



The Research Bureau

# Academically Selective High Schools: Should Worcester Public Schools Have One?

Report 12-05  
December 2012

## **Executive Summary**

Based on an analysis of the pros and cons of academically selective high schools, The Research Bureau believes that Worcester Public Schools (WPS) should establish a school (or schools) for academically talented students in Worcester for the following reasons:

- Students with high academic potential deserve a course of study that meets their needs and WPS has an obligation to fully develop the capacities of gifted students no less than of less talented ones.
- By offering the opportunity for gifted students to excel, WPS will be doing its part to promote economic growth and prosperity at the local level as well as nationally.
- Establishing a school for talented students is essential to Worcester's ability to induce professional and executive families-often the highest earners and residential taxpayers-to move here.
- There are ample examples of recruitment and outreach programs and methods that ensure that qualified students, regardless of socio-economic background, have access to schools for academically gifted students.
- Since all students are required to take MCAS exams, they can be used as one criterion for admissions to the high school for academically talented students. All students scoring at or above a selected cutoff score would be automatically entered into the applicant pool.
- The school's mission should focus on both the liberal arts and the sciences. It could establish immediate academic credibility by adopting the IB program or replicating the curriculum of one of the successful exam schools.
- The new school(s) should locate at or establish a strong relationship with a local college to be able to benefit from science labs and other facilities and to work with college faculty and students.
- The school's principal should have the authority to select its teachers in order to ensure the faculty is committed to the mission and capable of executing it.
- Such a school could become a community asset for both businesses and residents to live and work in Worcester.

## **Introduction**

On numerous occasions during the last several decades, alumni of Worcester's former Classical High School, parents of students attending WPS, elected and appointed officials, and other members of the Worcester community have raised the subject of establishing a contemporary version of Classical High, an academically rigorous high school that required all students to study Greek or Latin and offered only honors-level courses. The Mayor recently appointed a special committee of School Committee members and community representatives to consider the issue of a special school for academically gifted students and make a recommendation on the subject to the entire Committee. What was so special about Classical High? Would some students currently attending WPS benefit from such a program? How would it differ from its predecessor school? Would there be an advantage to the community as a whole from providing such an option to its residents? Are there disadvantages as well? These are some of the questions this report will address.

## **Brief History**

In 1752, Worcester established a Latin Grammar School for boys. John Adams, subsequently the second president of the United States, served as the school's headmaster from 1755 to 1758. This school was the precursor to Classical High. Sometime after the founding of Latin Grammar, Girls English School was established. In 1845, the two schools were combined to form Latin and English High

School. (The rationale for co-education was based on the view that women had a refining effect on men.) The school offered two courses of study: Classical, which was intended to prepare men for college, and English, which was for the remaining students. Written exams for admission were introduced in 1847, although sometime later they were eliminated, enabling anyone to attend. The first diplomas were awarded in 1861. The school was split into two separate entities in 1892 with Classical remaining on Maple Street and English moving to a new facility on Irving Street (the current school administration building). In 1914, the two schools switched locations, and English High became Commerce High School, adopting a specific course of study for those students interested in a business career.<sup>1</sup> Classical High School remained at its Irving Street location until it closed in 1966 and was replaced by Doherty High School, a comprehensive high school, which continues to be the predominant model for high schools in Worcester and across the nation.

Around the turn of the twentieth century, the superintendent of WPS organized six schools into grades 7-9, accessible from all parts of the City, into what were called preparatory schools for those students who expected to enter college. According to the superintendent's report as it appeared in the *Worcester City Documents of 1902*, more students applied than could be accommodated, even though they were expected to study more at home than other students.<sup>2</sup> Seventh-graders were expected to absorb the lessons that others were learning in the 8<sup>th</sup> and 9<sup>th</sup> grades. The curriculum replicated that of private schools.

Establishing different schools for different students was justifiable so long as they were open to all. Thus, the prep school model, according to the superintendent, was viewed as democratic. This model contrasted favorably with the European system in which only the upper class could attend schools that prepared students for university study.<sup>3</sup>

The prep school arrangement, which was designed to prepare graduates for the rigors of Classical High School, seems to have worked reasonably well for about half a century. Sometime in the 1950's, the prep school curriculum was incorporated into a new model of junior high school. It became one option among three (the others being college and general) in which students could enroll. This arrangement paralleled the adoption of the comprehensive high school model, which also offered three types of curricula, and the closing of high schools, such as Classical and Commerce that offered one type of curriculum. (Worcester Vocational High School remained in existence under the jurisdiction of an independent board appointed by the City Manager until 1998, when it became part of the Worcester Public Schools.) Worcester, of course, was not unique in this change in the way public schools were organized; it was part of a national trend of "education reform." Many cities, like Providence, Boston, and New York, however, retained their exam schools because of long tradition and value to the community. These schools have continued the model on which they were founded, co-existing with comprehensive high schools and providing an additional option to city dwellers rarely found in the suburbs.

Worcester's Classical High was apparently unique among such schools because while requiring students to take an academically-rigorous curriculum, there was no entrance exam for admission, as noted above. If students could not meet the standards, they were asked to leave. Students were required to complete at least two years of Greek or Latin and a course in ancient history. All courses were taught at the honors level and students were expected to complete at least two hours of homework each night. All teachers had at least a master's degree in the subject they taught. The school culture emphasized and rewarded academic achievement. The goal was for Classical students to attend college.

Some have argued that returning to the Classical High model in today's diverse, linguistically and socio-economically challenging environment constitutes a fool's errand, nostalgia for the world that was, and a kind of elitism that's incompatible with public education. Yet according to noted education reformer, Chester Finn and his co-author, Jessica Hockett in their new book, *Exam Schools: Inside America's Most Selective High Schools*,<sup>4</sup> there are 165 exam schools (out of 22,568 high schools) across the United States like Boston Latin and Stuyvesant High School in New York, more than half of which have been founded in the last two decades. What has driven this mini-movement? What do these schools look like? What is the case for and against such schools? Finn and Hockett address these questions and others in a systematic fashion.

## What are the Common Elements of Academically Selective Public High Schools?

Finn and Hockett identify the following:

- The schools are racially and ethnically diverse as indicated in the table below.

Student Demographics, Academically Selective vs. All Public High Schools

	<i>Academically selective public high schools</i>	<i>All public high schools</i>
Number of schools	165	22,568
Total enrollment	135,700 (n = 165)	14,629,876
Male	45% (n = 161)	51%
Female	55% (n = 161)	49%
White	35% (n = 161)	56%
Black	30% (n = 161)	17%
Hispanic (nonwhite)	13% (n = 161)	20%
Asian/Asian-Pacific Islander/Hawaiian	21% (n = 161)	21%
Native American	<1% (n = 161)	1%
Two or more races	<1% (n = 161)	< 1%

Source: *Exam Schools*, p. 29.  
(n=number of schools responding)

- These are all public schools with a 12<sup>th</sup> grade graduating class each year.
- They are located primarily in cities.
- They are all co-educational (55% female and 45% male in the entire sample).
- They are paid for and operated by government agencies.
- They are free to attendees.
- They are accountable to a public authority.
- There is an admissions process that is academically selective and academically competitive.
- The curriculum is aimed at college readiness.
- Each school is self-contained; it's not a program within another school.<sup>5</sup>

## What is the Admissions Process?

Common admissions procedures identified by Finn and Hockett include the following:

- All schools use some kind of test, including state, district or national standardized tests, or specific tests prepared for a particular school or for a set of schools, such as the Specialized High Schools Admissions Test (SHSAT) that is used by eight of the academically selective high schools in New York City.
- Eighty percent of the schools strongly emphasize students' prior academic performance in determining admissions.

- The majority of the schools (55%) put strong or moderate emphasis on student essays.
- Fifty-two percent place strong or moderate emphasis on teacher recommendations.
- Other criteria for admission used to a lesser degree than the above include student behavior and attendance as indicators of maturity; student's class rank; level of previous courses taken; cases in which the student would be the first in the family to attend college; and involvement in extracurricular activities and volunteer work, academic honors, and community service.
- Some schools try to replicate the college admissions process, which requires several people to read the student's application and essay, and participate in an interview process.<sup>6</sup>
- Use students, parents, or alumni to communicate with prospective applicants (61%)
- Send recruitment materials directly to students' homes or schools (54%)
- Use email blasts (32%)
- Offer "summer bridge" programs and other support services that prepare prospective applicants who have not had access to high-quality educational opportunities.<sup>7</sup>

### **What is the Recruitment Process?**

According to Finn and Hockett, many exam schools surveyed engage in a number of outreach activities that are common at colleges and private secondary schools in order to recruit a cohort of students that is socio-economically, racially, and geographically diverse. To achieve their goal, the schools:

- Host open houses for prospective students and parents (74%)
- Visit schools from which students are eligible to attend (74%)
- Place brochures in schools, community centers, libraries or other public and private facilities (68%)

### **Who are the Teachers at Exam Schools?**

Finn and Hockett explore the question of whether the teachers in exam schools have superior qualifications to those teaching in traditional schools. They found the following differences:

- The percentage with doctoral degrees is notably higher (11% vs. 1.5%)
- The percentage with master's degrees is also considerably higher (66% vs. 46%)
- Since several of the schools are affiliated with colleges or universities, 11% of the teachers have taught at the college level.
- Nine percent of the teachers have extensive backgrounds in business or industry.
- Ten percent have extensive experience in science or technology fields.
- Of the 56 schools responding to the survey, almost two-thirds indicated that teacher-hiring decisions are made at the school level.

The criteria these schools emphasize in selecting teachers seem similar to what one would expect all schools to seek out if they had the authority to do so. These include: subject-matter knowledge first and foremost, followed closely by pedagogical expertise and the ability to relate to and engage adolescent learners. Education level, teaching experience (including teaching gifted students), and recommendations from previous employers are likewise taken seriously. The schools are also looking for teachers who are flexible, creative, and committed to team teaching. While no school indicated that it seeks teachers with a prior record of boosting student achievement, almost all of them reported that they are fully subject to the provisions of the teacher-union contracts.<sup>8</sup> One school indicated that while there are no official waivers from the contracts, the school ignores them when it makes sense. For example, college faculty teach courses even though they are not certified to teach at public high schools.

### **What kind of curriculum is offered and what are the methods of instruction in high schools for academically gifted students?**

In response to their survey, Finn and Hockett found the following:

- Most schools reported offering at least some Advanced Placement (AP) courses or the International Baccalaureate (IB) program, both of which are considered indicators of academic rigor and quality.

- Those schools affiliated with colleges or universities offer college courses to their students.
- Schools with a STEM (Science, Technology, Engineering, Mathematics) focus or university affiliation offer upper-level science and math courses unavailable at ordinary high schools. These include, for example, chemical pharmacology and vector calculus.
- Many schools emphasize independent research projects that include team-based problem-solving and collaborative research with university students and professors.
- Many schools offer mentorship and internship opportunities similar to those found at universities or in the job market. These programs can take place outside the classroom and outside the school building because school schedules resemble those of a college and 20% of the schools are not subject to state curricular guidelines or graduation requirements. (For example, some courses are offered as seminars that do not meet every day, allowing larger blocks of time for internships and research projects.)
- A commonly-used instructional strategy in these schools is the Socratic seminar.<sup>9</sup>

### **What is the case for and against a school for academically talented students?**

The arguments against such schools include the following:

- They are elitist and incompatible with democratic mores. Public schools should not choose their students; they should be open to all.
- Selective recruitment is discriminatory. The student bodies of these schools do not reflect the high school population as a whole or the neighborhoods in which they are located. For instance, Asian-Americans constitute 21% of these schools' total enrollment, but only 5% of the total public high school population. The same is true of Blacks, who constitute 30% of their enrollment but only 17% of the total public high school enrollment. Meanwhile, Hispanics and Whites are underrepresented compared to their numbers in public high schools overall. In the case of the latter, many with the financial means have opted to live in the suburbs, while exam schools are located primarily in the urban core.
- There is considerable cost to opening new schools and maintaining them.
- Exam schools cream the brightest students from the other high schools in the district, leaving the students remaining in the latter schools without the role models needed to generate an academically challenging and inspiring environment.
- Exam schools have little effect on most students' achievement. According to a 2011 study sponsored by the National Bureau of Economic Research, "there is little effect of an

exam school education on achievement even for the highest-ability marginal applicants... [However,] a Boston exam school education seems to have a modest effect on high school English scores for minority applicants." <sup>10</sup>To reach this conclusion, the study's authors, who are researchers at Duke and MIT, compared students who were narrowly turned down by the exam schools and attended regular high schools with those who just made it into the exam schools. The test scores both groups achieved on the entry exams and their performance at the start were roughly identical. Yet the "results offer little evidence of an achievement gain for those admitted to an exam school... In spite of their exposure to much higher-achieving peers and a more challenging curriculum, marginal students admitted to exam schools generally do no better on a variety of standardized tests." <sup>11</sup>

- There has been no definitive research to determine the extent to which student outcomes for non-marginal students are attributable to what happens inside the school (curricula, teachers, peers) as compared to what the students brought with them to school.
- There is no real value-added data for these schools because the students have not been tracked systematically in college or beyond.

What is known, however, according to Finn and Hockett, is that the demand for exam schools exceeds their supply. What is the basis of their attractiveness?

### **The Case for Exam Schools**

The reasons for establishing a school for academically gifted students include the following:

- Exam schools concentrate a critical mass of serious students in an environment of academic rigor and a culture of high expectations. Although the programs are demanding and competitive, students are provided with the support necessary to succeed.
- Educators argue that as a nation, we are obliged to provide all youngsters with the education that would best develop their capacities. Yet for many years, the U.S. has focused almost exclusively on improving the academic level of the lowest-performing students. But the achievements of the nation's brightest students fall barely in the middle of students internationally. The data indicate a need to raise the ceiling of academic expectations and achievement.
- While the Federal No Child Left Behind Act (NCLB) of 2001 focused on all children attaining minimum standards, its effect has been to downplay excellence at great cost to our economic competitiveness and our education system.
- To combat the tendencies toward mediocrity, it is necessary to invest in high potential students to be future inventors and leaders.
- The focus on providing school choice over the last couple of decades should include choice for academically talented students as well.
- Academically selective high schools provide a public-sector option for bright students from low-income families who cannot afford private-school tuition.
- They also encourage middle-class families to remain in a city and utilize the public education system rather than move to the suburbs or opt for private schools.
- They are considered a magnet for economic development and talent recruitment. Such schools are viewed as a community asset by parents, employers, colleges, businesses, and real estate agents. In fact, they may lead to partnerships with businesses and colleges that bring additional resources to the school.
- The academically selective high schools identified by Finn and Hockett are not elitist since the families their students come from are on average less well-off than the national high school population. A high percentage of the students come from immigrant families. The schools' commitment to equality of opportunity and non-discrimination is seen in their extensive outreach for recruitment, as noted above and their

use of multiple tools for selection of students, such as essays, recommendations, and personal interviews, in addition to tests. A number of schools use state assessment test results, which enables all students to be part of the initial applicant pool. Many selective schools also require geographic representation among students. For example, attendance at Townsend Harris High School in Queens, NY, is limited to students living in that borough. In addition, each class must have geographic representation from all parts of the borough.

- Most of the exam schools identified by Finn and Hockett have been founded in the past two decades. In other words, they are not a relic of the past or based on outmoded policies from a previous era; they are the result of a recent decision by districts to meet the needs of academically talented students in the 21<sup>st</sup> century.

### **What is the International Baccalaureate (IB) program and it that an option for WPS?**

The Mayor's Committee was also charged with the responsibility of analyzing the IB program and recommending whether it should be adopted as an alternative to an exam school, in addition to an exam school, or as the curriculum for a stand-alone school. (Brooklyn Latin High School is a stand-alone exam school utilizing the IB

program. Worcester's Abby Kelley Foster Charter School, a K-12 school, has been authorized as an IB Diploma School for grades 11-12.)

The IB was founded at the International School in Geneva, Switzerland in 1968 by a group of teachers at several international schools. Although the first schools to adopt IB were private institutions, today more than half the participating schools are government-supported.

To be granted an IB diploma, students who qualify for the program must complete six IB courses in grades 11 and 12 and take IB assessments in those subjects. Many of the assessments are graded by external examiners. The courses must include languages, social studies, the experimental sciences, mathematics, and the arts. There are three additional core requirements:

- Students must engage in independent research relating to one of the subjects they are studying and write an extended essay on it.
- Students must take a course on the theory of knowledge designed to examine different ways of knowing (perception, emotion, language, and reason) and different kinds of knowledge (scientific, artistic, mathematical, and historical).
- Students are required to engage in tasks beyond the classroom that require creativity, action, and service. For example, one student enrolled in the IB program at Abby

Kelley Foster Charter School organized 60 students to participate in the UMass Memorial annual “Walk to Cure Cancer.” This included advertising the project, raising and keeping track of funds for the cause, arranging transportation for the participants, etc.

Any school wishing to offer the IB Diploma Program has to go through an authorization process. The requirements are the same for all schools. Once authorized, the school can access IB professional development programs and materials for teachers and administrators. The school must commit to ongoing professional development programs which are taught by trained IB staff at various locations as well as participate in a regular process of review and development, using standards and practices that apply to all IB schools.

### **What are the benefits of the IB program?**

- The curriculum and other program requirements are long-established and tested.
- Its reputation is one of academic rigor and high expectations from both students and teachers.
- There is research-based evidence that students who complete the program are stronger candidates for college admission, do better in college, and have higher rates of college completion than those not enrolled in an IB program. According to one

study of IB students who graduated from high school in 2000 and 2001, those with IB diplomas were more likely to attend selective colleges and 81% graduated within six years of enrolling at a four-year institution compared to the national average of 57%.<sup>12</sup>

- The IB program can be housed at an existing school or schools.
- Its well-established reputation could attract and retain families in the WPS.
- Students can take IB courses without being enrolled in the diploma program, which gives it the potential to benefit many more students, especially if it were installed in more than one school, than a stand-alone exam school.

The potential difficulties in adopting the IB program are that the school system is limited to the prescribed curriculum and requirements, adoption of the program requires a serious and long-term commitment to professional development and outside scrutiny, and qualifying for the program is a rigorous, multi-year process.

### **How should the Worcester Public Schools proceed?**

Based on The Research Bureau’s analysis of the arguments for and against a school for academically talented students in Worcester, we believe that such a school would be very beneficial first and foremost for the participating students, and second and almost as consequential, for the Worcester

Public Schools and the community as a whole.

- Students with high academic potential deserve a course of study that meets their needs and WPS has an obligation to fully develop the capacities of gifted students no less than of less talented ones. Parents of gifted students are taxpayers like all other residents, and have the right to expect WPS to meet their children's particular needs.
- By offering the opportunity for gifted students to excel, WPS will be doing its part to promote economic growth and prosperity at the local level as well as nationally.
- Establishing a school for talented students is essential to Worcester's ability to induce professional and executive families—often the highest earners and residential taxpayers—to move here.
- There are ample examples of recruitment and outreach programs and methods that ensure that qualified students, regardless of socio-economic background, have access to schools for academically gifted students. Part of the recruitment process should include preparatory courses for students in middle schools who have not had access to rigorous courses so that they are in a position to compete for entrance to an academically selective high school.
- Since all students are required to take MCAS exams, they can be used as one criterion for admissions to the high school for academically talented students. All students scoring at or above a selected cutoff score would be automatically entered into the applicant pool. Selection can then be determined by additional criteria such as recommendations, interview, and rigor of courses previously taken.
- MCAS scores can be included with those of the student's sending school so as not to impact negatively the average scores of the sending school.
- The school's mission should focus on both the liberal arts and the sciences. It could establish immediate academic credibility by adopting the IB program or replicating the curriculum of one of the successful exam schools such as Boston Latin or Townsend Harris High School in Queens, NY, both of which focus on a classical education (which includes the study of Greek and/or Latin). The school's curriculum should also include STEM courses of the caliber taught at WPI's Math-Science Academy as well. (Perhaps arrangements could be made for students at the exam school to have access to some of the Academy's courses.)
- The new school(s) should locate at or establish a strong relationship with a local college to be able to benefit from science labs and other facilities, and to work with college faculty and students. (Townsend Harris High School, located on the campus of Queens College of CUNY and the WPI Math-Science Academy should be examined as models in this regard.) Such a collaboration could lead to partnerships with businesses, cultural institutions, and other community assets.

- The school’s principal should have the authority to select its teachers in order to ensure the faculty is committed to the mission and capable of executing it. One way to enable the principal to have this authority is for WPS to apply to the Massachusetts Department of Elementary and Secondary Education to be an “innovation school.” Those designated as such can operate with greater autonomy and flexibility than other district schools. They can introduce changes to curriculum, budgeting, school schedule, calendar, staffing, and professional development.
- As noted earlier, such a school could itself become a community asset for both businesses and residents to live and work in Worcester.

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<sup>1</sup> Charles Nutt, *History of Worcester and Its People*, (Lewis Historical Publishing Company, New York City), 1919.

<sup>2</sup> *Worcester City Documents, No.56, Annual Reports*, (The Blanchard Press, Worcester, MA, 1902), Superintendent’s Report, pp. 44-46.

<sup>3</sup> *Ibid.*, p.46.

<sup>4</sup> Princeton University Press, 2012.

<sup>5</sup> *Exam Schools*, pp. 22-23.

<sup>6</sup> *Exam Schools*, pp. 37-42.

<sup>7</sup> *Exam Schools*, pp. 42-46.

<sup>8</sup> *Exam Schools*, pp. 47-53.

<sup>9</sup> *Exam Schools*, pp. 54-56.

<sup>10</sup> Atila Abdul Kadiroglu, Joshua Angrist, Paraj Pathak, “The Elite Illusion: Achievement Effects at Boston and New York Exam Schools” (National Bureau of Economic Research, Working Paper 17264), 2011.

<sup>11</sup> *Ibid.*

<sup>12</sup> Kyra Casparly, “Postsecondary Enrollment Patterns of IB Certificate and Diploma Candidates from US High Schools” (Center for Education Policy, SRI International), 2011.

*Mission Statement:*

*The Research Bureau serves the public interest of the Greater Worcester region by conducting independent, non-partisan research and analysis of public policy issues to promote informed public debate and decision-making.*



## The Research Bureau

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