going to Be a Welder, Why Do I Need to Know Biology? Or English Literature?"

To support student decision-making, the school leaders and other education stakeholders I spoke with believed that high schools needed to allow students the time to explore and develop career-related knowledge and skills, even if this came at the expense of academic coursework. Dedicating time to vocational learning during high school would help students earn industry-recognized credentials and career-oriented postsecondary credits for free or at reduced cost, participants pointed out. While most of the credits offered through articulation agreements with community colleges were not "stackable" in that they could not be transferred to a 4-year degree program, they would save time and money for students seeking applied short-term degrees. Most importantly, these early vocational experiences would help students discover their interests early, before they started paying tuition for courses that may or may not count toward the major they eventually decide upon. One assistant principal explained, "I'm not a huge believer in going to college to figure out what you want to be when you grow up. That's a very expensive journey."

Given these benefits of vocational learning, some of the participants considered time spent on general distribution requirements to be woefully inefficient. A local business owner and tradesman who taught high school CTE

courses through a community college program bluntly stated in one presentation to counselors: "Classes in schools aren't going to benefit [my] students." A principal, in support of the state changes to school accountability measures and graduation requirements that reduced the emphasis on standardized testing, rhetorically asked me, "If I'm going to be a welder, why do I need to know biology? Or English literature?" Vocational learning was just as important as traditional academics, she argued, and it should be treated as such. Other participants acknowledged the importance of providing students with an education broad enough to allow flexibility for pursuing a range of postsecondary options, but they felt that the way schools implemented general education sometimes sacrificed depth for breadth. Students should have the opportunity to engage in a specific occupational pathway deep enough to gauge how well it aligned with their talents and interests, they explained.

Some of the districts reduced distribution requirements and increased flexible scheduling for their upperclassmen. In a number of districts, students could complete minimum course requirements by the end of their sophomore or junior years, allowing them ample time to participate in elective coursework, internships, and pre-apprenticeships. Educators pointed out that this flexibility also allowed time for students to take advanced academic courses, should they choose to. As one vice principal put it: "You can go through our high school and have a very traditional experience. You can have piles and piles of AP courses. You can have academic courses.... That's a great opportunity, but it's not the only pathway to success." In other words, schools intentionally made student time flexible so that they could accumulate the experiences and credentials that most aligned with their postsecondary goals. Educators emphasized that, if they wanted to, students could combine AP coursework with intensive CTE, and indeed some students devised a schedule that allowed them to do just that.

Educators gave renewed attention to strengthening school-industry networks across the region, which made them eligible for state grants to support CTE. At districts with the strongest relationships with local industry, the grants jumpstarted new CTE programs, subsidized CTE equipment, and funded pre-apprenticeship programs that led to industry-recognized credentials and/or community college credit in manufacturing and the trades. Schools and local industry partners also invested their own dollars into CTE updates. Two comprehensive high schools built all new CTE facilities, funded by their districts, grants, and local businesses that provided millions of dollars' worth of in-kind equipment donations and monetary support of new CNC machines, welding stations, 3D printers, and other industrial technologies. At both of these schools, administrators described their student populations as primarily "blue collar."

The educators and industry representatives considered these investments to be a much-needed reallocation of resources to students whose interests and goals had previously been neglected by a system narrowly focused on traditional academics. At one meeting with administrators, a school board member emphasized schools' responsibility to ensuring all students, not just the "academically inclined," had strong postsecondary preparation. Based on this logic, one district framed the need for CTE as a matter of educational equity on its webpage. As one principal put it, "What we're developing here are opportunities, and opportunities that are available to everyone."

A number of educators pointed out that they encouraged their own children to explore postsecondary options outside of 4-year colleges. One assistant principal made it a point to always speak of college as one option among many for his children: "Yeah, I'm an educator and I say quite frequently when I talk to people, '*if* my kids go to college,' because they might not."

"We Have This Mindset That It's a Lower, Menial Job, But It's the Same."

Educators and members of workforce development organization members explained that promoting alternatives to 4-year colleges was a "cultural shift" for some community members. In turn, they made a number of efforts to provide students and parents with what they considered to be a fuller picture of the considerations students should take into account when planning their postsecondary trajectories.

Schools hosted career assemblies that showcased presenters with all levels of education, and college and career fairs included representatives from tech schools, apprenticeship programs, and companies hiring employees directly out of high school. Manufacturers regularly hosted student tours and offered internship opportunities, insisting that 21st century manufacturing is no longer "dirty, dark, and dangerous" as it had been stereotyped in the past. On one factory tour, a young mechatronics apprentice demonstrated a wide range of complicated skills he used on a daily basis, encouraging the high school students to consider such a position "if you want to use your hands and your head."

Educators and employers sometimes made efforts to raise the status of subbaccalaureate careers by arguing for their equivalence with white-collar jobs in terms of skill and importance to society. One school director asked me:

> "If you had to get a surgery, would you be ok with a surgeon who, in his experience, has been successful 50% of the time? How about 80%? What about a mechanic who's fixing your breaks? Would you be ok with someone who's effective 50% of the time? He's got your life in his hands too. But we have this mindset that it's a lower, menial job, but it's the same."

Frequently, educators and employers promoted examples of students who had pursued non-college postsecondary pathways and reaped great rewards. Multiple schools invited former CTE students who had gone on to secure high-paying jobs in the trades to speak at school events: "So we started bringing our graduates in who were making six figures as welders and just point and say, 'There's a life out there.'" Stories about students who successfully obtained career-relevant training without taking on loans were used to illustrate the time- and cost-saving measures that schools and companies had available.

The educators developed new rituals to honor students pursuing careers that didn't require a BA and generated symbols to communicate the elevated status of nontraditional postsecondary pathways. Special ceremonies and banquets celebrated students who completed pre-apprenticeships and internships. At some schools, business "signing days" broadcasted seniors' commitments to work for particular companies. CTE concentrators in one district wore cords from their graduation caps symbolizing their career pathways, "so it's not just the NHS, the top ten, the valedictorian," the principal explained. In a high school's main foyer, the principal pointed out portraits of the current class of welding students working toward their industry certifications. The spot on the wall was once occupied by portraits of valedictorians from years past, which were now pushed to the side to create room for more kinds of distinction.

This consistent messaging about the respectable status of CTE was well-received by students and parents alike, according to education leaders. However, like their other efforts to communicate the importance of CTE, these status-raising initiatives often involved exaggerations about the benefits students could expect by pursuing sub-baccalaureate pathways. For example, during presentations, one counselor regularly contrasted high-earning associate degrees and certificates with low-earning master's degrees. He discussed how an elevator technician with a postsecondary certificate could earn twice the annual salary of a social worker with a master's degree. While he acknowledged that this and other examples he used were extreme, he didn't explain to students just how far they varied from the norm (for example, workers with master's degrees are expected to earn, on average, over a million dollars more than typical certificate holders over a lifetime (Carnevale et al., 2011)). The message the counselor intended to communicate was that more education does not always result in higher income. However, his examples suggested no correlation or even an inverse correlation between education and income. Such use of extreme examples was common as educators attempted to demonstrate what was possible with nontraditional educational pathways, such as at the school that showcased its graduates earning six

figures as welders. Only some of the education stakeholders acknowledged that while such jobs exist, they are also quite rare.

Discussion

Policymakers differentiate CTE from vocational education of the past by emphasizing that it prepares students for both college and careers, expanding postsecondary options without pigeonholing students into any one pathway. However, researchers caution that CTE in comprehensive high school contexts still have the potential to reify old distinctions between academic and vocational tracks (Hodge et al., 2020). Findings from this study show that high school education leaders and their partners in industry and workforce development in the semi-rural "Oaksburg" region of Pennsylvania indeed considered CTE a way to prepare students primarily for sub-baccalaureate careers. It may be intuitive to assume that these education stakeholders had low expectations for CTE students. However, to the contrary, the Oaksburg education community considered sub-baccalaureate careers as respectable and deserving of high status, and they felt preparing students for these careers was a much-needed corrective to years of pushing "college for all" centered around 4-year college enrollment. Some school leaders even aimed to reduce college-going among their graduates. Approaching these findings from the perspective of sensemaking theory helps us understand why education leaders along with their industry partners felt such a strong need to frame CTE as a 4-year college alternative.

For superintendents, principals, and school counselors of Oaksburg, growing enthusiasm for CTE reflected frustrations with rising student debt loads, low college completion rates, and a perceived lack of opportunity for students to take advantage of local demand for sub-BA skills. Educators believed that they themselves had helped legitimize a system that diverted students from sub-baccalaureate degrees, then justified the relegation of students who failed to earn BAs to futures of low-wage, unskilled, and unstable service sector work. Based on these interpretations, what once was a good faith effort to improve equity through bachelor's degree expectations now seemed paternalistic, a "we know what's best for you" approach, that ignored the pyramidal "1:2:7" shape of the occupational structure and the need for high-quality career preparation even for those who don't achieve the highest levels of education. In a job market with strong demand for middle-skill workers, pressing students to take on financial risk for the chance at a BA appeared to curtail more opportunities than it opened.

Local industry and workforce development representatives were important influences as school leaders worked to frame these problems in the

context of their communities. Close school-industry relationships placed Oaksburg's schools in the minority of schools nationally. Only about a third of school districts across the U.S. have significant involvement from business advisory councils, employer advising on in-demand occupations, employer guidance on CTE equipment, or employer participation in school events (L. Gray & Lewis, 2018), relationships that were central to the CTE programs at most Oaksburg districts. Industry leaders insisted on a dire need to address a "skills gap," emphasized an abundance of well-paying middle-skill job openings, and, in some cases, made resources available to schools through donations and grant-writing support. These resources helped address some of the primary barriers for schools implementing CTE programs nationally: the costly nature of equipment-intensive programs and the need for dedicated CTE facilities (L. Gray & Lewis, 2018; Stevens, 2020).

In districts with the strongest industry relationships, these business efforts increased the correspondence between schools and local workplaces (Bowles & Gintis, 1976), bolstering the legitimacy of administrator and counselors' stances that CTE could provide career options for the students that the CFA mentality had ostensibly left behind. Exceptions to the enthusiastic reception of CTE occurred among schools in wealthy districts. The demographics of these districts, including higher education levels among parents, suggests that more families were able to provide their children with financial, social, and cultural resources through college graduation. In turn, the problems associated with CFA were likely less resonant, and CTE held less traction. These outliers underscore the ways sensemaking about CTE depends on the problems to which it is framed as a solution (Coburn, 2006).

In response to concerns about tracking across demographic groups, school leaders emphasized that CTE programs were available for students only if they were interested, and that college-prep coursework remained abundant for students who wanted it. The principal who asserted, "it's not about shutting doors, but it's about opening the right ones," encapsulated the view that offering meaningful opportunities for students to prepare for in-demand subbaccalaureate careers didn't limit, but rather expanded, their options. At the same time, participants understood that that students with varying levels of financial vulnerability were likely to assess these options differently. Most educators ($n = 15$) acknowledged that their perceptions of students' financial situations influenced their advising to some extent, whether during one-on-one counseling or when speaking to student audiences with a high proportion of students from economically disadvantaged families. With little power to support financially vulnerable students years after they have graduated from high school, these educators aimed to set them on pathways with the highest probability of economic payoff. Even if effective, attempting to help students

optimize their own individual outcomes within an inherently unequal system is unlikely to disrupt the reproduction of social inequality broadly. Yet this approach represented educators' efforts to expand opportunity within their spheres of influence.

Despite educator intentions, messaging in support of sub-BA careers may have contributed to information deficits about college and careers among rural students (Carr & Kefalas 2010; Dynarski et al., 2018; Meece et al., 2013). Educators themselves seem to have had limited information about college debt and the long-term return on investment for sub-baccalaureate degrees compared to BAs. While Pennsylvania college students, especially those from low-income families, have some of the highest debt loads in the nation, on average they leave college with approximately $37,000 in student loans (Gonzalez et al., 2019), nowhere near the figures upwards of $100,000 that participants often referred to. Less than 5% of student loan borrowers hold six-figure debt, and they are almost exclusively graduates of postgraduate programs (Looney & Yannelis, 2018). In turn, among students who complete college, those who attain a BA are estimated to earn a lifetime return on investment of $864,000, which is $141,000 higher than estimates of returns to those who earn associate degrees and $287,000 higher than those who earn certificates (Carnevale, et al., 2019). People from low-income backgrounds, women, and people of color tend to receive an even higher premium on a 4-year college education relative to sub-baccalaureate degrees than the general population (Brand & Xie, 2010).

At the same time, the 4-year degree premium does not exist for those who do not finish their degrees. Awareness of low college completion rates was central to participants' calculations about the relative value of sub-BA pathways. Unfortunately, educators also

seem to have relied on anecdotal data from employers in their local networks about exceptionally high-earning sub-baccalaureate jobs, such as welding positions that net six-figure salaries, that are actually quite rare. For example, the median income for full-time welders at the time of the study was around $43,000 annually (U.S. Bureau of Labor Statistics, 2020). Just 10% of welders earned more than $66,250 annually, with the highest-income welding jobs often ones that involve dangerous working environments. In turn, the examples participants provided to students almost exclusively illustrated exceptions to the positive relationship between education and earnings, instilling overly rosy expectations of what students could expect to earn without a bachelor's degree. Low-income students, who tend to have lower experience with and knowledge of higher education (Carr & Kefalas, 2010; Dynarski et al., 2018; Meece et al., 2013), may have been particularly vulnerable to these exaggerations, since these examples could have been some of

the primary information that they received about postsecondary planning. As a result, the messaging had the potential to mislead the students most in need of accurate information about college and careers.

Participants may have been eager to highlight sub-baccalaureate degree holder success stories because they resonated with pre-existing community views that vocational pathways should be held in as high esteem as academic pathways. Oaksburg participants varied from educators who reduce the stigma of CTE programs by expanding high-status course offerings and emphasizing their relevance for college (Malkus, 2019; Newman & Winston, 2016; Puckett & Gravel, 2020). Instead, they asserted the honor of sub-baccalaureate credentials and the local careers for which they could prepare students, blurring traditional status group boundaries of prestige (Weber, 1946). They contested systems in which the imperative to give students a chance to compete for conventionally high-status jobs overshadowed the need to ensure students also had access to rigorous training for other occupations (Labaree, 1997; Newman & Winston, 2016).

In interpreting these results, it is important to keep in mind that findings cannot be generalized to other comprehensive high schools in the region or more broadly. The use of snowball sampling in particular may have limited variation in sensemaking perspectives across the region. However, by seeking out educational stakeholders who were actively involved in local networks for career-related postsecondary education and training, this study reveals previously undocumented ways that schools understand the goals of new CTE programs and communicate about the types of students CTE serves. Specifically, it documents how stakeholders made sense of traditional vocational CTE, as opposed to higher-status CTE fields, with implications for the information CTE students received and the postsecondary goals they set.

Conclusion

Education stakeholders in this study challenged the occupational status hierarchy that pitted the workforce development function of education against the commitment to equal opportunity. In turn, they supported actions that directly shifted the dynamics of educational stratification, sending more resources and support toward vocational coursework. These findings illustrate ways that enactment of vocational education depends on local processes of adaptation and meaning making within specific opportunity structures and economic landscapes. Essential to participants' efforts to raise the status of traditional vocational CTE and justify these shifts was strong local demand for workers in middle-skill occupations.

The predominance of manufacturing meant that students pursuing sub-baccalaureate education faced promising opportunities for middle-class careers. In this way, the Oaksburg region is exceptional in the U.S., which has seen steep national declines in manufacturing and the well-paying jobs it once offered. Yet the eagerness of the education stakeholders in Oaksburg to showcase locally available middle-skill occupations speaks to the anxieties shared more broadly about the monopolization of access to middle-class careers by 4-year colleges and, increasingly, graduate schools, with excessive levels of tuition. As polarization in earnings grows between those with and without bachelor's degrees, calls for investments in high-quality CTE and for a reassessment of how different types of work and learning are valued will likely continue to grow.

Appendix A

Table A1 displays the demographics of districts that participated in the study and districts that declined to participate.

Table A1. District Demographics.

	Participating districts ($n = 15$)	Non-participating districts ($n = 10$)
Student enrollment		
Range	950–8,000	900–5,600
M	Approximately 3,700	Approximately 2,500
Free/reduced lunch (FRL)		
Range	6%–60%	24%–98%
M	35%	37%
White		
Range	63%–89%	59%–95%
M	85%	80%
Seniors who enrolled in postsecondary education		
Range	46%–79%	50%–71%
M	61%	60%

Appendix B

Tables B1 and B2 display questions and probes for follow-up that guided semi-structured interviews with educators, employers, and members of workforce development organizations.

Table B1. Educator Interview Questions.

Question	Probe
First, I would like to learn about your viewpoints and your interactions with students	
Broadly, what does success mean to you?	Success in Work? Family? Community? Which of these is most important for a successful life?
What would success look like for your students?	Does the meaning of success vary for different students? If so, why?
What specific goals or expectations do you hold for your students?	What do you think all students should be prepared to do upon graduating high school? Do you hold all students to the same expectation, or does it vary by the individual? Should all students be prepared to acquire some level of education beyond high school? If not, which students should seek higher education and why? What types of jobs should students be prepared for, if any? How have your goals for students changed over time? What have been the major influences on these changes?
What are the major obstacles students face in achieving these goals?	How does financial constraint shape student outcomes? Academic preparation?
How do you advise students on college and career preparation, if at all?	Do you have specific advice for students who are: Academically low- or high-achieving? Determined to attend or to not attend college? Unsure about their goals? Facing financial obstacles?
Are your goals/expectations for students shared by their parents? By youth themselves?	How do you see youth navigate competing expectations?

(continued)

Table B1. (continued)

Question	Probe
Next, I have some questions about your school/organization and education more broadly	
Are your goals/expectations for students shared by your school/organization?	Are the expectations different for different students? How have the school's goals/expectations for students changed over time? What have been the major influences on these changes? How does the school/organization support students in meeting these expectations?
What class do you teach/what program do you deliver?	How does this class/program help students achieve the expectations you have for them?
Broadly, what do you perceive to be the role of education?	Locally? Nationally?
Now I have some questions about the broader community	
What is the state of local economic opportunity?	What are your predictions for local economic opportunity in the future? What are the current employment prospects for students, and will they change in 10 or 20 years?
Do you expect most students will live in the local community as adults or move elsewhere?	Does this vary for different students? What aspects of the community create opportunities for youth? What aspects create obstacles?
To wrap up, I'd like to learn a little more about you	
How long have you been in your current position?	
Where did you go to school, and what jobs have you held before your current position?	
What aspects of your identity do you feel are important to your work?	
Where do you currently live, and how long have you lived there? Where else have you lived?	

Table B2. Employer/Workforce Development Representative Interview Questions.

Question	Probe
First, I would like to learn about your viewpoints and your interactions with students	
Broadly, what does success mean to you?	Success in Work? Family? Community? Which of these is most important for a successful life?
What would success look like for young people?	Does the meaning of success vary for different young people? If so, why?
What specific goals or expectations do you hold for high school students served through your partnerships?	What types of jobs should students be prepared for? Should all students be prepared to acquire some level of education beyond high school? If not, which students should seek higher education and why? How have your views on this changed over time? What have been the major influences on these changes?
What are the major obstacles young people face in achieving these goals? Think about those you've interacted with personally.	In what ways are young people most and least prepared to meet these expectations? How does financial constraint shape their outcomes?
How do you advise students on college and career preparation, if at all?	Do you have specific advice for students who are: Academically low- or high-achieving? Determined to attend or to not attend college? Unsure about their goals? Facing financial obstacles?
Are your goals/expectations for young people shared by their parents? Their teachers and schools? By youth themselves?	How do young people navigate competing expectations?
Can you tell me more about the career development opportunities that you offer?	Do you partner with schools? How many student participants go on to work at your company upon graduating high school? What incentives does your company have to support students? How does this program support young people in reaching the goals you outlined earlier?
What is the state of local economic opportunity?	What are your predictions for local economic opportunity in the future? What are the current employment prospects for students, and will they change in 10 or 20 years?
Do you expect most of the students who participate in your programs will live in the local community as adults or move elsewhere?	Does this expectation vary for different students? What aspects of the community create opportunities for youth? What aspects create obstacles?
To wrap up, I'd like to learn a little more about you How long have you been in your current position? Where did you go to school, and what jobs have you held before your current position? What aspects of your identity do you feel are important to your work? Where do you currently live, and how long have you lived there? Where else have you lived?	

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Ethical Approval

All procedures for data collection and analysis were approved by the University of Chicago IRB.

Informed Consent

Human subjects provided informed consent to participate in the research, and their identities have been kept confidential.

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