

PUBLIC EDUCATION: CONTINUING SURVEY

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GENERAL ASSEMBLY
of the
COMMONWEALTH OF PENNSYLVANIA

Though cognizant of the appointment by the Governor of a committee on education, the Executive Committee, under authority of House Concurrent Resolution No. 79, Session of 1953, which directed the Commission to engage in a continuing study of the public schools, authorized continued collection, assembly and analyses of pertinent school data.⁵

Over the last decade, the cost of operating the public school system has more than doubled. Over the same period, Commonwealth expenditures on account of the public schools have tripled. Specifically, during the biennium 1949-1951, total public school expenditures amounted to approximately \$760 million, of which the Commonwealth contributed \$250 million. For the current biennium, it is estimated that total public school expenditures will exceed one and a half billion dollars and Commonwealth school subsidies will amount to at least \$750 million.

In Pennsylvania, the state's percentage contribution toward the financing of the public schools approaches 50 percent; that of all states combined is approximately 40 percent. By virtue of the substantially above-average percentage contribution of the Commonwealth, property taxes—the mainstay of local school support—are some \$20 per capita below the national average.

As in the past, the central organizational problem of the public schools is concerned with the design of administrative units which hold promise of providing both equalization of educational opportunity in terms of program quality and adequate local financial capacity. Throughout this century, the General Assembly has recognized the importance of reorganization of administrative units. The history of legislative programs has been detailed elsewhere.⁶ Legislative attempts to improve the organizational structure of the public schools, as a general rule, have taken the form of subsidies on account of specific functions such as transportation, or specific forms of organization such as jointures, unions and mergers. The legislature authorized the Department of Public Instruc-

⁵ Under authority of this resolution, the Commission has reported on: *Medical Training Facilities* (1955); *Public School Building Subsidies* (1955); *School Health Services* (1955); and *Pennsylvania High School Seniors, 1958: Their Mental Ability, Their Aspirations, Their Post-High School Activities* (1959).

Commission reports on public schools published prior to this resolution include: *Per-Pupil Cost of Vocational and General Education Programs in the Public Schools* (1949); *Public School Attendance Areas* (1951); *Public School Pupil Transportation* (1953); and *State and Local Support of Public Education* (1953).

⁶ See *Public School Attendance Areas*, Report of the Joint State Government Commission (1951).

tion to withhold payments unless, in the judgment of the department, the subsidies promoted the attainment of educational objectives. For instance, in connection with supplemental payments for jointures, unions and mergers, the law requires:

"In all cases the supplemental payments specified in the foregoing shall be made only for organizations established and operated in accordance with standards and regulations prescribed by the State Council of Education and approved by the Department of Public Instruction."⁷

Though incentive subsidies were tied to either function or organization, the attempt throughout was to encourage the formation of administrative units of adequate size.

Adequacy of size depends upon the variety and content of the programs which the public schools are expected to provide. Over time, public school programs have been intensified and diversified. The addition of programs, however, may not necessarily require the enlargement of school districts since responsibility for certain programs may be lodged elsewhere. Provisions have been made for the education of physically and mentally handicapped children on the county level. To facilitate competent vocational training in a wide variety of fields, the Public School Code authorizes and provides financial incentives for the formation of area technical schools.⁸

In view of these special provisions, the high school is expected to provide educational programs in general, commercial and academic subjects. The minimum size for an efficient high school depends upon the characteristics of the pupil population including aptitudes and preferences. Data gathered in connection with the Commission's survey of high school seniors⁹ indicate that, in order to maintain classes no smaller than 12 to 15 pupils for "accelerated" courses¹⁰ and 15 to 22 for intensive twelfth grade courses in such subjects as mathematics, science, languages and business, a senior class enrollment of about 150 pupils is required. A senior class of 150 students is generally associated with an enrollment of approximately 500 in senior high school

⁷ Public School Code of 1949, § 2502.1 added 1957, July 13, P. L. 864.

⁸ Pennsylvania public schools offer vocational courses in approximately 80 subject matter fields ranging from aircraft engine mechanic to X-ray technician.

⁹ *Pennsylvania High School Seniors, 1958: Their Mental Ability, Their Aspirations, Their Post-High School Activities*, Report of the Joint State Government Commission (1959).

¹⁰ "Accelerated" courses refer to courses offered to high school seniors for which college credit may be given.

(tenth, eleventh and twelfth grades) and a total enrollment in grades one (or kindergarten) through twelve of approximately 2,500.¹¹

As a matter of general practice, units with high schools which have less than 500 pupils, unless operated at low pupil-teacher ratios which, of necessity, generate high costs,¹² resort to one of the following practices: (1) intensive twelfth grade courses are not offered, or (2) seniors are compelled to take certain academic courses regardless of their aptitude or interest if they are to receive sufficient credits for graduation.

An operating unit of adequate size may be organized either as a single district or as a joint system. However, single district operation is preferable to joint operation because it permits administrative economies and tends to lessen variations in local tax resources. The General Assembly has provided an incentive payment of \$800 per teaching unit for single districts formed by the union or merger of individual districts as compared with \$500 per teaching unit for districts participating in joint operation.¹³

Practically all first and second class school districts are of sufficient size to offer a comprehensive educational program in all grades at reasonable cost. However, most of the operating units (single districts or joint school systems) in third and fourth class districts are of inadequate size; about 75 percent have an enrollment of less than 500 in their senior high school grades.

The following table shows, by size categories (school year 1959-1960), the number of high schools in third and fourth class districts and the total enrollment in grades 10, 11 and 12. Approximately 132,000 students, or 51 percent of the total senior high school enrollment in third and fourth class districts, attend high schools with less than 500 pupils in the senior high grades.

Size of School (Enrollment in Grades 10, 11 and 12)	Number of High Schools	Total Enrollment (Grades 10, 11 and 12)
Less than 300	296	54,100
300-499	199	77,800
500-699	81	47,300
700 or more	78	78,200
Total	654	257,400

Third and fourth class districts in the aggregate account for approximately 70 percent of the total enrollment in the Commonwealth's public schools and receive about 80 percent of total Commonwealth subsidies. Those third and fourth class districts whose students attend high schools enrolling less than 500 account for 36 percent of all enrollments and receive an estimated 47 percent of total Commonwealth subsidies. Furthermore, the proportion of expenditures financed by the Commonwealth tends to increase as the size of operating unit decreases.

Evaluation of the performance of schools requires the selection of some measure of quality of education. Despite the lack of unanimity among educationists and within the community at large concerning the goals of education, there appears to be general agreement with respect to particular characteristics which permit quality differentiations among schools.

One quality measure which has had considerable recognition in educational circles is "accreditation." The accreditation status of a high school is based upon an evaluation process performed by classroom teachers, supervisors and educational administrators, involving the appraisal of teachers' characteristics, intensity and diversity of programs, pupil guidance services, quality of administration and physical plant. The evaluation process is designed to appraise the over-all performance of high schools. Depending upon the findings of the evaluation, a given high school is either accredited or not accredited. The evaluation involved in accreditation is undertaken at the initiative of the school which desires accreditation.

In view of the general interest in specific subject matter which has developed recently,¹⁴ the accreditation measure has been augmented by measures of performance in specific areas. The areas selected for evaluation are mathematics, science and foreign languages. The potential performance of mathematics and science

¹¹ The findings of other observers are consistent with this conclusion. See James Bryant Conant, *The American High School Today* (New York: McGraw-Hill Book Company, Inc., 1959); and *Paying for Better Public Schools*, a Statement on National Policy by the Research and Policy Committee of the Committee for Economic Development (New York: Committee for Economic Development, December 1959).

¹² See *Public School Attendance Areas*, Report of the Joint State Government Commission (1951).

¹³ The higher incentive payments for unions and mergers notwithstanding, individual districts have shown a decided preference for joint operation. As of July, 1960, 1,829 districts participated in jointures, while 463 districts had been consolidated into 137 union or merged districts.

¹⁴ See National Defense Education Act of 1958, Pub. L. No. 85-864, 85th Congress, 2d Session (September 2, 1958).

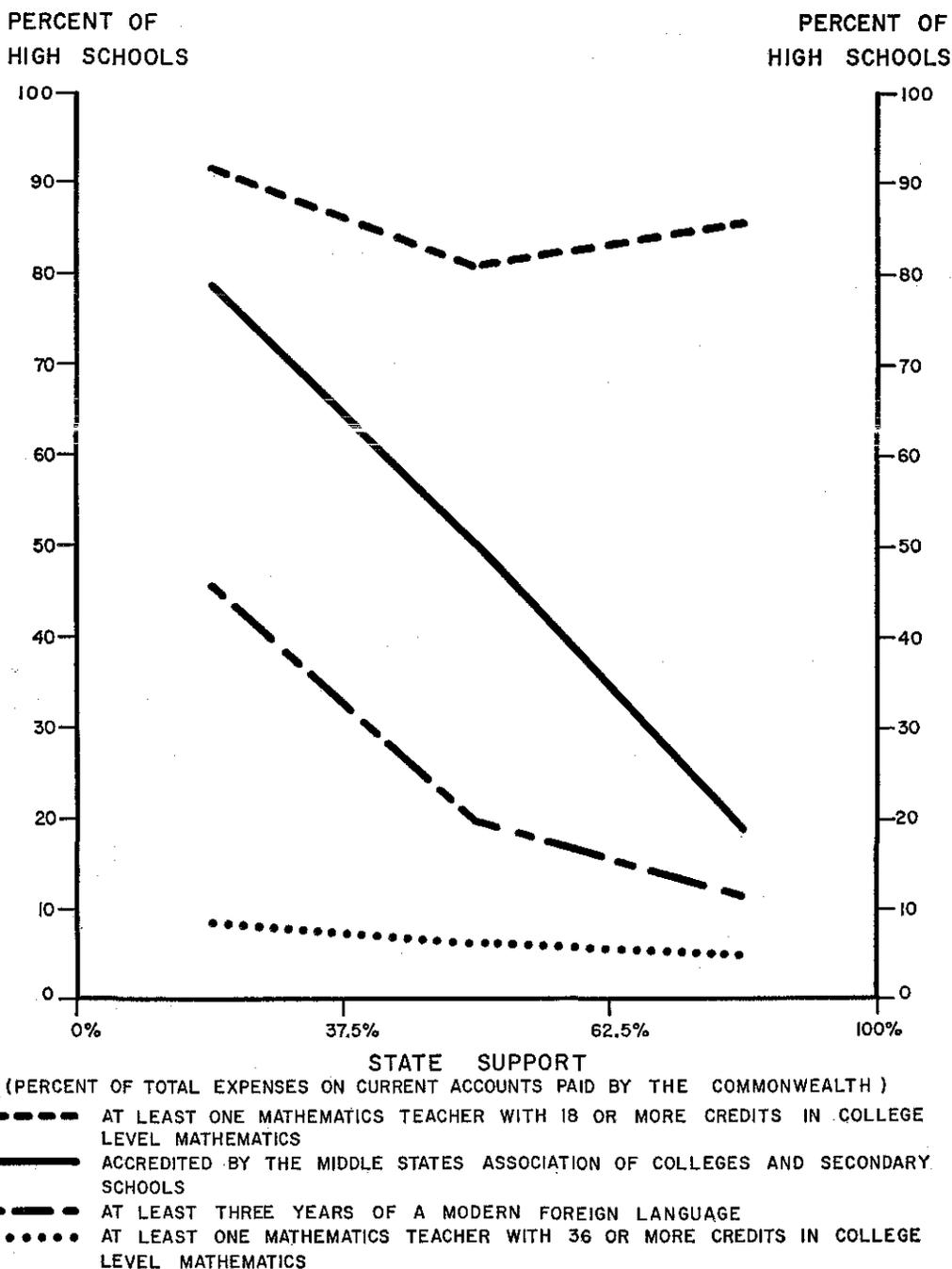
It is the consensus of informed observers that contemporary certification standards do not take full cognizance of the importance of subject matter preparation. Again, contemporary compensation practices do not reflect the different alternative employment opportunities of teachers

in different subject matter fields.¹⁸

¹⁸ For a vigorous attack upon prevailing certification standards and compensation practices in the public schools, see Myron Lieberman, *The Future of Public Education* (Chicago: The University of Chicago Press, 1960).

Chart II

PERCENT OF HIGH SCHOOLS IN SUPPORT CATEGORIES
HAVING SPECIFIED CHARACTERISTICS,
THIRD AND FOURTH CLASS SCHOOL DISTRICTS
1959-1960



teachers in the schools under review has been evaluated on the basis of the number of semester credits earned in college level subject matter. The opportunities offered in the foreign language area have been appraised by reference to the availability of three years of instruc-

tion in a modern foreign language.¹⁵

¹⁵ It is the view of authorities in the field that at least three years of instruction in a language is required to obtain any degree of competence; anything less than three years is largely a waste of time. See Conant, *The American High School Today*, p. 69.

Chart I
 PERCENT OF HIGH SCHOOLS IN SIZE CATEGORIES
 HAVING SPECIFIED CHARACTERISTICS,
 THIRD AND FOURTH CLASS SCHOOL DISTRICTS
 1959-1960

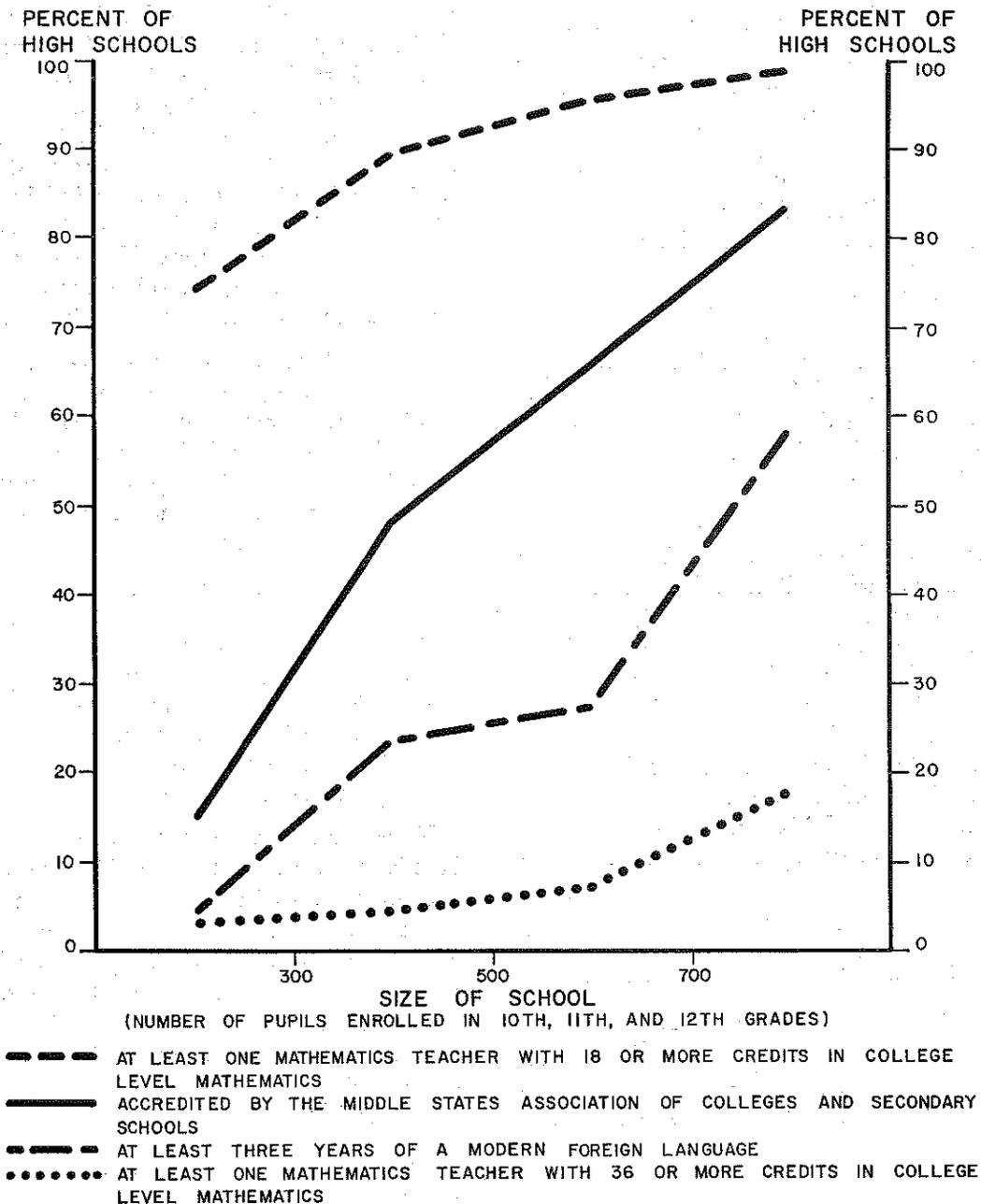


Chart I shows for high schools operated by third and fourth class districts, classified by size of senior high school enrollment, the percentages of schools (a) accredited by the Middle States Association of Colleges and Secondary Schools, (b) employing at least one mathematics teacher with 36 or more credit hours of college mathematics, (c) employing at least one mathematics teacher with 18 or more credit hours in college level mathematics, and (d) offering three years of instruction in a modern foreign language.

Examination of the chart shows that all quality measures under review increase, though at varying rates, as size of school increases. For example, about five percent of the schools in the smallest size group (less than 300 in grades 10, 11 and 12) offer three years of a modern foreign language, whereas 60 percent of the schools in the largest size group (700 or more) offer three years of a modern foreign language. Similarly, about 15 percent of the high schools in the smallest size group and 80 percent of the schools in the largest size group are accredited. While practically all high schools in the largest size group have at least one mathematics teacher with 18 or more credit hours in college level mathematics, 25 percent of the high schools in the smallest size group employ no teacher with 18 or more credit hours of college level mathematics.¹⁶ Though the chart does not show the qualifications of science teachers, examination of pertinent data indicates that the distribution of science teachers by preparation in subject matter resembles that of mathematics teachers.

Chart II* relates the quality measures to the percentage contribution of the Commonwealth toward the operating expenses of school districts. The chart shows that as the percentage of State support increases all quality measures decrease. For instance, in school districts receiving a Commonwealth contribution constituting less than 37.5 percent of their operating expenses, about 45 percent of the high schools offer three years of a modern foreign language and about 80 percent are accredited. At the other extreme, in school districts where Commonwealth subsidies constitute more than 62.5 percent of their operating expenses, about 11 per-

¹⁶ In a recent policy statement on the teaching of mathematics in the public schools, the Mathematical Association of America recommends the following minimum standards which, in equivalent semester credits, are: junior high school mathematics teachers 21 credit hours; senior high school mathematics teachers 36 credit hours; teachers of accelerated courses in the senior year 60 credit hours. (*The New York Times*, November 27, 1960, p. E7). In all Pennsylvania third and fourth class district high schools, there are only 40 teachers with 36 or more credit hours in mathematics.

*SEE FOLLOWING PAGE

cent offer three years of a modern foreign language and about 18 percent are accredited.

In connection with the relationship between size and quality of education, the data collected in the Commission's survey of high school seniors indicate that pupils attending large high schools in third and fourth class districts have a significantly greater chance than pupils with comparable aptitudes attending small high schools of overcoming environmental obstacles to college attendance. The continued presence of small high schools tends to deter bright students from realizing their educational potential.

Though many high schools of inadequate size still operate in the Commonwealth, it should not be concluded that the General Assembly's attempts to encourage the formation of operating units of adequate size have been ineffective. Over the last quarter of a century, the extremely small high schools have been eliminated. In 1929, 484 high schools enrolled 100 or fewer pupils; by 1949-1950, this number had been reduced to 122, and today there are less than 10 high schools enrolling less than 100 pupils. This improvement cannot be attributed to the growth of public school enrollment which, today, is almost the same as it was in 1929.

The problems faced in connection with the establishment of operating units of adequate size are not confined to Pennsylvania but are acutely felt in all states which have not embarked upon a course of mandatory consolidation. Reporting upon the progress of school consolidation in the nation, the Committee for Economic Development concludes:

"All experience shows that effective consolidation cannot and will not be achieved by the local units themselves. Even under rather strong state pressure, 'voluntary' reorganization requiring approval by voters in the local districts not only has proceeded at a snail's pace, but has usually resulted in consolidated districts that are still too small to provide an effective program or a sufficiently broad tax base."¹⁷

When formulating policies calculated to improve public education, it is essential to differentiate between the two components of educational quality: program diversity and program content. Acceptable program diversity can readily be provided by the establishment of operating units of adequate size. However, the content of programs depends, in the last analysis, upon the qualifications of instructional personnel which, in turn, are directly related to certification standards and compensation practices.

¹⁷ Committee for Economic Development, *Paying for Better Public Schools*, p. 7.