

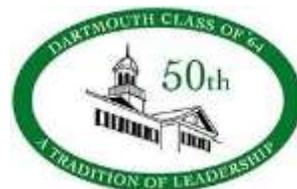
THE CLASS OF 1964 POLICY RESEARCH SHOP **BARRIERS TO CAREER AND TECHNICAL EDUCATION PARTICIPATION IN NEW HAMPSHIRE**

PRESENTED TO THE ADVISORY BOARD ON CAREER AND
TECHNICAL EDUCATION

Representative Karen Umberger

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EXECUTIVE SUMMARY

Roughly twenty percent of high school students in New Hampshire attend Career and Technical Education (CTE) programs spread across 32 CTE centers in the state and in Vermont. CTE prepares youth and adults for a wide range of careers. At the secondary level, CTE provides students with the opportunity for career training that supplements or replaces high school courses, creating a clearer pathway to a career.¹ That said, barriers exist that impede student participation in CTE. They include funding constraints, long transportation times for students from “sending schools,” a lack of calendar and schedule alignment for CTE students, and a lack of awareness of CTE opportunities among parents and school counselors.² Representative Karen Umberger and the New Hampshire CTE Advisory Board are interested in understanding what barriers discourage enrollment in CTE programs in New Hampshire and how the state might work to overcome them. In this report, we identify barriers to participation in CTE as well as means of increasing access to CTE.

1 INTRODUCTION

Career and technical education (CTE) is an alternate system of secondary and post-secondary education that focuses on career experience and hands-on learning. A CTE education model “encompasses a wide range of activities intended to simultaneously provide students with skills demanded in the labor market while preparing them for post-secondary degrees.”³

The first federal law providing funding for vocational education was passed in 1917, even before compulsory school attendance.⁴ Since the 1980s, during which students might have learned a trade such as plumbing or carpentry in place of high school coursework, CTE has expanded to encompass a range of career paths beyond traditional vocational education which can be taken concurrently with high school courses. In New Hampshire, this programming includes such career paths as aeronautics, criminal justice, police science, and graphic design.⁵

Proponents of CTE often espouse the experiential aspect of career-oriented learning programs, including “hands-on training that translates directly to attractive careers upon graduation” or “work-related or internship-like experiences that...teach students the ‘soft skills’ necessary in the labor market.”⁶ CTE programs at the secondary level provide high school students access to college-level, career-oriented courses and to certificate programs that can qualify students to enter the workforce immediately after graduation.

Recently, the state of New Hampshire released its plan for the advancement of CTE in the state from 2020 to 2023, outlining how it will work toward the benchmarks required to receive federal CTE funding. The Strengthening Career and Technical Education for the 21st Century Act, also known as Perkins V, requires the federal government to provide \$1.3 billion annually to states for the funding of CTE programs.⁷ To create its plan, the New Hampshire Department of Education consulted different shareholders regarding the improvement of CTE.⁸ Despite this commitment by the state to refine CTE, significant barriers to CTE enrollment still exist.

2 PURPOSE STATEMENT

In this report, we identify and investigate the barriers that limit high school students from enrolling in CTE in New Hampshire, from obstacles associated with its structure to perceptions and awareness of CTE. We then prescribe means to overcome these barriers, gleaned from discussions with various shareholders in New Hampshire CTE and from investigations into CTE in other states.

In providing background information on New Hampshire CTE, we first outline its structure, including enrollment in CTE at the secondary level, the current funding model for CTE, and the organization of CTE centers throughout the state. Broadly, we asked ourselves, how many students take advantage of CTE while in high school? On what areas do they focus their studies? And how is CTE programming delivered to these students?

We next present the methodology for our research. To reach the goals for our study, we primarily relied on interviews with New Hampshire CTE directors, focus groups with students at one high school, and case studies of comparable states. With the information gleaned from these research methods, we then discuss barriers to CTE enrollment in New Hampshire. We first consider tangible barriers to CTE participation. For example, exploring the sending school model of CTE provision, where schools send students to a designated regional CTE center, we analyze how this system impacts CTE enrollment. Are students limited from enrolling in CTE because of the travel times associated with going from their sending school to the CTE center? Does communication regarding CTE break down between students and their counselors at their regional high schools? We also consider calendar and schedule alignment between CTE centers and sending schools as well as how funding might limit participation in CTE, among other issues.

Beyond these structural limitations, we examine the perceptions and awareness of CTE among different groups, including counselors at sending schools, students, and parents. Are these different groups aware of the opportunities provided by CTE? Does stigma exist that may prevent students from considering taking CTE courses? Additionally, we consider marketing and its influence on CTE awareness. Given that New Hampshire has not implemented statewide marketing campaigns, we also assess how different CTE centers market themselves.

In terms of case studies, we examine CTE in Vermont, Maine, Massachusetts, and South Dakota. The research behind such case studies consists of an examination of documents outlining CTE in other states and interviews with relevant shareholders, including state directors of CTE, to understand the barriers facing other states in regard to CTE enrollment and the steps that these states are taking to overcome impediments. In particular, we look at barriers in funding, structure, and perceptions and awareness of CTE in each state. Taking this information, we consider possible applicable solutions to those obstacles facing New Hampshire CTE enrollment. Beyond these case studies, we finally consider the information we learned throughout our research to look at other potential means for New Hampshire to overcome enrollment barriers.

3 BACKGROUND ON CTE IN NEW HAMPSHIRE

During the 2018 to 2019 school year, New Hampshire had over 21,500 CTE participants, with 9,428 secondary participants and 12,127 post-secondary participants.¹⁰ This proportion of CTE participants is comparable to other states in the region, including Maine and Vermont.¹¹ Although only around a fifth of eligible high school students participated in CTE, students who enrolled in CTE had an 8.3 percent greater graduation rate (97.3 percent) in the 2017 and 2018 school year as compared to non-CTE participants (89 percent).¹²

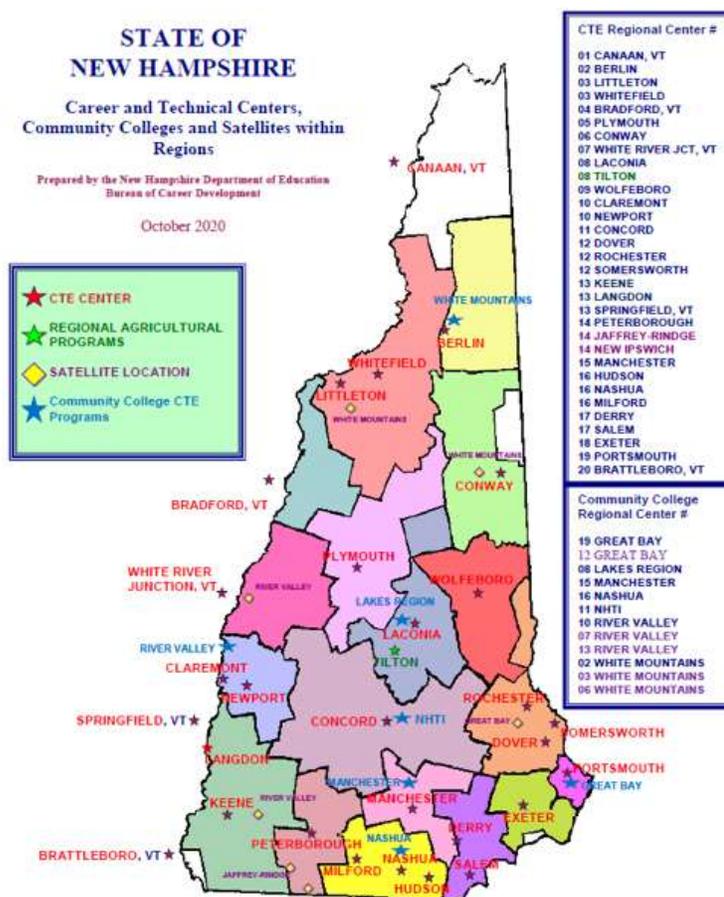
At the secondary level, 27 CTE centers in New Hampshire and five in neighboring Vermont towns serve almost 10,000 students in grades ten through twelve, as presented in Figure 3.1.¹³ These centers offer 71 unique programs in various career clusters.¹⁴ The Bureau of Career Development, a branch of the New Hampshire Department of Education, directs and oversees secondary school-level CTE programming and funding. Centers are typically extensions of the facilities of a host high school, serving students from that high school and zero to nine regional sending schools, high schools that send their students to CTE centers not located on their own campus.¹⁵

In the 2011-2012 school year, New Hampshire allocated nearly \$40 million in categorical funding for CTE, “dedicated funding for CTE programs that is distributed to [local educational agencies] and [institutions of higher education] to support career-related instructional services.”¹⁶ The state relies on foundational funding—general state educational aid non-specific to CTE—to support CTE initiatives outside of these centers.¹⁷ It reimburses districts for tuition and transportation costs associated with sending students to regional CTE centers.¹⁸ Federal commitment to CTE funding stems from the Carl D. Perkins Career and Technical Education Act of 2006, also known as Perkins IV, which has been renewed in the form of Perkins V. Annually, this act provides approximately \$6 million in CTE funding to New Hampshire.¹⁹

Regarding CTE and the workforce, the New Hampshire economy is currently experiencing a gap in the skill of its workers: whereas around 52 percent of New Hampshire jobs require specific skills training beyond a high school diploma, only 43 percent of the New Hampshire labor force has training at this level.²⁰ These skills often fall between a high school diploma and a college degree, a gap that

FIGURE 3.1

CTE Centers in New Hampshire by Region⁹



CTE addresses in its programming. Industries such as advanced manufacturing, technology, and health care and life sciences, all of which are industries for which CTE provides training, particularly suffer from this gap.

4 METHODOLOGY

We first conducted interviews with Directors of CTE centers in New Hampshire, learning about their perspectives on the barriers facing CTE and their efforts to overcome them. We also hosted focus groups of students at one New Hampshire high school to better understand student perceptions of CTE. And building on this knowledge of CTE in New Hampshire, we conducted case studies of comparable states to understand barriers facing CTE enrollment in other states as well as methods that these states implement to overcome such challenges.

4.1 INTERVIEWS WITH CTE DIRECTORS ACROSS THE STATE

To begin our research process, we conducted interviews with the directors of eight New Hampshire CTE centers. Using an external website, we randomly selected 10 of the 27 CTE centers in New Hampshire and one of the 5 CTE centers in Vermont that also serve New Hampshire students. We then contacted the directors of these centers inquiring whether we could interview them for this report.

We conducted interviews with directors at eight centers: Milford High School and Applied Technology Center, Nashua Technology Center, J. Oliva Huot Technical Center, Hartford Area Career and Technical Center, Portsmouth Career Technical Center, Pinkerton Academy Center for Career and Technical Education, Fall Mountain Regional High School Career and Technology Education Center, and Cheshire Career Center. The interviews varied slightly depending on the temperament and interests of each director; the CTE directors generally answered the following questions:

1. Do you feel your center and others receive adequate funding? If not, what areas are hurt by a lack of funding?
2. Tell us about enrollment at your center. Are your seats filled?
3. Do you notice patterns in what types of students generally sign up for high school CTE programs and who does not?
 - a. Do you see a good balance between college-bound students and students who will enter the workforce upon graduation?
4. From your perspective, what are the effects of New Hampshire's host and sending school model?
 - a. Is there a discrepancy between students from host schools and students from sending schools?
 - b. What are the barriers students might face when enrolling in courses at your center?
5. Regarding the marketing of your CTE center, how do prospective students learn about the courses offered at your center?
 - a. How do parents learn about the courses offered at your center?
 - b. For students who are enrolled in CTE, who generally encouraged them to sign up?
 - c. Do you utilize social media platforms to advertise your center?
6. What do your partnerships with business, industry and postsecondary institutions look like?

7. What are some of the barriers to providing students with quality CTE education?
 - a. If you could reform one aspect of CTE education in New Hampshire, what would it be?
 - b. What is one thing that would contribute to more equitable access to your center and CTE programs across the state?
8. Can you otherwise describe what characteristics make your center unique?
9. Is there anything we haven't discussed that you feel is important to share?

With these questions, we attempted to learn about the operations of different centers as well as the specific barriers to enrollment these centers faced. In synthesizing the responses of the eight directors, we also became more aware of the general barriers to CTE enrollment facing centers across the state.

4.2 FOCUS GROUPS WITH STUDENTS AT KEENE HIGH SCHOOL

To better understand the perceptions and awareness of students enrolled in CTE and those who chose not to participate in CTE, we conducted focus groups with students at Keene High School. While we initially reached out to four different high schools to conduct focus groups, COVID-19-related barriers prevented us from carrying out these groups in three of these schools.

At Keene High School, we held three focus groups. The first group was composed of students who did not participate in CTE, with three to four students each coming from the tenth, eleventh, and twelfth grades. The second group was composed of a similar number of students from each grade, but this group consisted of students who chose to participate in CTE. Finally, the third group was comprised of ten ninth graders. Though ninth graders are not yet eligible to participate in CTE, this group consisted of students both who planned to participate in CTE and those who did not.

Students in all groups were first given a sheet asking for their name, their grade, their age, what middle school they attended, and what CTE program they had participated in. Granted we let the conversation guide the discussion and our questions for each group, for students enrolled in CTE, we asked the following questions:

1. What made you want to participate in CTE?
 - a. How did you hear about the opportunities at the CTE center?
2. What or who played the biggest role in your decision to enroll in CTE?
 - a. Who helped you to sign up and find the right class for you?
 - b. Alternatively, was there anyone who discouraged you from attending a career program?
3. Are there barriers you dealt with when signing up for CTE programs?
 - a. For example, are there any classes you have been unable to take because you signed up for a CTE course?
4. What classes did your counselors encourage you to take?
 - a. Do you tend to take honors or AP classes?
5. How do you think CTE programs should be advertised to students? What message should CTE centers send?
6. What are the most positive or impactful things you gained from your participation in CTE?
7. What are your plans following graduation? Do you plan on using your CTE education for your next endeavor after high school?

For students not enrolled in CTE, we asked the following questions:

1. Why did you choose to not participate in CTE?
 - a. Did class scheduling impact your decision to not take CTE courses?
 - b. Was there any other specific reason that discouraged you from signing up?
2. Overall, who or what most influenced your decision not to attend the CTE center?
3. What classes did your counselors encourage you to take?
 - a. Do you tend to take honors or AP classes?
4. Not everyone chooses to participate in CTE. Thinking about your experience, though, is there anything you wish you had known or learned about related to the CTE center before you made the decision not to attend?
5. Did college admissions and related classes (honors, AP, etc.) factor into your decision to not take CTE courses?
6. What are your plans following graduation?

For ninth graders, we asked the following questions:

1. Coming into Keene High School, how did you choose your classes?
2. What classes were recommended to you?
 - a. What level of classes was recommended? *We asked this question indirectly to students.*
3. What do you know about CTE?
 - a. How have you previously been exposed to CTE?
 - b. What did your guidance counselor tell you about CTE?
4. Do you want to take CTE classes in the future?
5. What do you think you want to do after high school?

4.3 CASE STUDIES EXAMINING CTE IN COMPARABLE STATES

In conjunction with our examination of New Hampshire CTE through background research and conversations with various shareholders in the state, we compared CTE programming and barriers to the programming and barriers facing other less populated or otherwise comparable states. We gathered information on these states both through documents provided on their websites relating to CTE and by interviewing CTE officials and directors. While each study varies, these case studies generally seek to achieve the following:

1. Understand CTE funding for each state
 - a. How much of CTE funding is provided by the federal government? How much of it is provided by the state and by local governments?
 - b. Have supplementary funding plans been implemented in recent years?
 - c. More generally, is funding adequate for CTE demand?
2. Understand the structure of CTE within each state.
 - a. Do states rely on CTE centers, or is CTE conducted within individual high schools?
 - b. Similarly, do they use the sending school model or another model for sending students to CTE centers?
 - c. How is transportation conducted in the state for CTE students?
 - d. What is the relationship between CTE and business?

- e. Broadly, do differing aspects of CTE in other states address barriers facing New Hampshire CTE?
3. Understand perceptions and awareness of CTE in each state
 - a. How do individual CTE centers market themselves? Has the state implemented any general CTE marketing campaigns?
 - b. How do students and parents generally find out about CTE programming?
 - c. Does stigma exist that may limit CTE participation?
4. Within each of these facets of CTE, understand the barriers to enrollment that arise and consider how these barriers compare to those facing New Hampshire
 - a. Are these states examining or implementing any solutions to overcome barriers to enrollment, particularly obstacles similar to those facing New Hampshire?
 - b. Outside of statewide initiatives, are any CTE centers addressing problems individually? Can these centers stand as an example for New Hampshire?

The states that we will examine are Vermont, Maine, Massachusetts, and South Dakota. The rationale for these four selections is as follows:

1. **Vermont** has a similar proportion of CTE participants relative to total high school students as compared to New Hampshire. What is more, the state has a similar structure in terms of CTE programming, even sharing some CTE centers. Despite being smaller with fewer urban centers, Vermont additionally has similar demographics to New Hampshire.²¹
2. **Maine** has similar numbers of CTE participants to New Hampshire. The state receives a comparable amount of federal funding and has a similarly population density.²²
3. **Massachusetts** has far more secondary CTE participants than New Hampshire. That said, many CTE directors recommended the examination of this state as an example for well-implemented and well-funded career and technical education.
4. **South Dakota** is removed from the northeastern region of the United States. With a population of around 800,000 spread out over a far greater total area than the population of New Hampshire, the state provides an interesting case study as to how a state implements CTE across a sparsely populated state.²³ What is more, it has around 30,000 CTE participants at the secondary level. That said, it receives less federal CTE funding than New Hampshire.²⁴

5 BARRIERS TO ENROLLMENT IN CTE

New Hampshire students interested in CTE might face barriers that limit enrollment in CTE programs. Understanding these impediments is crucial to address them and ensure all students have access to CTE. Barriers range from concrete impediments, such as the lack of schedule and calendar alignment between sending schools and CTE centers, to those that are less tangible, such as the apparent stigma that discourages some students from participating in CTE courses.

5.1 BARRIERS ARISING FROM CONSTRAINTS TO FUNDING

The experiences of CTE centers regarding funding vary by region because of differing property values community to community, varying community support of CTE programs, and differing levels of school district support reflected in budget allocations for CTE.

5.1.1 POOR BUILDING CONDITIONS

Many CTE center directors reported their buildings as being small or having outdated features. For example, one director reported her classrooms as lacking electric outlets and the capability to house the equipment needed for certain CTE courses.²⁵ State allocation of funding for capital projects, including large renovation and construction projects, allows CTE centers to renovate once every 30 years, providing an average of two centers with \$6 million to \$12 million each fiscal year.²⁶ Given the speed at which technology and industry needs progress, this system impedes the ability of CTE centers to properly educate and train students. As recommended by the Carsey School of Public Policy, one possible alternative model would be to allocate a set amount of money through a grant program, allowing schools to apply for smaller grants for updating facilities and equipment at more regular intervals.²⁷

5.1.2 GAPS IN TUITION PAYMENT

Annual tuition amounts range from \$3,100 in Rochester to \$7,300 in Berlin, with an average tuition amount of about \$5,100.²⁸ The enabling legislation in New Hampshire indicates the state will fund 75 percent of the tuition costs of sending-school students, while sending schools must pay for the remaining quarter. But insufficient funds constrain the ability of the state to reimburse host schools for the 75 percent it pledges. This gap in funding creates problems for both sending districts and host schools: sending districts receive supplemental bills for the balance not covered by the state.²⁹ Some sending schools cannot afford to pay tuition costs and cap enrollment in CTE programs, potentially creating an administrative barrier for students. Given that nearly 7,800 of 9,700 secondary CTE participants attended host schools, for which the state does not supplement tuition costs, host high schools assume “the bulk of the cost of running the CTE program with only being reimbursed about 20 percent for the added expenses” associated with sending school students.³⁰ The current system discourages students attending sending schools from participating in CTE while simultaneously forcing host schools to assume the bulk of the costs of CTE programs.

5.1.3 THE DEMAND FOR ADDITIONAL FUNDING EFFORTS

State and federal grant money is an important supplement to Perkins V funding and annual state appropriations. But at times, individual CTE instructors must seek out and apply for such grants according to their needs. Students enrolled in CTE reported their CTE teachers personally attempting to secure funding for new equipment or materials.³¹

Such support can also come from the local community and industry. CTE instructors may organize community fundraisers to procure more funding for their programs. For example, Keene High School horticulture students will sell bouquets of flowers they grew to raise funds. Students also reported local businesses and industry professionals donating equipment and money to their CTE programs.³² However, industry support varies widely program-to-program because it is mainly in the hands of instructors to organize industry and community outreach and ensure their students receive adequate industry exposure.

5.1.4 THE TEACHER SHORTAGE FACING NEW HAMPSHIRE CTE

Though this problem does not directly arise from funding, CTE center directors reported having trouble finding and hiring instructors. This problem partly results from CTE centers having to compete with community colleges for instructors. Secondary level CTE instructors must undergo a state licensing process not required for community college professors. Instructors at community colleges also have a lighter workload and less contact with students, with those at CTE centers facing longer hours and, in many cases, lower salaries, making employment as a high school CTE instructor less appealing for some.

In addition to competition with the community college system, CTE centers must compete with the industries in which potential instructors previously worked. For example, the salary of a plumber is higher than the salary of a plumbing instructor at a CTE center. CTE center directors must compensate CTE instructors for their experience: a chef with 40 years of experience hired at a CTE center will demand and deserves compensation for those years of real-world experience. CTE instructor pay grade must not only consider teaching experience and highest degree unlike that of core subject teachers. CTE center directors also reported a bus driver shortage.

5.2 BARRIERS ARISING FROM TRANSPORTATION

The host school and sending school model in New Hampshire engenders a significant enrollment barrier for a large portion of high school students in the state, particularly those who must travel to a regional CTE center each day. Transportation to regional CTE centers can range from 10 minutes to 45 minutes.³³ This system makes it easier and more convenient for students attending host high schools to enroll in CTE programs and, at minimum, contributes to the disproportionate amount of CTE enrollees, 71 percent, who attend host high schools, compared to those who attend sending schools—only 29 percent. Travel time serves as a barrier for students who attend sending schools, especially those far from their regional CTE center, and who must spend time traveling every day when they could otherwise be in class.

Additionally, some sending schools cannot afford the cost of providing transportation for their students enrolled in CTE programs, presenting an additional barrier to CTE enrollment. The daily cost of a school bus for transporting students to and from CTE centers is \$350.³⁴ Although the enabling legislation makes clear that the state will fund transportation costs, in 2020, the amount reimbursed for transportation costs was \$680,000, a far cry from the \$2.6 million reportedly spent by sending schools.³⁵ Dorothy O’Gara, director of the Nashua Technology Center, reported that one of the high schools that sends students to her center will not pay for student transportation. Students who want to enroll in a CTE program must provide their own transportation to the regional CTE center.³⁶ Though perhaps not a widespread problem, the example demonstrates the importance of school-provided and state-funded transportation to and from regional CTE centers.

5.3 BARRIERS ARISING FROM LACK OF CALENDAR AND SCHEDULE ALIGNMENT

The daily schedules and yearly calendars of sending schools are not required to align with those of host high schools and their attached CTE centers. CTE center directors reported that their sending schools can all have different start and end dates, holiday breaks, and professional development days. When schedules do not align, a sending school student may miss his CTE classes whenever his sending school has a day off. This issue impedes the success of sending school students and serves as another barrier to their participation in CTE. Regional regulations or state legislation mandating a maximum number of conflicting dates and alignment of start and end dates would be helpful for the coordination of CTE across high schools and districts.

Differing daily schedules also present a problem for sending school students. For example, a school could be on a block schedule with four class periods, each an hour and 50 minutes long; whereas a host high school and attached CTE center could have eight 50-minute periods per day. Different daily schedules between CTE centers and high schools increase the likelihood students interested in CTE will face scheduling conflicts with required academic classes. When a course offered at a CTE center conflicts with a class required to graduate, students must enroll in the required class and are consequently unable to participate in CTE. One CTE center director reported continued increases in the number of graduation requirements being the greatest barrier to participation in CTE for secondary students.³⁷ Furthermore, smaller high schools or those with less funding may offer fewer sections of these core academic classes, increasing the likelihood of scheduling conflicts for students enrolling in CTE courses.

High school students expressed their wish for fewer class requirements, saying they would enjoy school more if they had more time to choose classes of interest.³⁸ The difficulty of finding sufficient time in class schedules for graduation requirements and CTE courses may be a significant deterrent to a student otherwise interested in participating in CTE.

5.4 BARRIERS ARISING FROM PERCEPTIONS AND LACK OF AWARENESS

Information barriers limit participation in New Hampshire CTE. The director of the Milford Applied Technology Center, Vaso Partinoudi, said, “No one knows what we do,” describing how she frequently must explain CTE.³⁹ Parents, school administrators, and school counselors do not always understand CTE programming or the opportunities it offers. What is more, despite the focus of modern CTE programs on a wide variety of career paths, many still associate CTE with “vo-techs” and believe CTE to be limited to training in a trade and a path exclusively for students not pursuing a post-secondary education.⁴⁰ In reality, modern CTE programs involve career training in fields such as biotech, engineering, health services, and finance that can supplement the academic experience of all students regardless of post-secondary plans.

Given the influence that parents have over the educational decisions of their children, parents with outdated perceptions of CTE are in a particularly impactful position to discourage the enrollment of their children who may otherwise benefit from participation in CTE.⁴¹ Therefore, it is important that parents have accurate perceptions of CTE and the opportunities it provides if all students are to give CTE fair consideration, especially given that directors report word-of-mouth discussions between parents to be a crucial means for information spread.

The success of CTE programs at providing students with industry exposure and real-world experience partly depends on local business engagement and support. Industry involvement varies by program because it is primarily the responsibility of CTE instructors to engage industry input and experience. Work-based learning and real-world experiences are important to the CTE experience. While some students reported their instructors making great efforts to reach out to industry shareholders or having found job opportunities for them after graduation, others reported having no industry exposure.⁴² In addition to the efforts of CTE instructors, the willingness of industry professionals to support high school CTE programs is critical. Therefore, the perception of community members, particularly those who work in the industries served by CTE centers, is significant to the success of CTE programming.

5.4.1 MISPERCEPTIONS OF COUNSELORS AND ADMINISTRATORS

Beyond the perceptions of parents, those of district and high school administrators can have a great effect on the success of CTE in New Hampshire. Administrators, school boards, or superintendents who do not believe in or misunderstand the opportunities available at CTE centers are less likely to support CTE and may discourage student enrollment.⁴³ Some CTE center directors reported a communication gap between themselves and superintendents.⁴⁴

In most high schools, school counselors are responsible for recommending students for different academic tracks and helping students to enroll in courses according to their interests and abilities. Counselors are therefore in a position to inform or not inform students about opportunities in CTE and have pronounced power over student decisions to enroll in CTE courses. But CTE center directors have noted that counselors are not always aware of the opportunities available at CTE centers.⁴⁵

This lack of awareness partly stems from high turnover rates among high school administrators and counselors. Directors reported having to spend time and resources informing and reteaching school counselors and administrators about the courses and programs offered at their CTE centers. Unless counselors and administrators are knowledgeable about modern CTE programs, students may remain unaware of CTE and the opportunities it provides.⁴⁶

Looking beyond counselor perceptions, CTE courses are also often classified as elective classes, affecting student GPA less than an honors or Advanced Placement course. This can discourage students who are conscious about losing out on opportunities to increase their GPAs from enrolling in CTE courses.

Ninth graders expressed that they would only take a CTE course if they were planning on entering that industry in the future. This idea stems from the fact that many CTE programs require a two-year commitment. Several students not enrolled in CTE said that this amount of time discourages their enrollment in CTE.⁴⁷ In contrast, students enrolled in CTE programs reported that their participation helped them to discover their passion and the career they want to pursue. One student simply stated, “Now I know for sure that that is what I want to do.”⁴⁸

5.4.2 INEFFICIENCIES IN MARKETING AND RECRUITMENT OF STUDENTS

New Hampshire CTE centers utilize a variety of marketing methods to inform students of the opportunities afforded to students at their centers. All CTE center directors interviewed reported holding open houses during which prospective students and their parents can tour CTE centers, see classrooms and equipment, meet instructors, and learn generally about CTE programs. However, according to CTE center directors, these open houses typically attract visitors already interested in CTE.⁴⁹ Many centers also hold presentations for students at events like “elective fairs” or freshman orientation nights. Some hold summer camps for middle schoolers or enlist CTE students as ambassadors for their CTE center and respective program. Several also advertise in local newspapers. While all these methods of marketing are important for raising awareness of CTE programming, they are inefficient in their implementation. Notably, New Hampshire has not launched any statewide marketing campaigns that would ensure consistency regarding CTE awareness.

Many CTE center directors reported wishing they could utilize social media more as a means of advertising their programs. Similar to other means of marketing, efforts to utilize social media vary widely by center. Notably, Perkins V funding cannot be used for social media marketing. Many directors expressed uncertainty on how best to use social media platforms as a marketing tool and their need for more informed guidance in this regard.⁵⁰ That said, some centers are actively seeking to improve social media outreach. For example, Hartford Area Career and Technology Center reported having an employee in charge of Center outreach, while Portsmouth Career and Technical Center is currently looking to hire someone for this role.⁵¹ Other centers are finding creative ways to use social media platforms to share the activities of students or upcoming events. For example, centers might publish YouTube videos featuring students working in the auto mechanics and carpentry shops or Facebook posts to share student work with parents and community members.⁵² Despite the challenge presented by funding social media marketing, the expansion of social media marketing, both by individual CTE centers and by the state, will be critical to ensuring prospective students and communities understand the components of modern CTE. The gap in social media marketing presents a significant barrier to participation for students otherwise unaware of CTE.

Consequently, students reported feeling as though they only have a basic understanding of the opportunities available at their CTE center. The ninth graders discussed how they toured the high school and attached CTE center as eighth graders and received an overview of CTE.⁵³ However, the information did not seem to be enough to spark their interests enough to enroll in a CTE program. Several wished they were able to sample or “demo” the programs and learn more about the teachers. Teacher-quality was commonly expressed by students to be very important in their decisions on whether to sign up for specific classes.⁵⁴

Many students enrolled in CTE shared that they had a sibling who had participated in CTE and who encouraged them to do so as well. Several students also indicated they knew older students who participated in CTE and who spoke positively about their experiences, inspiring them to enroll.⁵⁵ These CTE enrollees also shared that they were never informed of the opportunities for college credit or work-based learning prior to signing up for CTE courses. They discussed how many students at their high school are not aware of the availability of scholarships and grant money for post-secondary education in CTE programs. Instead, students must seek out such information.

6 CASE STUDIES OF CTE IN COMPARABLE STATES

The following case studies aim to examine how other states deal with the barriers facing CTE enrollment in New Hampshire. Whereas some of these solutions arise from differences in structure or funding, others come about from the concerted efforts of state administrations or CTE centers, providing insight into how New Hampshire can overcome barriers to participation.

6.1 VERMONT

Bordering New Hampshire to the west, Vermont exhibits similarities to New Hampshire regarding the structure and execution of CTE. Vermont has a decentralized system of CTE administration, with individual centers differing in their structure, the academic requirements of sending schools, and their governance. This system can present barriers to participation, but given their high level of autonomy, some centers have implemented unique solutions to these obstacles.

6.1.1 FUNDING

In order to encourage the attendance of sending school students, “CTE centers serving students from a school district receive 87 percent of the base amount from the students’ home districts’ per-pupil state funding allocation.” In addition, the state supplements CTE centers with “a grant equal to 35 percent of the base amount per full-time student for that year.”⁵⁶ Unlike in New Hampshire, where funding gaps can lead sending schools to cap CTE enrollment, Vermont reimburses CTE centers for the additional costs incurred by hosting sending school students. Thus, adequate funding allows Vermont to overcome this enrollment barrier. Additionally, the Agency of Education in Vermont provides an additional \$300,000 in grants each year in the name of “program innovation” for regional CTE centers, while the state Legislature provides \$500,000 annually in grants for program equipment replacement.⁵⁷ Unlike the equipment replacement system in place in New Hampshire that encourages large, infrequent renovations, the grant system in place in Vermont encourages frequent, small renovations and replacement of equipment.

In terms of fund allocation, CTE centers currently receive funding based on the average number of full-time students at the center across six semesters.⁵⁸ This system intends to allow CTE centers and sending districts to plan their budgets while accounting for variations in students over time. At the same time, according to the state CTE administration, because of the overall declining student population in Vermont, principals and superintendents sometimes feel that it is too expensive to send students to CTE centers, with schools losing out on funding by sending students to CTE centers.⁵⁹ Therefore, tension arises between these parties and CTE centers, both of which need students filling their seats in order to receive full funding. That said, the state is in the process of examining different funding models based on other criteria outside of the student population. While COVID-19 halted its study of alternate funding models, the hope remains in the state CTE administration that in the next few years this study will resume and will bring a new system that provides greater stability to CTE funding.⁶⁰ Given that New Hampshire also uses a student-based funding model, the study of alternative models of funding could lead to more consistent CTE funding.

6.1.2 STRUCTURE

In terms of enrollment, Vermont students are typically not eligible to begin CTE programming until they are in the tenth or eleventh grades, depending on their regional center.⁶¹ Nonetheless, many centers offer short-term “exploratory programs” to ninth graders that introduce them to CTE.⁶² Once enrolled, to complete a CTE program, Vermont students must achieve competency in 90 percent of the core competencies instituted by the Vermont State Board of Education. Outside of their CTE coursework, students at most centers participate in athletics and other extracurricular activities through their regional sending schools.⁶³

But beyond these similarities, CTE centers in Vermont greatly vary in terms of structure. For example, the conditions for graduations in the state are not consistent across sending schools.⁶⁴ Therefore, students from different sending schools will receive different credits for taking the same course at CTE centers. Three students from three different sending schools in the same class at their regional CTE center can all earn different credits toward their graduation. Such a disconnect stems from the decentralization that Vermont education strives for, with centers having different agreements with different sending schools.⁶⁵ But this incongruity can be both confusing and unclear to students interested in pursuing CTE, presenting a clear barrier to participation.

This variability extends to the delivery model for CTE in Vermont. Whereas five centers are “full-day” centers, with students attending centers as they would their local high school to take both their academic and CTE courses, the others are “half-day” centers, where students travel to their regional CTE center during the school day to take solely their CTE courses there.⁶⁶ According to the state CTE administration, these different models may lead to inconsistent outcomes among students, with full-day centers having more time with students and having the opportunity for greater continuity between the academic and CTE courses offered.⁶⁷

Regarding transportation, in the 1970s, the state implemented CTE programming with the travel of students in mind to ensure that, for the most part, students do not have to travel more than 30 minutes to a center.⁶⁸ Today, sending school districts receive reimbursement for transportation costs for students, with the state CTE administration not reporting any problems with the funding of this system. Adequate funding for transportation in Vermont already solves the barrier facing some New Hampshire students, whose sending schools do not fund transportation to CTE centers. But some Vermont CTE centers have gone further by developing their own means of transportation for their students, removing sending schools entirely from the transportation dilemma. Additionally, one school, Canaan Memorial High School, presents an interesting solution to its unique transportation barrier. Canaan is relatively far away from any other CTE center. Therefore, despite a state mandate ordering that CTE centers exist outside of host high schools, Canaan Memorial High School stands as an exception and can host its own CTE center.⁶⁹ While a compelling case, Canaan is an exception, with the creation of CTE centers to serve individual remote high schools in New Hampshire not being a realistic solution given the present gaps in state funding.

Finally, regarding partnerships with business, in 2019, the Vermont Agency of Education released a plan to better engage with employers and state industry to improve CTE programming and align it with industry needs.⁷⁰ Thus, despite the autonomy of CTE centers, Vermont actively seeks to improve the quality of its CTE statewide.

6.1.3 PERCEPTIONS AND AWARENESS

According to the Vermont CTE administration, perceptions of CTE vary regionally. Those in rural areas generally know someone who attended the regional CTE center and hold positive perceptions of CTE, emphasizing daily, casual interactions between community members also present in New Hampshire as being drivers of CTE perceptions. Further, these centers are often valuable assets to the surrounding community, hosting evening classes for adults.⁷¹ Stigma is not as prevalent in rural areas as in urban areas, where some hold the view that students are either “tech center kids” or not.⁷² Aware of the impact that perceptions and stigma can have on CTE enrollment, Vermont has directed all CTE centers to survey students and parents using the same baseline questions to better understand perceptions, although this process has not yet been completed.⁷³ Such perceptions are likely similar to those in New Hampshire, given the closeness of the states and the relatively similar need fulfilled by CTE in both states. That said, a potential avenue for further research of New Hampshire CTE perceptions is the examination of statewide perceptions through surveys, building on the holistic and anecdotal perspective presented in this report.

Given these regional differences in perceptions in Vermont, the state is also planning a new statewide informational campaign to attract students to CTE, funded by “Governor’s Emergency Education Relief” (GEER) Funds. The CTE administration and governor are considering how to target both students and adults through this campaign.⁷⁴ The efforts of individual centers may provide a hint.

Some CTE centers produce advertisements broadcasted on local television stations that may target parents and others thought to consume traditional media. At the same time, while all centers have a website describing their center and programs, some centers have focused on cultivating a social media presence more likely to reach both students and parents. For example, Central Vermont Career Center hosted a YouTube CTE awareness campaign entitled “The Value of CTE.”⁷⁵

6.1.4 OTHER BARRIERS TO PARTICIPATION

Beyond other barriers discussed, the state CTE administration discussed the problem of counselors acting as “gatekeepers” to CTE.⁷⁶ Similar to New Hampshire, high school counselors are in a position of influence regarding the choice of students to enroll in CTE. Because of stigma surrounding CTE, counselors purportedly may discourage students they see as bright from enrolling in CTE while actively encouraging students who have traditionally struggled in school to apply.⁷⁷ This issue contrasts with New Hampshire, where directors reported counselors as being ignorant of CTE opportunities. That said, such biases likely also persist in New Hampshire. The Vermont CTE administration believes that the direct reception of pertinent information regarding CTE by students and parents may help to overcome this barrier stigmatizing students against CTE, with counselor guidance becoming a subsidiary aspect of the student decision-making process to enroll in CTE.

The current CTE application process in Vermont also presents a barrier to enrollment. For the most part, students and parents fill out a paper application. Such a process isolates CTE centers from offering information and advice to applicants. Instead, if students or parents hear something negative about CTE or otherwise hold negative perceptions of CTE, they may simply never turn in their application.⁷⁸ The transition of a few centers to an online application has highlighted how this issue hurts CTE enrollment. With online applications, students can complete the application themselves, with parents and counselors then approving it. In this system, if one party does not approve of the application or a student otherwise opens an application without turning it in, CTE centers are able to contact relevant parties and open a dialogue regarding the choice of a student to enroll in CTE. Stafford Technical Center and Central Vermont Career Center have both transitioned to online applications: both centers in turn have had record numbers of enrollees, even amid the drop in enrollment of other centers during the COVID-19 pandemic.⁷⁹

Finally, the state CTE administration described current program offerings as potentially discouraging students from enrolling in CTE. Students interested in CTE may not enroll because their regional center does not offer the program that intrigues them. For example, only one center currently hosts an aviation technology program.⁸⁰ This barrier partly stems from the high costs associated with offering qualified instructors a high enough salary to leave their current industries to teach, similar to the hiring barrier facing New Hampshire. Additionally, some programs are concentrated regionally. For example, centers with electrical technology programs primarily occupy the middle of the state.⁸¹ Further analysis of student program interests regionally in conjunction with industry needs may help to optimize program offerings in both states.

6.1.5 POSSIBLE APPLICABLE SOLUTIONS

To address the current lack of funding for CTE center renovation and large equipment replacement due to the current funding structure that provides substantial but periodic funding, New Hampshire could adopt a grant system similar to the Vermont system. Without changing the total amount of funding available for renovation, this new funding structure would encourage frequent, small instances

of equipment replacement, enabling New Hampshire CTE centers to keep pace with industry demands and keep CTE programming relevant to students.

Given the success that the online application process has had for the Vermont centers who have utilized this system, another possible solution is the adoption of statewide online applications. As described previously, online applications place power in student hands and pave the way for dialogue between the different players who influence students in their educational decisions, including CTE centers themselves. An online application process can overcome barriers that exist in the current application system of New Hampshire, potentially boosting enrollment in New Hampshire CTE.

A focus on adequate funding of transportation methods for sending schools may partly counteract the transportation barrier working against New Hampshire CTE participants, as seen in Vermont. Additionally, New Hampshire CTE centers may consider the creation of their own means of transportation, rather than relying on sending schools.

Finally, another possible solution for New Hampshire is the use of GEER funds for advertising CTE or hosting a statewide advertising campaign. To target both parents and adults, the state could utilize a range of social media platforms, including Facebook, YouTube, Twitter, and Instagram. With these platforms, New Hampshire could provide a space to display CTE in action, raising statewide awareness of CTE and its benefits and value.

6.2 MAINE

With a dispersed population, Maine has 27 CTE schools throughout the state. Governor Janet Mills acknowledges the value of and advocates for CTE in the state, a sharp change of tone for a state that has not heavily invested in CTE in over two decades.

6.2.1 FUNDING

Maine received \$6,247,167 in Perkins V funding in 2020 to serve the 8,204 secondary students enrolled in CTE programs during the 2019-2020 school year.⁸² Despite 2,000 fewer CTE students than in New Hampshire, Maine receives slightly more federal funding for its programs. Despite this federal support, the state has not heavily invested in the improvement and expansion of its CTE programming since 1998.⁸³

But throughout 2021, Governor Janet Mills advanced a \$20 million effort to improve CTE programs as part of the larger Maine Jobs and Recovery Plan.⁸⁴ The governor cites her motivation for this investment as stemming from her confidence that it will “[help] strengthen Maine’s workforce and [create] good-paying jobs in the state.”⁸⁵ This positive rhetoric is similar to that of Governor Baker in Massachusetts, discussed in Section 6.3, demonstrating that positive rhetoric from a highly visible elected official may be beneficial to improving perceptions and awareness of CTE.

Center to center, the number of students enrolled determines funding. Despite centers offering consistent programming, smaller centers do not receive as much funding as their larger peers at a federal level or local level, as these smaller centers serve fewer students and often are part of communities with a smaller tax base.⁸⁶ Critically, the state no longer funds equipment costs for centers. Given that equipment costs are consistent across centers, smaller centers must devote more of their funds to cover equipment costs, presenting one funding barrier for these smaller centers.⁸⁷ Despite

these limitations, one CTE director of a smaller center noted the consistent lobbying efforts of different policymakers in the state to improve overall CTE funding and felt that the state hears the needs of CTE centers.⁸⁸

6.2.2 STRUCTURE

Maine follows a sending school model similar to the system utilized by New Hampshire, but only a third of centers are directly linked to a high school. The rest stand apart from any high school, with all students at these centers having to travel to the center to take CTE courses.⁸⁹ One CTE director notes that this system discourages continuity between academic and technical learning.⁹⁰ Notably, the state also utilizes a common calendar system for each region. As described by New Hampshire CTE directors, host high schools and their associated sending schools may experience discontinuity in their holiday or professional development schedules. Sending school students therefore may miss many more days of CTE instruction than would be necessary if these schedules aligned. Maine thus stipulates that “each CTE center/region and all the schools it serves are to adhere to a regional school calendar,” with “no more than five instructional days [being] dissimilar” between host and sending school calendars.⁹¹

In 2017, the state launched a pilot program to introduce CTE to middle schoolers in the state. According to the Maine Department of Education, “the pilots are intended to provide CTE experiences for students at the middle school level.”⁹² Such a program boosts awareness of CTE, ensuring that all students have exposure. That said, the program has been inconsistently adopted throughout the state.⁹³ Whereas some centers have hosted after-school programs or other small-scale programs for middle schoolers, others conduct programs in which middle schoolers come to the center during the school day for a longer duration. For example, St. John’s Valley Technology Center divided all eighth graders in the region into four groups, with each group participating in CTE courses and programming in the morning for a quarter of the school year. In this way, all eighth graders were guaranteed substantial exposure to CTE, although the program, which the region later adopted in full, does not receive reimbursement from the state.⁹⁴

With its widely dispersed population, Maine thrives in its centralized, multi-tiered administrative structure. Beyond Program Advisory Committees similar to those utilized in New Hampshire and Technical Update Groups convene one to two times a year. These groups consist of CTE teachers within similar programming areas and are chaired by a CTE center director. They meet to “stay current with the requirements of the industry and to work together to constantly revise and improve the instruction provided to CTE students in the given program area.”⁹⁵ Most frequently, Center Advisory Committees meet six times each year. These groups directly advise the director of each CTE Center, with these groups including the relevant superintendent, a member of the associated school board, and sometimes other shareholders from private schools in the district.⁹⁶ Collectively, this host of advisors and boards combining different shareholders in Maine CTE creates a net of accountability ensuring CTE continuity among the dispersed population of the state.

6.2.3 PERCEPTIONS AND AWARENESS

In 2017, advocacy organization Educate Maine sponsored the “Career Technical Education (CTE): Increasing Student Success by 100% for Maine” policy brief in conjunction with the Maine Chamber of Commerce. Regarding perceptions, CTE educators stated that they believed “parents resist allowing their children to take CTE courses,” suggesting stigma among parents.⁹⁷ Maine CTE educators also

point to the misperceptions of guidance counselors as compounding this barrier to CTE participation, similar to New Hampshire. Many counselors do not have CTE experience and “share the misperceptions that CTE is for students who can’t make it in college or that students don’t have room in their schedule.”⁹⁸ The beliefs of one CTE director are consistent with this broader view of stigma. He stated that stigma persisted in his region not in terms of the opportunities that CTE offers but in terms of the students who participate. He expressed that a belief persists in his region that CTE is meant for less academically successful students rather than all students. Additionally, with CTE awareness currently being very dependent on word-of-mouth discussion between community members, this director worried that any negative perceptions may be magnified.⁹⁹

In terms of marketing, this same director believed that social media marketing and the involvement of CTE students in projects in their community is crucial to exposing communities to CTE and what it offers. Thus, he consistently communicates with local businesses to determine projects that CTE students can complete.¹⁰⁰ Additionally, this director uses Facebook and YouTube heavily to illustrate what is happening at his center.¹⁰¹ Such a model may be useful to centers across New Hampshire, especially those rurally located, to increase CTE awareness.

At a state level, the rhetoric of Governor Mills as well as the pilot program for middle schoolers are crucial to positively shifting perceptions of CTE and exposing parents and students alike to the benefits of CTE. To further such exposure, the Educate Maine study recommends “invit[ing] more parents with young children into CTE [centers] to provide exposure and create positive word-of-mouth.”¹⁰² In other words, those studying perceptions of CTE in Maine believe that further emphasis and explanation of CTE to families of younger students can perhaps change misperceptions while boosting awareness of CTE before students are in high school. The targeting of younger students could be foster increased CTE awareness in New Hampshire.

6.2.4 OTHER BARRIERS TO PARTICIPATION

Similar to New Hampshire, Maine CTE suffers from gaps in course offerings between home high schools and CTE centers, thereby discouraging students from taking CTE courses. An example of this may be “a Maine high school that offers a class on house design, using AutoCAD technology, divert[ing] students from the local CTE architectural designing and engineering class,” with this high school program causing “a duplication of costs for equipment already available for students at the CTE.”¹⁰³ Additionally, the class offered by the high school does not necessarily meet industry standards as does a CTE class. Beyond the scheduling efforts already discussed, more coordination is necessary between the high schools of each region to create master schedules that give the needs and success of CTE students their due consideration as well as ensuring that students can take both Advanced Placement and CTE courses. Such a problem—and solution—is relevant to New Hampshire, where students are not usually able to take both AP and CTE courses and where calendar issues persist. Maine has recognized and is beginning to address overlap between CTE and academics, although the state still has work to be done to resolve this problem.

6.2.5 POSSIBLE APPLICABLE SOLUTIONS

In terms of calendar and schedule alignment, New Hampshire currently suffers from the disconnect between sending and host school calendars and schedules. At a state level, the implementation of a regional calendar program, allowing only five dissimilar instruction days, like what currently exists in Maine, could decrease time missed at CTE centers.

Additionally, New Hampshire could implement a middle school pilot program similar to the program implemented by Maine in 2017. Rather than having centers each implement their own versions of the pilot, which potentially inhibited program effectiveness in Maine, centers can implement the same program. Given that shareholders may be hesitant to introduce a program that would drastically change educational programming for middle schoolers, a less intrusive version of this pilot may be beneficial. For example, eighth graders from different middle schools could travel to their regional CTE center each day after school for two to four weeks, or once a month, learning about CTE pathways and having workshops in which they were exposed to CTE classes. Such a program would be less disruptive to scheduling and easier to implement than a more comprehensive program like the one hosted by St. John's Valley Technology Center. This program would circumvent guidance counselors or other school figures who may be unaware of the range of CTE options, directly exposing all students to CTE. Additionally, as a statewide program, it would demonstrate that CTE is for wide and diverse pool of students.

Regarding social media, the system for marketing CTE through social media platforms utilized by St. John's Valley Technology Center could also stand as a model for CTE centers in New Hampshire, given that some directors expressed their uncertainty regarding how they might effectively use social media to market their centers. The director of the center emphasized that social media is most successful when targeting both parents and students. Therefore, the center uses both YouTube and Facebook. This example reinforces that New Hampshire CTE centers can utilize these platforms as well as Instagram and Twitter to target parents and students. In terms of content, teachers at St. John's Valley Technology Center photograph and video their classes throughout the day; the center staff regularly post this experiential class content. The director and his colleagues in turn share and repost such content, creating a web of media that is much more likely to be seen by the community.¹⁰⁴ In New Hampshire, this strategy for social media marketing may help to spread awareness of CTE to potential students and their parents while informing communities of the daily activities at their local CTE centers.

The proactive approach for building industry relationships taken by the remote St. John's Valley Technology Center could stand as an example for rural New Hampshire centers that reported difficulty finding industry partners to ensure student access to internships and real-world workforce education. By reaching out to local businesses and finding informal projects in which CTE students may participate, rural centers are able to provide work experience to their students. In time, these informal opportunities may also evolve into more official partnerships with local businesses.

6.3 MASSACHUSETTS

With a governor who actively advances CTE through supplementary funding and a state CTE administration who is committed to identifying and overcoming barriers to CTE, Massachusetts is an example of strong CTE implementation and support. It raises considerations regarding the structure of New Hampshire and how the state may improve awareness of CTE.

6.3.1 FUNDING

Massachusetts received \$20,908,948 in Perkins V funding in 2020. During that school year, it had a total public high school enrollment of 251,383, with 25,457 high school CTE concentrators and 62,349

total secondary CTE enrollment, as compared to the \$6 million New Hampshire receives in Perkins V funding for its 10,000 enrollees.¹⁰⁵ The overall funding models are similar between the states.

But since 2015, the state administration in Massachusetts has significantly supplemented funding. Governor Charlie Baker created the Skills Capital Grant Program as part of his larger Career Technical Initiative (CTI). The program has granted more than \$92 million to CTE centers to address program equipment and infrastructure needs.¹⁰⁶ The office of the governor views CTE as critical to addressing the gap in skilled workers facing the state. The Office for Career/Vocational Technical Education in Massachusetts reported that while this extra funding is useful to ensure program quality, the successful structure of CTE utilized by Massachusetts was already in place.¹⁰⁷

6.3.2 STRUCTURE

Unlike New Hampshire, where CTE centers are typically attached to a host high school with students from sending schools traveling to the center each day, Massachusetts utilizes CTE schools. All the CTE students from a region attend this school for both their academic and CTE classes. This system eliminates travel during the day and gives CTE schools greater flexibility to create curriculum that connects academic and CTE coursework.¹⁰⁸ The Office for CTE also cited that this model encourages students who may be hesitant to split their high school experience among different schools, instead having a complete and continuous experience in one location.¹⁰⁹ Additionally, these centers are often used by surrounding communities in other capacities. For example, they may host evening workforce classes for adults.¹¹⁰ They are therefore seen as an asset that communities can utilize outside of the programming offered to high school students. CTE centers are independently governed, having their own boards. They therefore have the same political heft as another school district and more influence in decisions that may affect them.¹¹¹

In terms of the relationship between CTE and business in the state, the Massachusetts Workforce Skills Cabinet (WSC) acts as a kind of overseer that directs broad CTE planning and ties together CTE programs and businesses, similar to regional CTE boards in New Hampshire. But Massachusetts stands out in terms of the extensive ties between CTE and business. According to a study conducted by the Dukakis Center for Urban and Regional Policy at Northeastern University, 55 percent of Massachusetts businesses surveyed have direct ties to CTE centers, through advisory boards or otherwise. Additionally, 90 percent see a need to increase the number of CTE graduates.¹¹² Given that New Hampshire offers similar programs, New Hampshire employers may also desire an increase in the number of CTE graduates. A consideration for future research is gauging the holistic opinion of New Hampshire industry on CTE.

6.3.3 PERCEPTIONS AND AWARENESS

Participants in CTE in Massachusetts are generally satisfied with their experiences.¹¹³ The positive outlook on CTE in the state may partly stem from positive rhetoric coming from the office of the governor. Executive rhetoric sets Massachusetts apart, with Governor Baker overtly pushing for CTE expansion. In New Hampshire, positive rhetoric from any highly visible elected official may be beneficial to augmenting statewide perceptions of CTE.

Regarding the opinions on CTE held by different groups in Massachusetts, parents overwhelmingly hold a favorable opinion of CTE, according to the Dukakis Center.¹¹⁴ Current students and CTE graduates also are satisfied with their experiences. In terms of learning about CTE, parents cite other parents, middle school counselors, or materials sent by either the school or the district as their primary sources of awareness, as seen in Figure 3.3.3.¹¹⁵ On the other hand, administrators referenced local businesses and Chambers of Commerce as the most effective CTE marketing methods, as displayed in Figure 3.3.4. With parents relying on more informal informational channels and administrators looking to the formal marketing of CTE as the primary driver of enrollment, a disconnect may exist between the views and beliefs of these two groups in Massachusetts. Given that parents strongly influence the educational decisions of their children, effective targeting of CTE marketing towards parents is important. As previously described, these informal channels can be accessed through social media marketing of CTE.

In Massachusetts, administrators often refer to the stigma surrounding CTE as preventing greater student participation.¹¹⁶ The Office of CTE believes that stigma may exist regionally, with some communities viewing CTE depending on which students attend the CTE school in their region and the quality of other regional schools.¹¹⁷ Otherwise, the CTE office is actively working to increase CTE accessibility. Currently, it is creating an online tool that will allow parents to select their region and then receive a clear explanation of the different educational pathways available to their children.¹¹⁸

The state CTE administration also believes that awareness varies by region and by demographic. It is conducting a campaign to gain a better understanding of parent awareness of CTE. It has ideas for a parent hotline or the language translation of CTE marketing documents to potentially address disparities in awareness among parents.¹¹⁹ The administration is particularly interested in engaging with families where parents do not speak English or speak limited English, many of whom, according to research, believe CTE is for students not planning to attend college.¹²⁰ With online tools such as its

FIGURE 6.3.3.1

Parent Channels for CTE Awareness

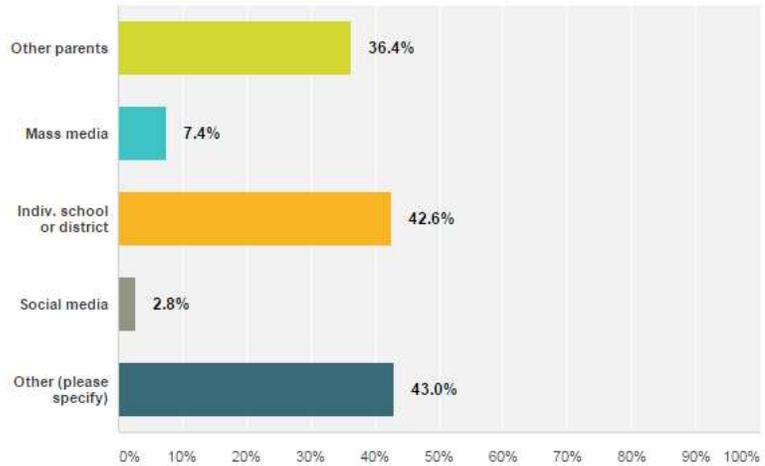
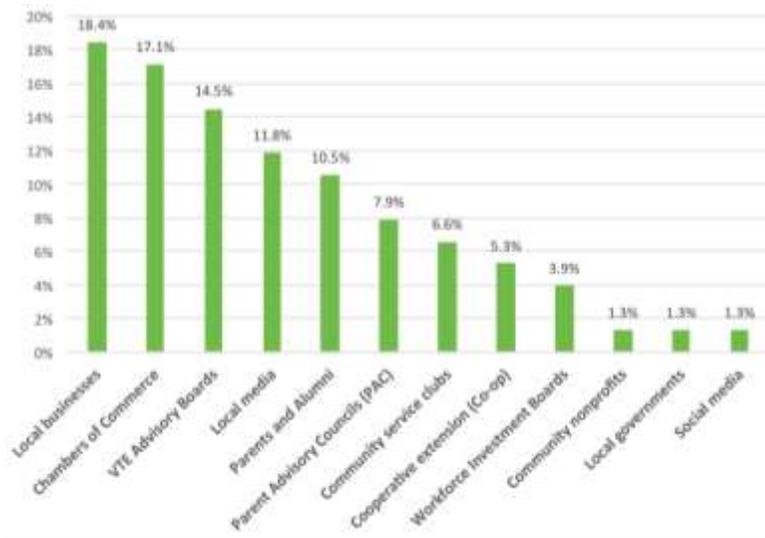


FIGURE 6.3.3.2

Administrator Views on the Most Useful CTE Marketing Channels



school finder, the state administration hopes to demonstrate to these families and others who might lack awareness of CTE that it is for all students.¹²¹

6.3.4 POSSIBLE APPLICABLE SOLUTIONS

An online tool to explain educational pathways, similar to that which the Massachusetts Office of CTE is developing, could boost CTE awareness in New Hampshire. By presenting all the educational options in a region, this tool could boost the CTE awareness of parents while helping families to understand what CTE programs are offered in their area and what the high school experience of their child will be like if they enroll in CTE. Additionally, this tool presents CTE as an option equal to any other, giving parents the ability to learn about CTE in an environment free from the potential bias of other parents or counselors.

Closer contact and more dialogue between counselors and their regional CTE center and director might engender more counselor awareness of the opportunities within CTE programs and address any misperceptions a counselor may have. This change in communication could enthuse counselors into becoming advocates for CTE, or at least neutral parties who spread CTE awareness to students, rather than potential detractors.

Unlike Massachusetts, New Hampshire has no available data on how CTE perceptions may vary across demographic groups. Conducting research into possible demographic differences in assessment as well as in enrollment patterns may help to determine whether all sectors of the population have equal awareness of CTE and may otherwise boost CTE participation among groups that lack awareness.

6.4 SOUTH DAKOTA

South Dakota has a thriving and well-supported CTE system that serves the sparse population of the state. The state has an economy that relies heavily on the careers supported by its CTE centers and a non-centralized CTE system in which most high schools have their own CTE centers. Despite the dispersion of its population, South Dakota provides students with a vast CTE network.

6.4.1 FUNDING

South Dakota received \$5,247,487 in Perkins V funding in 2020. During that school year, it had a total public high school enrollment of 37,005, with 15,910 high school CTE concentrators and 24,117 total secondary CTE enrollment.¹²² Despite receiving one of the lowest state allocations of Perkins V funding in the country,¹²³ an impressive 65 percent of South Dakota high school students enrolled in CTE in the 2020-2021 school year.

The South Dakota Department of Education (DOE) offers competitive grants through Perkins Reserve grants and state-funded Workforce Education Grants to foster the improvement of CTE programs.¹²⁴ To offset costs, the DOE makes concerted efforts to provide extensive support and guidance to CTE centers, educators, and students.¹²⁵ The DOE facilitates data, reporting, and application systems and offers frameworks and robust professional development opportunities. The Division of Career and Technical Education provides technical assistance to school districts for all local CTE-related efforts through Regional Career Development Specialists. The DOE provides South Dakota students with a platform called SDMyLife for helping students understand how their

interests, skills, and knowledge relate to academic and career opportunities.¹²⁶ New Hampshire currently lacks resources to support CTE instructors and administrators in providing career-learning tools for students.

6.4.2 STRUCTURE

Unlike New Hampshire, the vast majority South Dakota high schools have their own on-campus CTE centers.¹²⁷ Over 700 CTE programs are offered in 151 public, private, and tribal school districts across sixteen categorized Career Clusters.¹²⁸ Because most school districts have their own CTE centers, South Dakota students do not face the transportation and scheduling barriers facing New Hampshire students. All South Dakota students have access to CTE, including in-person courses at their high school, online courses through the South Dakota Virtual School, and dual-credit courses at state technical institutes.¹²⁹ Additionally, a couple of rural school districts in particularly sparsely populated areas that are unable to support their own CTE center unite to support ‘consortiums,’ sharing costs to provide CTE options to students.¹³⁰

Building relationships with industry actors and coordinating work opportunities for students is difficult for South Dakota CTE centers in rural areas with few local businesses. CTE centers in rural northern New Hampshire face similar issues. In addition to opportunities to obtain college credit and industry-recognized credentials through CTE courses, the CTE for Core Content Credit program provides students the opportunity to earn academic credit by completing approved CTE courses that address the pertinent standards within a curriculum. Approval to offer credit must be obtained through an application process with the DOE.¹³¹

South Dakota CTE centers, like centers in New Hampshire, struggle to recruit and hire CTE teachers. In South Dakota, incoming teachers are frequently deterred by the prospect of having to move into and live in a small, rural community. Others reject the relatively low salaries of CTE instructors. Because of the teacher shortage, CTE administrators make concerted efforts to seek out teachers. CTE centers have resorted to attempting to recruit current high school CTE students to become CTE instructors themselves after graduation.

6.4.3 PERCEPTIONS AND AWARENESS

South Dakota CTE efforts are well-supported by communities and governmental institutions. Similar to New Hampshire, the economy of South Dakota relies heavily on careers that are commonly taught in CTE programs. Also similar to New Hampshire, South Dakota currently struggles with a skilled labor shortage. Communities generally recognize CTE as filling this labor gap and support CTE as well as advocate for its advancement.¹³² The high proportion of South Dakota secondary students who opt into taking CTE classes indicates the success and appeal of CTE programs available. However, outdated perceptions of CTE do still exist in South Dakota. Students in the state have reported their parents discouraging them from participation in CTE.¹³³

6.4.4 POSSIBLE APPLICABLE SOLUTIONS

Remote access to CTE courses is particularly important to rural, sparsely populated states like South Dakota and New Hampshire. The establishment of more robust online CTE course options is one solution that accommodates more rural areas that lack nearby CTE centers where students must travel long distances to access the regional CTE center available to them. That said, the hands-on learning

experience is the most important and attractive aspect of CTE in many cases. This experience is difficult to provide when teaching remotely.

A program similar to the CTE for Core Content Credit program could address scheduling barriers in New Hampshire. If sending school students could receive academic credit for some of their CTE courses, they may face less difficulty in scheduling their core classes and CTE classes. This solution would be particularly helpful to students at smaller schools with less schedule flexibility.

7 ADDITIONAL SOLUTIONS

The following potential solutions are gathered from interviews with CTE center directors and from an analysis of the web presence of New Hampshire CTE centers.

7.1 SOLVING SCHEDULING AND COMMUNICATION INCONSISTENCIES

As noted, sending school students may struggle to balance their schedule between core academic classes and CTE courses, given the differing schedules between centers and sending schools and required travel times. Allowing sending school students to take core academic classes that their CTE classes conflicts with at the attached host high school may act as a solution to this barrier, although tuition concerns may be an issue. Another factor that may decrease barriers to CTE enrollment is to allow CTE centers themselves to offer academic courses, similar to the CTE school model adopted in Massachusetts, although with noted inconsistent funding and spacing issues, this solution may be difficult to implement across all CTE centers.

At a high school where many of the available CTE programs involve two-year commitments, students claimed they would be more interested in enrolling in CTE if they were allowed to choose whether they want to continue taking the subject following their first year in the program. They also reported wishing more semester-long CTE courses were offered, such as elective courses or courses not worth a full, year-long credit.¹³⁴ Making such classes more available would make it easier for students to fit both CTE courses and core academic requirements into their class schedules.

CTE center directors noted inconsistency in the rules of high schools regarding the sharing of contact information of parents and students.¹³⁵ These directors reported having trouble marketing their programs without access to such information.¹³⁶ In some cases, high school administration had to act as a middleman for providing to students and parents CTE center communication, presenting a potential barrier to awareness. Broadly, CTE centers need more direct access to potential students and their families to be able to directly market themselves to these parties.

Students stated that elective fairs and information sessions hosted by schools or CTE centers could be more effective. High school students generally enroll in CTE programs because they prefer and are excited by the hands-on, work-based aspects of CTE. They recommended CTE centers hold fairs where the work of CTE students is put on display or where prospective students can experience part of a real CTE program instead of having booths and basic display boards for CTE courses at an elective fair, as had been the experience of these students. Students were also passionate about the effectiveness of CTE student advocacy over adult-led recruitment of prospective students, citing the relatability between peers as being more enticing and trustworthy.¹³⁷ Furthermore, students shared great enthusiasm for the use of student creations in CTE as effectively marketing CTE. For example,

the production of a bench for the school courtyard by the woodworking classes or the collaboration of the culinary and small business administration classes on the creation of a school food truck is an effective way to display to other students what they can do if they enroll in CTE. The idea of CTE students giving back to their schools noticeably struck a chord in them. The CTE students felt as though their full potential was not recognized by their school and administrators. CTE enrollees emphasized the importance of creating and doing things in which they can take pride.¹³⁸

When asked, high school students said the marketing of CTE centers and CTE programs could be more effective if it is centered around highlighting the culture and community of students enrolled in CTE. CTE enrollees reported their CTE center as having a generally happy atmosphere that fosters inspiration and excitement about learning. Students reported low anxiety levels. Some students were attracted to CTE courses for the prospect of finding friends with similar interests and passions as themselves. Creative efforts to show prospective students the culture and community within CTE classrooms might be effective in not only recruiting students but changing perceptions of CTE.

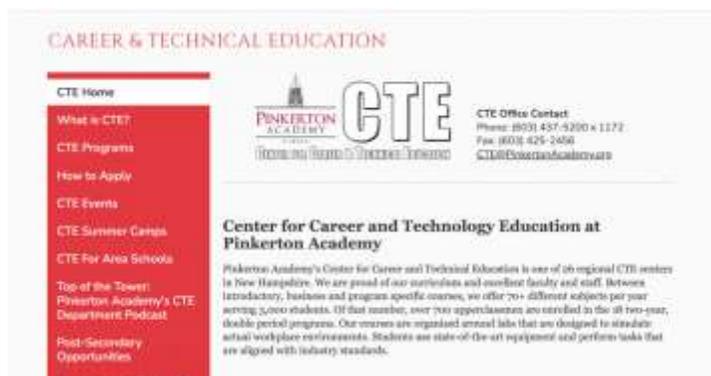
7.2 IMPROVING ONLINE CTE MARKETING AND MESSAGING

To determine the effectiveness of the web marketing of CTE in New Hampshire, we analyzed the websites of each center to give recommendations for centers. Regarding web presence, only a few centers had links that did not work or gave back an error message when access was attempted. Most centers had their own websites, although a few were embedded in the websites of their host school, proving somewhat difficult to navigate.

Some websites did not provide an explanation of CTE on their homepages. Providing a succinct explanation helps visitors to have a clear idea of what CTE is and how it works in tandem with high school education. In addition, there were specific attributes of the most effective websites that stood out, and these attributes also lifted the overall effectiveness of less-compelling websites. The best websites presented a clear definition of CTE and how it worked within a high school education right at the top of the homepage. The website for Pinkerton Academy does so effectively, as seen in Figure 7.2.1.¹³⁹ Similar to the Massachusetts web tool discussed earlier, this explanation of what CTE is and how it works within the academic system allows both students and parents to easily understand CTE. Another way some websites provided information on CTE was through a link to a video explaining the basics of what CTE is and how it can benefit students.

FIGURE 7.2.1

The Home Page for the Center for CTE at Pinkerton Academy



Another feature of effective CTE websites was a clear place where students could apply, similar to the initiative undertaken by some Vermont CTE centers. Easy access to an application form via the website is a great way to encourage students to apply for CTE programs, as it does not require them to go to a guidance counselor or the like, or even interact with any authority figure; they can just apply on their own if they are interested. It also means that parents can look at the requirements easily and help their child determine whether applying for a CTE program is the right decision. An example of this prominent “Apply Here” button is shown in Figure 7.2.2.¹⁴⁰ The website for the Hartford CTE center demonstrates another effective aspect of some websites: it gives information relevant to each of its sending schools. It also provides updated information about COVID-19. The elements used by Hartford and Pinkerton to explain the functions and happenings of their centers could be adopted statewide to provide consistent, strong web marketing of CTE and otherwise overcome barriers to awareness.

FIGURE 7.2.2

The Home Page for the Hartford Area CTE Center



8 CONCLUSION

In this report, we identify barriers to CTE participation. We then examine means to overcome these barriers and increase access to CTE. Interviews with New Hampshire CTE directors, focus groups with students, and case studies of comparable states drive our research and our insight into the problems facing New Hampshire CTE as well as potential solutions. CTE addresses the gap in workforce training facing New Hampshire. Career and technical education has the capacity to be a bridge to a more productive workforce that is able to effectively serve industry needs today. In this regard, further insight into the impact of barriers facing enrollment and how they might be dealt with will guide the state advisory committee in their administration of CTE programming in the state.

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