A TOOLKIT FOR *Hands-on Achievement*

Replicating the Massachusetts Model of Vocational-Technical Education

EXECUTIVE SUMMARY

Massachusetts has long been a national leader in vocational-technical education, nurturing the growth and development of successive generations of schools to meet the state's changing needs.

A system of industrial schools founded primarily to supply workers to factories and shops grew more diverse throughout the twentieth century, training generations of auto mechanics, plumbers, electricians, machinists, farmers, hairdressers, cooks, and homemakers.

Today, an increasingly sophisticated and diverse economy has given rise to a vocational lineup that includes training in computers, graphics, automation, and precision technologies. The Massachusetts Education Reform Act of 1993 placed renewed emphasis on academics, including a requirement that voc-tech students meet the same testing standards as their peers in other high schools.

The result is a system of schools in high demand, with long waiting lists and strong support in their communities. Voc-tech schools in Massachusetts boast stellar graduation rates, minuscule dropout rates, and an enviable record of postsecondary placements—from traditional trades and high-tech careers to colleges and universities, training programs, and military service.

Three Keys to Success in Massachusetts

1 A 50/50 SPLIT BETWEEN VOCATIONS AND ACADEMICS

Students alternate weeks between their vocational and academic studies, ensuring they achieve the time on task they need for success in their chosen field while developing critical academic skills.

2 AUTONOMY

The state's regional voc-tech districts have school committees, administrators, and budgets separate from other public schools and enjoy independence and respect on the state level.

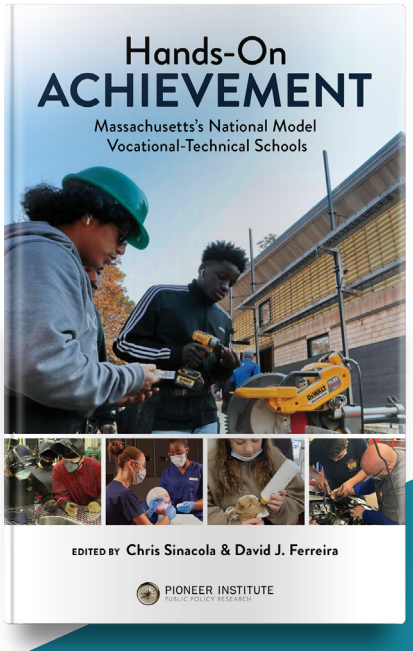
3 BUSINESS TIES

Partnerships with business have included equipment donations, co-op jobs, and business leaders who serve on school advisory committees. And business has been key to revitalizing schools in urban communities, including Worcester and Springfield.

Challenges and Recommendations

If Massachusetts is to continue to enjoy its status as a voc-tech leader and model for other states to emulate, voc-tech educators, lawmakers, and parents must protect the distinctive identity and autonomy of their schools by continuing to adhere to the core principles outlined here.

We conclude this toolkit with a set of recommendations addressed both to the voc-tech community within Massachusetts as well as to lawmakers and voc-tech advocates in other states. In both cases, our recommendations offer guidance on how to strengthen and reform existing career, vocational, and technical education or to create such options where few or none exist.



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A CENTURY OF VOCATIONAL-TECHNICAL EXCELLENCE

In 1906, Massachusetts, long known as a pioneer in public education, became the first state in the Union to offer public vocational-technical education.

More than a century later, the state continues to demonstrate that its combination of high academic expectations and professional-level occupational training is a resounding success.

This paper serves both to explain why Massachusetts is a model for voc-tech education and to offer guidelines for other states looking to replicate the Commonwealth's success.

A Brief History

The first generation of voc-tech and agricultural schools in Massachusetts were founded in the early twentieth century as a natural answer to the state's need for skilled labor to capitalize on its industrial growth and rural heritage.

Following World War II, economic, social, and cultural forces — including a growing high-tech sector — shaped the growth of a second generation of schools.

And in the years since the 1993 Massachusetts Education Reform Act (MERA), the state's voc-tech community has once again demonstrated its ability to adapt to changing times.

Today, voc-tech schools across Massachusetts can point to stellar graduation rates, minuscule dropout rates, and an enviable record of postsecondary placements — from traditional trades and high-tech careers to colleges and universities, training programs, and military service.

Voc-tech schools have achieved these successes even as they enroll, on average, higher percentages of low-income and special needs students than traditional academic public schools.

Voc-tech's Massachusetts success story is a result of remaining true to the vision that guided the birth of these schools — and an eloquent argument for adhering to those guiding principles in an age of educational fads.

I: 'Practicality and Relevance' Give Rise to Industrial Schools

In April 1906, a state commission offered a report with two key conclusions about industrial education.

- Massachusetts needed an alternative form of education that was practical and relevant to the real world.[1]
- That industry "which combines with general intelligence the broadest technical knowledge and the highest technical skill, will command the markets of the world."[2]

Commission on Industrial Education Founded

Legislation was enacted in June 1906 to establish a Commission on Industrial Education responsible for developing a system of industrial schools independent of the public school system. With that, Massachusetts became a model for other states and a blueprint for the federal Smith-Hughes National Vocational Education Act of 1917.

Spurred by demands for practical training in the light of world conflicts, the economic necessities of the Great Depression, and an increasingly sophisticated and diverse national economy, these schools grew rapidly. By 1960, Massachusetts had 56 trade and vocational schools for boys, six for girls, and three county agricultural schools — serving nearly 13,500 students.[3]

II: A Midcentury Encore of 'Second-Generation' Schools

By the middle of the twentieth century, voc-tech education in Massachusetts could look back on a half-century of success in training auto mechanics, plumbers, electricians, machinists, farmers, hairdressers, cooks, and homemakers.

But the growth of high-technology industries that would give rise to the "Massachusetts Miracle" demanded more such schools, with more sophisticated curricula. Communities that wished to offer voc-tech but could not afford to do so on their own began to consider the advantages of regionalization.

In 1948, a special state commission recommended the establishment of regional high school districts. In September 1955, Silver Lake Regional High School, the first regional school with a vocational component, opened its doors.

Over the next two decades, many regional districts were created to provide accessible and affordable voc-tech education.[4] Between 1962 and 1978, 27 vocational schools were established to directly serve two-thirds of Massachusetts's 351 cities and towns — and help supply workers to industries.

The Cold War and the Rise of Second-Generation Schools

Passage of the National Defense Education Act (NDEA) in 1958 made voc-tech programs available to residents in inadequately served areas and emphasized training in scientific and technical fields that met national defense needs.[5]

In October 1961, President John F. Kennedy established a panel to evaluate federal vocational education laws. That led to the Vocational Education Act of 1963, which provided grants for states to maintain, improve, and further develop voc-tech programs at the high school and postsecondary levels.

Federal funding for voc-tech education was increased to $279 million nationwide, giving Massachusetts additional financial incentives for construction and expansion of a second generation of voc-tech schools.

Expanding Voc-Tech Opportunities for All

It was during these "second generation" years that voc-tech education acquired many of the characteristics it retains today. Schools throughout Massachusetts improved access for handicapped, at-risk, and adult populations and addressed the challenges of sex and gender bias.

Further, since 1984 a series of vocational legislative acts named for the late Rep. Carl D. Perkins have supported voc-tech schools, providing for special needs, greater accountability, secondary-postsecondary alignment, academic integration, tech prep, and business partnerships. The 2018 reauthorization, Perkins V, provided $1.2 billion to support career and technical education and provide increased flexibility for states.

Massachusetts Focuses on 'Economic Independence'

As voc-tech education in Massachusetts came of age through the last half of the twentieth century, it remained true to a tradition that has long emphasized practical skills and preparing students for "economic independence" as part of an educated and skilled workforce.

More evolution was to come with the passage of the Massachusetts Education Reform Act. To better understand the impact and importance of the MERA and the recent history of voc-tech education in Massachusetts, we next examine voc-tech's unique instructional methodology and its relationship with the business community.

Whatever graduates' career paths, voc-tech leaders understood they needed to match the academic scope and rigor of traditional high schools.

III. The Evolution of a Unique Instructional Methodology

To casual observers, it may seem that today's voc-tech schools are simply more sophisticated versions of their counterparts from a century ago, featuring advanced machinery, gleaming new buildings, and ubiquitous computers.

A closer look reveals that academics have been treated quite differently by successive generations of voc-tech schools. Understanding that evolution and the balance voc-tech schools have achieved is crucial for understanding the prospects for voc-tech education in the years ahead.

The Broadening Role of Academics

Initially, all academic instruction had to be directly applied to a trade. The early industrial schools never dismissed reading and mathematics, but they were valued primarily for their application to practical skills.

The rise of second-generation schools in the 1940s and 1950s brought a change. Rising expectations, increasing technical sophistication, and demands for accreditation pushed voc-tech schools to embrace more rigorous academics with less direct application to specific areas of study.

By the 1990s, voc-tech schools had achieved a balanced, dual approach of preparing graduates for either immediate employment, postsecondary education, or some combination thereof. Whatever graduates' career paths, voc-tech leaders understood they needed to match the academic scope and rigor of traditional high schools.

The Constant Factor: The Integrity of Intensive Skill Training

The growing role of academics did not mean less of a commitment to core vocational missions.

For decades, industrial trade schools and voc-tech schools had been characterized by project-based instructional methodology, real-world curriculum, and industry-standard facilities and equipment. To this day, voc-tech schools in Massachusetts still ensure students have sufficient time on task to acquire the skills and knowledge they need in their field of choice.

Meeting the Challenges of Education Reform

The 1993 Massachusetts Education Reform Act brought new and necessary attention to academic instruction in today's highly technical job market. However, the Act also meant a shift from an emphasis on time on task toward an outcome-oriented approach.

Despite the potential disruptions of that new approach, voc-tech schools have demonstrated — by job placement and college matriculation rates — that they have balanced higher academic standards and traditional vocational goals by:

- Prioritizing project-based instructional methodologies
- Aligning curriculum with real-world needs
- Maintaining industry-standard facilities
- Integrating rigorous core academic skills with high-wage technical skills

IV: A Century of Ties to the Business and Labor Communities

The educational and industrial history of Worcester helps illuminate the intimate connection between voc-tech education and the business community.

The Worcester of 1898 did not yet have an industrial school for its youth, but since its founding in 1865, Worcester Polytechnic Institute (WPI) had produced graduates "who annually by the score take places of responsibility in our great work-shops, for which they have been so admirably trained."[6]

Milton P. Higgins, longtime superintendent of the Washburn Shops at WPI,[7] championed the idea of a self-supporting trade school in which boys would split their days between classes and shop.

In 1910, as a member of state and local commissions, Higgins spearheaded establishment of Worcester Boys' Trade.

The Vital Role of Advisory Committees

The 1911 Massachusetts legislation governing industrial schools required the appointment of advisory committees representing local trades, industries, and occupations. Committee members were expected to maintain close contact with these institutions and obtain accurate knowledge of their operations.

That pattern has endured in Massachusetts for more than a century, ensuring voc-tech schools enjoy advisors familiar with the latest industry equipment, training, and technologies.

Each voc-tech school has an overall advisory committee of 10 to 15 business and community leaders, plus committees for each vocational program. The committees help ensure the curriculum remains relevant to the real world, that capital equipment needs are accurately gauged, and that ties with the business community remain strong.

Flexible, Effective, and Results-Oriented

Advisory committees also foster co-op programs in which qualified seniors spend what would otherwise be their shop weeks earning money at a job in their field. Many students move directly into full-time positions following graduation.

Voc-tech schools also build community ties by opening facilities to the public, including auto body and repair shops, restaurants, and cosmetology salons.

Continuity Over a Century

A 2006 report issued by the Massachusetts Business Alliance for Education found "vocational school graduates are more job-ready than general education and college preparatory high school graduates. In fact, a number of participants felt that vocational high school graduates were often more job-ready than college graduates."[8]

...the MERA increased academic rigor at voc-tech schools by requiring students pass the same Massachusetts Comprehensive Assessment System (MCAS) tests required of all other high school graduates.

For years, the Massachusetts business community has demonstrated a willingness to back those conclusions with generous financial support.

- Also in 2006, a century after the first industrial schools were authorized, Worcester-area businesses helped establish and fund a new campus for the city's aging trade school. They leveraged $3 million in fundraising into a $30 million fund that transformed Worcester Tech, driving its dropout rate to the lowest among the city's seven high schools. In 2014, President Barack Obama delivered the school's commencement address, praising the school and its graduates as models for the nation.
- When machine shops became reluctant to hire Franklin County Technical School graduates because the 1940s-vintage mills and lathes they were using meant they had to retrain graduates on modern equipment, a coalition of school advisors, community leaders, and local businesses raised over $700,000 to reequip the school's program.
- In the Pioneer Valley, local companies and the state worked with Westfield Technical Academy and local aircraft manufacturers and aviation interests to start the first aviation technology program in Massachusetts.

V. The 1993 Education Reform Act

The Massachusetts Education Reform Act of 1993 marked a watershed moment in the state's education history. In addition to authorizing charter public schools, now a key part of the state's education landscape, the MERA increased academic rigor at voc-tech schools by requiring students pass the same Massachusetts Comprehensive Assessment System (MCAS) tests required of all other high school graduates.

Opposition Becomes Enthusiasm and Success

While few in the voc-tech community doubted the abilities of their students, some initially objected to what they saw as a mismatch between testing and curriculum. However, the voc-tech community soon became committed to the integration of academic and vocational skills. Throughout the late 1990s, voc-tech schools redoubled their efforts to smooth the transitions of their graduates from secondary to postsecondary education and strengthened ties with the business community.

- Between 2001 and 2007, the Average Performance Index (API) for regional voc-tech and county agricultural schools went from 53.2 to 82.4, the greatest increase of any subgroup.
- By 2008, 96 percent of voc-tech students were passing both the English and Math MCAS tests — better than the 94 percent average for all students.

Despite having just half the academic time as their peers in comprehensive high schools, voc-tech students succeeded precisely because their academic studies were *reinforced* by the technical aspects of their education.

VI. The Challenges Facing 'Third-Generation' Voc-Tech Schools

Upon a solid and traditional foundation of vocational and technical excellence, voc-tech schools in Massachusetts have added an impressive record of academic achievement.

Students in these third-generation voc-tech schools and the many who will follow them have every reason to expect they will enjoy both academic preparation and vocational training — provided Massachusetts continues the practices that have made it a national leader in voc-tech.

A 2006 report issued by the Massachusetts Business Alliance for Education found "vocational school graduates are more job-ready than general education and college preparatory high school graduates.

Vocational educators and administrators know that students who choose a voc-tech education, particularly in a regional district, are not settling for less than what is available to them in their hometown. They are actively choosing a rigorous, comprehensive, and career-oriented education. Voc-tech leaders, lawmakers, and parents can best protect the distinctive identity and autonomy of their schools by:

- Integrating and aligning academic and vocational curriculum, while continuing the practice of alternating weeks of vocational and academic instruction
- Maintaining strong industry-business ties and emphasizing the workplace and career value of a voc-tech education
- Insuring the fiscal stability of the voc-tech community by fighting for equitable funding for voc-tech schools statewide
- Providing student support services and professional development opportunities
- Meeting high standards of evaluation and accountability while defending their autonomous governance in the form of regional voc-tech school boards and independent budgets

Voc-tech education must be able to discern and choose what is truly innovative and useful in an educational landscape often characterized by political pressures and instructional fads. That freedom, combined with the tireless efforts of countless individuals over more than a century, has enabled the state's industrial, trade, and voc-tech schools to produce generations of well-trained and educated workers that have helped make Massachusetts one of the nation's economic leaders.

Pioneer Institute
RECOMMENDATIONS FOR MASSACHUSETTS VOCATIONAL-TECHNICAL EDUCATION

Our concluding recommendations have a dual purpose:

- We aim to shape the thinking of policy makers in Massachusetts toward ensuring the state remains the gold standard for voc-tech education throughout the nation.
- We aim to suggest to lawmakers and voc-tech advocates in other states how they can best strengthen and reform existing career and technical education in their jurisdictions or explore ways to reallocate existing resources to create voc-tech options where few or none exist.

1 Oppose changes that threaten to weaken voc-tech admissions policies

Since 1906, voc-tech schools in Massachusetts have enjoyed a multifaceted admissions process that helps ensure applicants view voc-tech education as a distinctive choice rather than merely an alternative to another public school.

- Schools could consider the behavior and middle-school attendance records of applicants, important for students being training in the safe use of sophisticated machinery.
- Admissions procedures for voc-tech schools didn't involve exams, writing samples, review of MCAS scores, or consideration of special education status.
- Optional interviews helped gauge applicants' interest and seriousness for voc-tech education, which is more expensive than other public education.
- Middle school guidance counselors' recommendations could provide insight into an applicant's maturity, academic ability, and work ethic.
- Individual school admissions policies had to be approved by the state.

Despite the success of these procedures, Massachusetts in 2021 enacted changes that could lead to the admission of more students who are either a poor fit for the voc-tech environment or who are unprepared for the educational experience they are undertaking:

- **Grade promotion and weakening of academic standards:** Vocational schools and programs are now to condition admission on a student having been promoted to the grade required for admission to the school or program. Previously, in addition to grade promotion, students had to pass English and mathematics.
- **In most cases, a student's record of absences cannot be considered:** Criteria for admission to a voc-tech school may not consider a student's record of excused absences during middle school. Previously, any absence could be considered.
- **'Minor' disciplinary infractions cannot be considered:** Schools may not consider "a minor behavior or disciplinary infraction," defined as anything less than 10 days of suspension. Previously, any suspension could be considered.
- **The state may impose a lottery system on voc-tech schools:** State education officials may now require an admissions lottery if they determine a voc-tech school's admissions policies are not compliant with state or federal law. Previously, the state would approve school admissions policies; now, the state provides only technical assistance, not approvals, yet retains the power to impose an admissions lottery.

These changes to voc-tech admissions processes chip away at the autonomy voc-tech schools have earned and that has been a key ingredient in their success.

Massachusetts policy makers *should reverse the changes outlined above and restore full autonomy over admissions policies to voc-tech districts and schools.*

Voc-tech advocates elsewhere *should strive to draft admissions policies that are as independent as possible of their state departments of education or local jurisdictions; strong, elected voc-tech committees are a critical element for success.*

2 Ensure Grade 8 students are aware of voc-tech options

To ensure the broadest possible pool of qualified applicants, voc-tech schools must have unobstructed access to Grade 8 students. Only by providing complete information about the academic and vocational opportunities available to students completing Grade 8 can voc-tech schools ensure equal opportunity to all who have both the ability and interest to pursue a voc-tech education.

Voc-tech advocates, in Massachusetts or any other state, should insist that they — like charter public schools — have an equal claim to promote their "brand" of public education under principles of equal access and treatment under the law.

3 Expand access to voc-tech education

Voc-tech education's long record of success should stand as sufficient grounds for expanding the number of available seats to accommodate the approximately 5,000 Massachusetts students who would like to attend such a school but are on waiting lists while they attend the regular high school in their community.

Even as K–12 enrollment in Massachusetts public schools declined in the early twenty-first century, the popularity of voc-tech schools increased — by 12.9 percent between 2004 and 2015. Seven years later, it remains as strong as ever, with approximately 5,000 students on voc-tech waiting lists.

Just as importantly, there are 52 Massachusetts cities and towns in which students have no ready access to either district or regional voc-tech education. Many live in Berkshire and Hampshire counties, highlighting a divide in Massachusetts between urban/suburban and rural students.

Massachusetts policy makers *should consider that the longest waiting lists are in districts that serve large numbers of students who come from low-income families, belong to a minority group, and/or speak English as a second language. Expanding the number of voc-tech districts, schools, programs, and seats would be one of the most cost-effective ways to further expand equal opportunity in public education.*

Voc-tech advocates elsewhere *should study the extraordinary record of accomplishment in the Massachusetts voc-tech community. The case for establishing and/or expanding of voc-tech education in their states can be buttressed by pointing to any of several of the successful traditions in Massachusetts — academic achievement, job placement, matriculation rates, and enviable records of achievement by students from low-income, disadvantaged, and/or non-native English speaking backgrounds.*

4 Conduct a follow-up study of voc-tech graduates

The 1993 Massachusetts Education Reform Act changed the vocational quality of service standard from the time-on-task measure in effect since 1906 to an outcome-based standard. Yet, in the nearly 30 years since the MERA was passed, there have been no longitudinal studies conducted to determine the impact of this change. In addition, regulatory changes that modify the selective admissions process also mark a significant change whose impact needs to be determined.

The Massachusetts Department of Elementary and Secondary Education (DESE) *should hire an independent contractor to conduct a longitudinal, five-year, follow-up study of voc-tech graduates to determine the effects of these changes to admission and evaluation processes.*

Voc-tech advocates elsewhere *should include periodic studies and evaluations at the state level to any legislation that guides the establishment, government, and expansion of voc-tech education in their states.*

5 Establish autonomous voc-tech representation at the state level

The DESE should establish a Division of Career/Vocational-Technical and Agricultural Education under the leadership of an Associate Commissioner. The Division of Occupational Education was eliminated by the MERA, although vocational education divisional status had been maintained since 1909.

In the 2020–2021 school year, there were 54,300 students in rigorous and extensive voc-tech and agricultural programs throughout the state, and another 9,140 students in career technical courses.

Massachusetts policy makers and the DESE *should recognize that the roughly 20 percent of Massachusetts's high school students who participate in some form of career voc-tech education should have appropriate visibility and representation within the DESE.*

Voc-tech advocates elsewhere *should extend the principles of local governance and autonomy in voc-tech schools to the state level in order to ensure that career and vocational students and their communities have appropriate representation in the halls of power.*

Endnotes

1 The Commission on Industrial and Technical Education, Report, April 1906, 18; Wright & Potter Printing Co., State Printers, 18 Post Office Square 1906, Published by Teachers College, Columbia University, New York.

2 Ibid., 19.

3 Massachusetts Acts and Resolves, Chapter 505 of the Acts of 1906; Massachusetts Acts and Resolves, Massachusetts Chapter 457, Acts of 1909, 459; Wilfrid J. Savoie, material from *The History of Vocational Education in Massachusetts: A Model for the Nation*, unpublished manuscript; Annual Report of the Department of Education, Massachusetts, Year Ending June 30, 1961, Part I, 519.

4 Savoie, *The History of Vocational Education in Massachusetts: A Model for the Nation.*

5 National Defense Act of 1958, see https://history.house.gov/HouseRecord/Detail/15032436195.

6 Franklin P. Rice, editor, *The Worcester of Eighteen Hundred and Ninety-Eight. Fifty Years a City.*, 123–131. (Worcester, Massachusetts: F.S. Blanchard & Company, 1899).

7 Ibid, 189.

8 See www.mbae.org/preparing-for-the-future-employer-perspectives-on-work-readiness-skills/.