High School Education

December 1988

Program Evaluation Division
Office of the Legislative Auditor
State of Minnesota

Program Evaluation Division

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JAMES R. NOBLES, LEGISLATIVE AUDITOR

December 21, 1988

Representative Phillip J. Riveness, Chairman
Legislative Audit Commission

Dear Representative Riveness:

Minnesota reformed the way it finances education in the 1970s and created innovative programs which expand enrollment options for students in the 1980s. Subsequently, legislative attention has turned to questions about the equity of educational opportunities in different parts of the state and the adequacy of educational standards. In June 1987 the Legislative Audit Commission directed the Program Evaluation Division to evaluate these aspects of high school education in Minnesota.

This report examines how well Minnesota students are doing academically compared with their counterparts in other states. It also looks at curriculum requirements and the time students spend in high school. Finally, the report examines the extent of variation in high school academic programs and discusses some of the implications of Minnesota's tradition of local control over education.

The report does not describe a crisis in education in Minnesota, but its message is sobering: Minnesota's educational advantage has been slowly eroding. Compared with many other states, Minnesota expects less of its students and its students' college admission test scores have dropped.

We do not fault the reforms that Minnesota has enacted in the past few years. Instead, we identify additional steps that need to be taken. We think that Minnesota's high school academic standards are too lax and that many schools fail to provide the academic opportunities that students need.

The Legislature can and should act to address these problems. This report outlines some strategies for strengthening education in Minnesota.

We received cooperation from many sources in conducting this evaluation. We particularly thank the Department of Education, the State Board of Education, the State Board of Vocational Technical Education, the Higher Education Coordinating Board, and school superintendents who responded to our inquiries.

This report was researched and written by Marilyn Jackson-Beeck (project manager), Jo Vos, and Dan Jacobson, with assistance from Kathi Vanderwall and Victoria Miller.

Sincerely yours,

James R. Nobles
Legislative Auditor

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HIGH SCHOOL EDUCATION

Executive Summary

Minnesota's education system has many strengths, and often earns national praise. Legislators and other state leaders have shown their commitment to public schools through generous funding and persistent reform efforts. Yet public education here, as in other states, still faces serious challenges on several fronts.

In recent years, these challenges have been frequently addressed by national and state task forces, commissions, and study groups. Most have concluded that our public education system is inadequate, and some have said that the problems are threatening social stability and economic development.

To further assess the situation in Minnesota, the Legislative Audit Commission asked us to study high school education throughout the state and determine if changes were needed. The key questions we asked were:

- **How well are Minnesota high school students performing academically?**

- **What academic standards have been set for high school education in Minnesota? How do they compare with standards in other states? Are Minnesota's standards adequate to prepare students for higher education?**

- **How much do high school curricula vary in Minnesota? Do the variations have practical significance for students?**

METHODS AND EVALUATION CRITERIA

Our evaluation is based mainly on data from Minnesota's school districts. We reviewed curriculum information which administrators routinely send to the Department of Education, and we examined student test results where available. In addition, we sent a questionnaire to all school superintendents where grades 9 through 12 are taught and made direct contact (in person or by telephone) with administrators in about 100 districts.

Further, we interviewed national researchers and school administrators in other states. Working with the Minnesota Department of Education, we reviewed records of courses which are offered through inter-district travel agreements. Finally, we obtained lists of courses available through interactive television networks.

Our report documents (1) the number, type, and level of courses available to high school students, (2) schedules of instruction, and (3) program standards which school districts meet, exceed, or sometimes fail. In addition, we evaluated the relationship between curricula and education outcomes such as student test scores and college performance.

There may be no activity in the state more complex and difficult to evaluate than education, and the task is not made easier by focusing only on high school education. There are 436 school districts in Minnesota, and 386 of them are operating four-year high school programs this year. Additionally, we discovered that there are no well established or generally accepted criteria in Minnesota by which high school education can be judged. Nevertheless, to write our "report card," we developed criteria and methods which we believe are useful and appropriate in describing and evaluating policy-relevant aspects of high school education in Minnesota. They do not cover all relevant aspects of the learning process, but we believe they reflect many of the most critical elements and those which can be assessed objectively, systematically, and with the least amount of ambiguity.

Eighty-nine percent of Minnesota's 436 districts provide four full years of high school.

The evaluation criteria which we adopted reflect five aspects of high quality public education which have gained general acceptance in the United States. These include (1) individualized student-teacher interaction, (2) adequate, focused instructional time at school, (3) academic classes in the four core subjects of English, social studies, mathematics, and science, (4) preparation for further education, and (5) equal educational opportunities for all public school students.

We focused especially on the state's role in education. According to the Minnesota Constitution, the Legislature is ultimately responsible to see that adequate instruction is systematically available statewide. Thus, among other questions, we asked how well the Legislature's constitutional obligation is being met: "...to establish a general and uniform system of public schools" and "...to secure a thorough and efficient system of public schools throughout the state."[1]

BACKGROUND

Education has always been a high priority in Minnesota, and the state has been an acknowledged leader in education reform. In 1971, the Legislature devised a plan to reduce financial disparities among local school districts recognized nationally as the "Minnesota Miracle." More recently, the Legislature enacted several innovative measures which give students and parents unprecedented opportunities to choose among schools. Again, favorable

1 *Minn. Constitution*, Article XIII, Section 1.

national attention has come to Minnesota for its "open enrollment," "post-secondary option," and "high school graduation incentive" programs.

Despite these creative efforts, concerns about the quality and equity of Minnesota's education system have developed, and in fact they prompted this study. Although much information is available about school district finances and specific programs, policy makers wanted to know more about the courses and the learning which occurs in public high schools (grades 9 through 12) throughout the state.

Policy makers wanted to know more about high school curricula and the learning which occurs.

PERFORMANCE MEASURES

Among the fifty states, Minnesota ranks high for its college admission test scores, graduation rate, and low pupil-teacher ratio, among other positive accomplishments. However, we found strong evidence that Minnesota's reputation is overstated and out of date.

Favorable socioeconomic conditions inflate Minnesota's performance on standard education indicators--most notably college admission test scores. In any event, these indicators are less favorable than they were in the past because:

- **Results on all three college admission tests are continuing to decline while scores nationally are improving.**

This year, an estimated 44 percent of Minnesota's seniors took the American College Test, and they earned the lowest score in state history. For the first time, Minnesota's juniors (51 percent of whom were tested) scored below the national average on the verbal subtest of the Preliminary Scholastic Aptitude Test. Compared with the four surrounding states, Minnesota now has the lowest average scores on the Scholastic Aptitude Test--below Iowa, Wisconsin, North and South Dakota.

We found that Minnesota seems to be maintaining its advantage over the nation in basic achievement but falters in tests of college preparation. For example:

Minnesota students' test performance has dropped.

- **Minnesota public school students' average score and passing rate on Advanced Placement tests has fallen to approximately the national average.**

Part of the reason for this performance decline is that the percentage of Advanced Placement (AP) test takers nearly doubled between 1985 and 1988. Yet Minnesota's participation rate has climbed only to be about half the national average.

Statewide, few public high schools (27 percent) are accredited through the Minnesota's only official accrediting agency, the North Central Association of Colleges and Schools. Moreover:

- **Minnesota's percentage of graduates from accredited public and private high schools dropped five points between 1980 and 1987.**

More than 80 percent of school districts in the Twin Cities metropolitan area have at least one accredited high school, but in other regions, the percentage ranges from a low of 8 to a high of 24.

STANDARDS FOR HIGH SCHOOL

We reviewed Minnesota's existing standards and compared them with standards in other states. Results show:

- **Minnesota has weaker standards--especially student graduation requirements--than many other states.**

Only one other state allows high school students to complete just one year each of mathematics and science during grades 9 through 12. Forty-three states (and most of Minnesota's local school districts) require students to take two years of each subject. However, we found:

Districts may count driver's education courses as social studies.

- **Twelve percent of Minnesota seniors from the Class of 1986 completed less than two years of mathematics, and 17 percent completed less than two years of science.**

Even then, because the state permits school districts to decide which courses constitute mathematics and science, we found that students may cover vastly different material. For example, districts treat computer programming variously as mathematics or vocational instruction. Science can include vocational agriculture (in one district: "hands-on laboratory experience in the field," working with various species of livestock). Similarly, foreign language may count as English, and driver's education as social studies. Also under the category of social studies, we found military training which includes hygiene, flag drills, and weapons safety, among other topics.

In contrast, many other states adopted aggressive, direct reforms after national studies disclosed serious educational shortcomings. In Minnesota, we found:

- **State standards for high school education are not as high as elsewhere, and in some respects they have declined over the past few years.**

The school year is longer in most other states.

Minnesota's 20-credit graduation requirement is near the national average, but the number of instructional days annually is less than most states. In all, only eight states (including Minnesota) require less than 175 instructional days per year.

In 1983, the National Commission on Excellence in Education urgently recommended that all states lengthen the school year and school day, but we found:

- **Minnesota school districts now operate for three fewer instructional days than during the 1968-69 school year.**

While the number of instructional days has declined for students, the average number of non-instructional days for teachers increased from three to eight days over the past 20 years.

By comparison with other states, Minnesota does require a relatively long six-hour school day. However, we found:

- **Ninety percent of high school students are allowed to spend as little as five hours in class, and only 13 percent attend districts which have established formal homework policies.**

We also learned that many other states require students to demonstrate a certain level of academic achievement as a condition for graduation. Minnesota declines to require a minimum level of student performance or to assure through a test that students have achieved that minimum level. Yet when we asked local superintendents what policies they maintain on academic performance, results showed:

- **At most, one-third of Minnesota's high school districts have policies which establish minimum standards for graduates' reading and mathematics skills.**

Statewide, we found that 67 percent of the high school districts have no general policy on graduates' minimum reading abilities. Seventeen percent of the districts have adopted policies to ensure that graduates develop reading skills at least characteristic of junior-high or elementary school students in grades 5 through 8. Six percent have policies which set the general level of expectation within high school grades 9 through 12, and 10 percent maintain other policies which do not translate into grade-level equivalents.

Few districts have formal policies on reading and math skills expected for graduation.

Similarly, 68 percent of the superintendents said they operate without any district-wide policy on minimum expectations for mathematics skills. Twelve percent indicated that their district-wide general standard is to expect ciphering abilities at least at the 6th to 8th grade level. In seven percent of the districts, we found policies which set minimum mathematics expectations at the high school level, and in 13 percent we found other policies which do not specify grade-level equivalents.

In addition, we asked superintendents to describe any other district-wide, established policies they have on the academic level at which they expect their graduates to perform. Most (61 percent) indicated they have no additional policies on graduates' academic abilities.

Because there is no statewide, universal test of Minnesota students' academic knowledge, we could not evaluate education outcomes in an ideal manner.

However, we analyzed test scores and survey data from reasonably representative sub-samples of school districts, and found evidence that:

- **Minnesota high school students in districts whose programs fall short of curriculum standards are more likely to say they need academic help.**

Very few districts are in this category, but the difference in student sentiment is large. For example, 43 percent of juniors in districts with incomplete mathematics curricula said they would like help with that subject in the future. By comparison, 14 percent of juniors in other districts gave that response.

We also found:

- **The greater the proportion of enrollees from ethnic minority and nonwhite racial groups, the lower were districts' scores in eighth grade social studies, mathematics, and science.**

The percentage of correct answers in these subjects declined systematically as minority enrollment increased. However, we found no relationship between minority enrollment and reading scores.

INSTRUCTIONAL VARIATIONS

Minnesota districts vary greatly in the amount of instructional time they require and provide to high school students. Thirty-eight percent of high school students are permitted no more than 5.5 hours of daily instruction, but nine percent of students can enroll in classes for more than 6.5 hours. Most districts provide seven instructional periods daily, but some have four and others nine. A few districts are open only four days weekly (but have longer school days).

In some cases, the additional time is needed because students are bused during the day to other districts so that they can take courses which would otherwise be unavailable. However, instructional time may be lost because districts use different class schedules. Class periods typically range from 46 to 59 minutes. Vacation schedules also are different, with the result that inter-district cooperation can be complicated. For example, in one district which opens its classes to students from another district for part of each day, lessons continue when remote sites do not have school.

Some districts require graduates to spend hundreds more hours in class than other districts.

Although the Department of Education defines a credit as 120 hours of instruction, our evaluation showed that districts have other expectations. The statewide average is 147 hours, but a few districts require even more than 160 hours of instruction per credit. In addition, most (but not all) districts require more than 20 credits to graduate. As a result:

- **Between grades 9 and 12, some Minnesota students must take the equivalent of an additional year of classes in order to graduate.**

Most often, the differences amount to nearly one-third of a year. We found that about one-fourth of the districts require high school students to take up to 3,020 of instruction to graduate, while another fourth require graduates to finish at least 3,351 hours.

We learned that no one at the Minnesota Department of Education has a full-time responsibility to monitor regular education programs in local districts. Overall:

- **State oversight and monitoring of districts' compliance with curriculum standards is inadequate.**

The department has a curriculum monitoring project, but it stopped monitoring districts that met minimum standards in 1986-87. The department has an Office of Monitoring and Compliance, but most of its activities concern special education. One person from another unit spends an average of ten hours monitoring regular education weekly; others are called in on occasion.

Part of the reason for the lack of monitoring is that state curriculum standards are rather easy to meet. Under the existing regulations, districts can (and do) count correspondence and interactive television courses as their own. If a district offers two courses every other year, it can count both toward state requirements. Some districts meet state requirements by placing beginners and second-year students in the same class (counting this as two courses). When students are bused elsewhere for several periods daily, home districts are free to count the classes as though the students were on site.

Even so, we found:

- **A few districts do not comply with the State Board of Education's curriculum requirements which were to be effective during the 1985-86 school year.**

During the 1986-87 school year, 14 districts did not provide sufficient English or foreign language courses to meet the State Board of Education's requirements. By this school year, the districts reached the minimum English requirement, but three still fail the state's foreign language requirement (two years of a single foreign language). Further, we found that 36 districts complied with the two-year foreign language requirement in 1986-87 only by busing their students elsewhere during part of each school day.

Some students have unequal access to education.

Statewide, 20 districts have curricula which fall short of one or more of the State Board of Education's curriculum requirements or the Institute of Technology admission standards for science and mathematics. But this involves only about 4,000 students or 2 percent of Minnesota public high school enrollees. Overall, we found that 27 percent of the state's high school students attend districts where curricula do meet minimum standards, and 71 percent go to high schools which reach or exceed high standards for academic curricula.

However, we also found:

- **Nearly one-fourth of Minnesota students would suffer a competitive disadvantage if they applied to selective colleges because their districts provide them with too few curricular opportunities.**

During the 1987-88 school year, 19 percent of high school students attended districts without the Advanced Placement or honors courses which are recommended by Macalester and Carleton Colleges. Further, 15 percent of high school students attended districts that did not provide three years of a foreign language as expected by Macalester College and recommended for future admission to the College of Liberal Arts on the University of Minnesota-Twin Cities campus.

On the other hand, we found that over the past ten years, high school students' educational aspirations have risen so that:

- **The majority of Minnesota students now enroll in post-secondary schools after graduation, and the majority plan to graduate from a four-year college.**

During the 1987-88 school year, 64 percent of Minnesota public school juniors said they plan to earn at least a four-year college degree (including 13 percent who expect a master's degree and 8 percent who wish for diplomas from post-graduate professional schools). As recently as 1978, a combined total of only 41 percent of Minnesota juniors planned on this level of post-secondary education.

Our study found that at least some students in every school district clearly intend to go to college. This contributed to our conclusion that:

- **Many districts provide too narrow a range of academic courses.**

While 35 percent of students attended districts that provided more than 60 academic courses on a typical day during the 1987-88 school year, we found that another 22 percent were limited to fewer than 30 regular classes in English, social studies, mathematics, and science. In 1986-87, the only language available on site in 57 districts was English, but students in other districts could choose classes in as many as seven foreign languages. Thus:

- **We question whether all students have equal access to high school education in Minnesota.**

Some districts rely heavily on off-site instruction and alternate-year scheduling.

Although only a small fraction of Minnesota students in grades 9 through 12 may be affected by outright curriculum failure, we believe the rarity of deficient programming begs important questions of fairness and quality. In addition, equity questions are posed by (1) districts' uneven reliance on television technology, mid-day busing, alternate-year scheduling, and high school correspondence programs and (2) limited access to courses which go beyond the minimum.

REASONS FOR CURRICULUM VARIATIONS

In our evaluation, we analyzed the relationship between high school curricula and a number of factors which might yield differences. Results show that:

- **Some districts--especially those with few enrollees--provide far fewer opportunities than others.**

Among several district characteristics which might explain curriculum variations, enrollment size was the single most important factor. That is: the more students, the more academic courses. In addition, two important but lesser factors are (1) the percentage of adult residents who graduated from college and (2) revenues from referendum levies.

In our survey, superintendents ranked state board requirements as the single most important explanation for their number and type of high school courses. Forty-four percent called state curriculum requirements "critically important," compared with financial resources (36 percent) local board requirements (31 percent), enrollment (29 percent), and other factors.

Superintendents also rated their high school curriculum in major subject areas. Results are consistent with our independent analysis:

- **Superintendents in districts with fewer than 100 high school students identify fewer curriculum strengths than their colleagues in larger districts.**

On the average, the superintendents of small districts noted 3.6 curriculum strengths out of 8 subjects. Superintendents of the larger Minnesota school districts rated an average of 6.2 of the 8 subject areas "strong" or "very strong."

We also found:

- **School districts with few enrollees and weak curricula are costly to operate.**

Results show that the state's smallest districts with weakest curricula spent 38 percent more per student than the statewide average. Most of this is due to low student-staff ratios--ratios 40 percent lower than the statewide average.

DISCUSSION AND RECOMMENDATIONS

In a state which generously funds education and prides itself on its creative accomplishments, we were surprised to find that even a few districts fail to meet minimum, permissive standards and that others regularly rely on methods which limit student-teacher interaction.

The Legislature is constitutionally responsible to ensure a uniform, general, thorough, and efficient system of public schools in Minnesota, but it has delegated responsibility to hundreds of local districts. In our view, it is time to reconsider the balance between state and local responsibilities.

We also think that some of our findings are inconsistent with Minnesota's well established policy goals of high quality and equity in public education. Moreover, because it has already accomplished so much, we think that the Legislature will want to take additional steps to reduce the inequities and address performance problems we found.

The state needs to ensure that high school programs are sound and generally accessible.

Based on the extent and importance of the differences which exist in curricula and delivery methods, and the need to ensure students' basic academic achievement, we believe that state actions are needed to improve high school education in Minnesota.

We considered a range of policy options and concluded that the Legislature should:

- **Establish more ambitious, uniform state standards and goals for academic curricula and outcomes.**

- **Provide for systems and staff who would monitor compliance with the new standards on a timely basis.**

- **Ensure full disclosure of comparative information which would summarize each district's high school programs, populations, and outcomes.**

We believe that Minnesota's education policies need revision, and the three recommendations above, if adopted, would resolve the most pressing problems which our evaluation disclosed. In our view, a lack of clear, consistent state policies and comparative information has allowed inequities to develop. But in addition, the Legislature might also consider the following recommendations which would address more specific situations.

First, assuming that the Department of Education upgrades its systems for monitoring regular education and publicizing districts' compliance with state standards, we recommend:

The adequacy of high school curricula should be determined annually.

- **The Legislature should direct the department to develop an annual certification program to ensure that each district in the future provides adequate and advanced high school courses.**

We think that students and parents would be empowered to exercise the state's open enrollment option more effectively if differences between districts were clearly indicated. We recognize that some program variations will continue and may be desirable within limits but parents and students should be informed about those variations.

Second:

- **The Legislature should encourage gradual reorganization which would place at least 100 high school students (grades 9 through 12) in each district.**

We found that about 75 of the state's high school districts have fewer than 27 students per grade and that districts of this small size give students less choice of courses, less opportunity for student-teacher interaction, and fewer advanced courses which selective colleges recommend. Also, these districts have the highest operating costs.

The state should ensure that Minnesota high school graduates generally have at least 11th grade reading and math skills.

We also recommend that:

- **The Legislature should enact a program of statewide universal testing which would ensure that all public high school graduates have at least 11th grade reading and mathematics skills.**

Currently, Minnesota districts use more than 80 tests to assess curricula and measure students' academic achievement, skills, and aptitudes. We suggest that the State Board of Education should select a national test which reliably and uniformly establishes at least students' reading and mathematics skills.

Various standard tests of basic reading and mathematics skills are widely used in Minnesota, and we found that 17 percent of high school districts already require students to achieve certain test scores as a condition for graduation. We think every district should test its students, thus assuring that high school graduates throughout the state have universally achieved academic skills in two vital subjects.

The process we envision is that the state board would select an appropriate national test of basic skills and establish the range of scores which are acceptable for Minnesota high school graduates (aside from those with handicapping conditions). By testing high school juniors in this fashion, students with reading and mathematics deficiences would have a year to build their skills, if necessary, before being re-tested as seniors. But if students' skills remain short of the 11th grade national norm for reading and mathematics, we believe that the state soon should prohibit districts from granting a high school diploma.

In our view, aggregate test results comparing each high school to the state average also should be published as well as other information to enable parents, the state, and local communities to monitor their schools and take appropriate steps when performance lags.

Instructional time and homework could well be increased.

As an additional measure, we suggest that:

- **The Legislature should consider a restoration of Minnesota's instructional year at least to its previous length and consider a requirement that districts develop homework policies.**

Our evaluation shows that previous legislation had the effect of reducing Minnesota's instructional year by five days--to a level below what it was during the late 1960s. Our survey of superintendents revealed that only 13 percent of the state's high school students attend districts where homework policies were in effect. By requiring one hour of homework each week night, students would receive the full benefit of the state's currently required six-hour school day without additional state or local spending.

Finally, we suggest that:

- **The Legislature should direct the State Board of Education to increase and reconfigure graduation requirements so that high school students in the future devote the majority of their time to English, social studies, mathematics, and science.**

Other reform efforts should continue.

We believe two additional credits (equivalent to two year-long courses) beyond the state's current 20-credit graduation requirement would be helpful in light of most high school students' plans for further education. Also, we suggest that state standards in the future should encourage future students to concentrate their studies in the core academic subjects of English, social studies, mathematics, and science. Surprisingly, our evaluation shows that less than half of the typical high school curriculum now covers these subjects which, we believe, should be the heart of public education in the future.

Other groups and individuals may recommend alternative strategies for improving high school education in Minnesota. Some of these strategies emphasize learner outcomes, improvement of teaching, school-site management, and district reorganization. We believe that our recommendations can supplement, not contradict, other reform strategies.

INTRODUCTION

Education is one of Minnesota's highest priorities and proudest accomplishments. The state and local districts generously staff and support public schools. In the past, Minnesota schools have earned an outstanding national reputation. A strong education system is an essential element of the state's high quality of life and an important part of the business climate.

Minnesota's system of education nonetheless is facing challenges on several fronts. First, declining enrollment has seriously affected some districts. Second, business leaders and educators have identified critical weaknesses in the basic knowledge which students have gained. Third, there is constant pressure from employers and parents to improve public education--to bring more and better opportunities to future generations.

The Legislative Audit Commission asked us to study Minnesota's system of public high school education and determine if changes were needed. In our evaluation, we asked:

- **How well are Minnesota high school students performing academically?**

- **What academic standards have been set for high school education in Minnesota? How do they compare with standards in other states? Are Minnesota's standards adequate to prepare students for higher education?**

- **How much do high school curricula vary in Minnesota? Do the variations have practical significance for students?**

To answer these questions, we gathered and analyzed data from Minnesota's school districts. We surveyed superintendents in districts which provide four full years of high school, and we interviewed national researchers and administrators in other states. Working with the Department of Education, we reviewed teacher assignments, documents, and reports filed by school districts. Finally, we visited high schools around the state and analyzed student test scores.

As we evaluated education, we scrutinized the system's overall performance and examined the state's role. Education accounts for about one-third of all

state spending, but most of the responsibility today rests with hundreds of diverse school districts. Each responds primarily to local concerns, and this has contributed to a lack of statewide data which our study helps to address.

Our results suggest that the state's reputation for quality education is somewhat overstated and that Minnesota's advantage over other states is shrinking. In addition, curriculum differences among districts in Minnesota are so large and systematic that equal access to educational opportunities is questionable for some high school students.

Our evaluation is presented in the following eight chapters. Chapter 1 presents an overview of education reform efforts in Minnesota and the nation. In Chapter 2, we review performance indicators--the basis for Minnesota's national reputation. Chapter 3 outlines the state's current standards for high school education. Chapters 4 and 5 document school district organization and differences in instructional time. Chapter 6 shows the extent of variation in academic programs and explains some of the reasons for significant differences among districts. Our analysis of education outcomes is presented in Chapter 7. Finally, Chapter 8 reviews policy options and presents our recommendations for state actions.

CLIMATE FOR REFORM

Chapter 1

Education in Minnesota has come under increasing scrutiny in the past few years. Much of the impetus comes from a national evaluation report which in 1983 disturbed citizens throughout the country. Entitled *A Nation at Risk*, the report persuasively argued that: "the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people."[1]

As background for our evaluation of high school program variations, we reviewed *A Nation at Risk*, related studies, education reforms, and the accompanying rise in expectations. In this chapter, we addressed the following questions:

- **What happened as a result of the national report?**
- **What is Minnesota's current approach to education reform?**
- **How have expectations changed since *A Nation at Risk* was published?**

Also in this chapter, we discuss the criteria which we adopted to guide our evaluation of high school education in Minnesota.

Declining college admission test scores prompted the national reform movement.

A NATION AT RISK

A Nation at Risk focused on reasons why college admission test scores had declined sharply since the 1960s. Based on nearly two years of study, the report concluded that problems stemmed from serious deficiencies in four key aspects of American secondary education: curriculum, public expectations, use of instructional time, and teaching.

The National Commission on Excellence in Education found that:

- Secondary curricula have been diluted and diversified at the expense of basic academic courses.

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1 National Commission on Excellence in Education, *A Nation at Risk* (Washington, 1983), 5.

- High school diplomas are granted with little regard for students' academic achievement.
- Instructional time is too brief and often wasted.
- Teachers are under-qualified, ill-compensated, and poorly treated.[2]

The commission stressed an urgent need for improvements. Its five key recommendations therefore were strong:

- Strengthen graduation requirements while focusing students' studies on the "new basics"--English, social studies, mathematics, science, and computer science. For the college-bound, also include foreign language.
- Raise four-year college admission requirements while adopting higher expectations for academic performance in high school and beyond.
- Spend additional time on academic studies through more effective use of the school day, a longer school day, or a longer school year.
- Improve teachers' training, pay, and working conditions.
- Hold educators and elected officials responsible for reforms while increasing fiscal support for education.[3]

Most states adopted strong, direct reform measures.

The national response to these recommendations was vigorous and direct. Educators and policy makers generally accepted the harsh, negative findings, and major education reforms quickly followed.

Within one year of *A Nation at Risk*'s publication, more than half the states adopted at least 4 of 20 different reform measures. The most popular initiatives were increased graduation requirements, uniform testing, academic enrichment programs, and higher standards for teacher preparation and certification.[4]

Minnesota's Approach

On the average, states initially adopted seven reforms. Minnesota adopted three measures: (1) opportunities for teachers' professional development, (2) increased academic recognition for students, and (3) development of written policies for school discipline.

Between 1983 and 1984, several Minnesota task forces and groups gathered to study education and make further recommendations. The results were ad-

2 *Ibid.*, 18-23.

3 *Ibid.*, 23-32.

4 U.S. Department of Education, *The Nation Responds* (Washington, May 1984), 144-146.

ditional legislation and public discussion which required districts to provide broader curricula beginning in the 1985-86 school year, increased admission requirements at public universities, and designated state funds for school districts to develop instructional technologies. These and subsequent reforms are described in Chapters 3 through 6.

A unique approach to education reform continued to evolve in Minnesota. While other states gravitated toward regulation, penalties for non-compliance, and ultimately, plans for direct intervention in "academically bankrupt" local districts, Minnesota took a three-pronged, indirect route to reform by creating numerous positive incentives for voluntary change.[5]

Minnesota developed a separate, unique approach.

So-called "choice programs" are the crux of Minnesota's special approach to education reform. These have attracted much favorable attention from national leaders and the press:

- **Programs of Excellence**--allows selected students with particular academic interests to enroll in districts where corresponding portions of the curriculum are especially well developed.[6]

- **K-12 Enrollment Options Program (Open Enrollment)**--allows students and parents to choose which public school to attend subject to constraints of space and racial balance.[7]

- **High School Graduation Incentives Program**--permits dropouts and students at risk of dropping out to take courses in other districts, post-secondary schools, and alternative learning centers which address these students' needs.[8]

- **Post-Secondary Enrollment Options Act**--allows high school students to take college classes at state expense regardless of previous academic performance.[9]

The second pillar of Minnesota's reform initiative is legislation which encourages school districts to make more efficient use of resources. Neighboring districts already were forming alliances and buying services from regional cooperatives under previous laws, but new measures expanded the concept to non-adjacent districts and regular educational programs (that is, other than vocational and special education). Regional "super schools" and large education districts currently are developing as two dramatic examples of this legislative thrust.[10]

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5 Education Commission of the States, *Academic Bankruptcy--An Accountability Tool?* (Denver, February 1988).

6 *Minn. Stat.* §§126.60 through 126.64.

7 *Minn. Stat.* §§123.3515 and 120.062.

8 *Minn. Stat.* §§126.22 through 126.24.

9 *Minn. Stat.* §123.3514.

10 *Minn. Stat.* §§124.491 through 124.496 and *Minn. Stat.* §§122.91 through 122.96.

Third, the Legislature took steps to ensure that school districts and educators act responsibly and in accord with local preferences. Each district now must set goals with community input, publicly report performance based on a defined review process, identify and offer remedial help to students with academic shortcomings, and regularly review the curriculum.[11]

National Progress

Evidence of nationwide improvement is clear. But problems remain.

As Minnesota developed its unique approach, the national education reform movement grew stronger. Between 1983 and 1986, prestigious task forces, private foundations, and researchers released a dozen additional reports which buttressed earlier negative findings and developed more detailed strategies for change.[12] A second wave of reports identified still more education problems, some of which had been overlooked.[13] For example, these reports focused on classroom operations, dropouts, the need for creative thinking, and problems of minority groups. Also, they identified critical elements for effective learning while developing the broad connection between education, American democracy, and civic culture.[14]

This year, the U.S. Department of Education released an initial evaluation of national reform efforts.[15] Positive accomplishments such as these are clear:

- The national decline in college admission test scores--which prompted major reforms--has been reversed.[16]
- Students nationally are completing more coursework in English, social studies, mathematics, science, computer science, and foreign languages.
- Many high schools have established or strengthened homework policies.

But despite these accomplishments, the U.S. Department of Education gives mixed grades to education reform. One reason for this appraisal is that research repeatedly finds that American students have weaker academic skills than their peers in most industrialized nations. Second, the recent federal evaluation points out that college admission test scores stopped declining but remain far below 1960s levels. Third, a test score gap persists between white and nonwhite students. Finally, the federal evaluation recounts specific in-

11 *Minn. Stat.* §§126.65 through 126.68.

12 James B. Stedman, *Education in America: Reports on Its Condition, Recommendations for Change* (Washington: Congressional Research Service, 1986).

13 Education Commission of the States, *The Next Wave* (Denver, February 1987).

14 U.S. Department of Education, *What Works* (Washington, 1987); Lynne V. Cheney, *American Memory: A Report on the Humanities in the Nation's Public Schools* (Washington: National Endowment for the Humanities, 1987).

15 U.S. Department of Education, *American Education: Making It Work* (Washington, April 1988).

16 State and national test trends are shown in Chapter 2.

stances in which sizeable proportions of public school students fail to show that they know simple facts from history, geography, literature, and mathematics. For example, two-thirds of 17-year-olds in a recent national sample did not know approximately when the Civil War took place, and nearly 30 percent could not locate the Mississippi River on a map of the United States.[17]

RISING EXPECTATIONS

Nearly two-thirds of Minnesota juniors expect to complete four or more years of college.

While the Legislature pursued reform measures, we found that Minnesota students, educators, and business leaders were placing stronger demands upon public education. Most important, Minnesota students' post-secondary educational aspirations were rising rapidly. As a result, nearly two-thirds of high school juniors now plan to complete at least four years of college compared with 41 percent just ten years ago. Figure 1.1 shows that 43 percent of Minnesota public high school juniors during the 1987-88 school year said they plan to earn a four-year college degree. Further, 13 percent expect a master's degree, and 8 percent wish for diplomas from post-graduate professional schools.[18] In 1978, 30 percent of Minnesota juniors expected to earn a four-year degree, 6 percent a master's, and 5 percent a professional degree.[19]

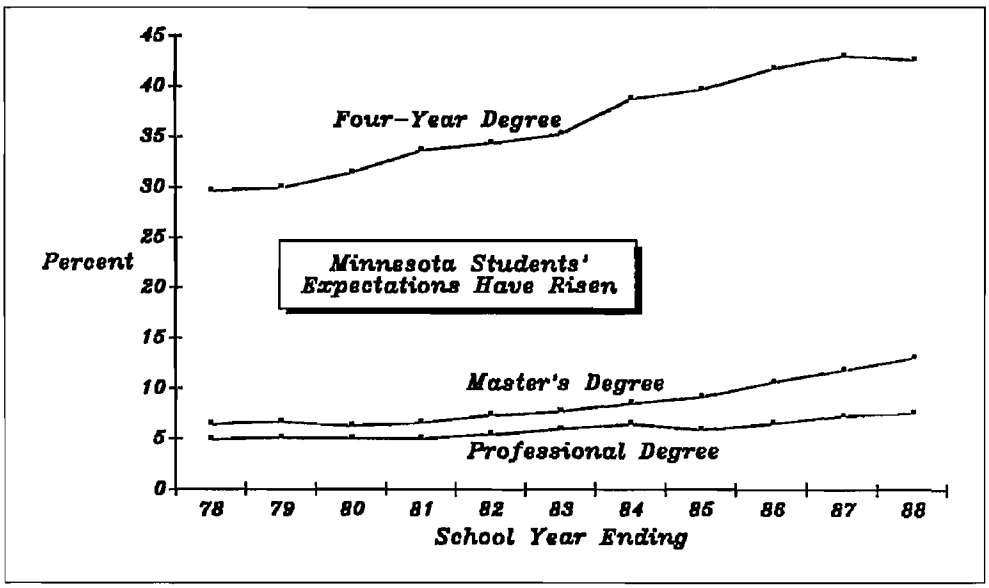

Figure 1.1: Public High School Juniors' Expected Level of College Education, 1978-1988 (Source: Minnesota Higher Education Coordinating Board.)

17 Ibid., 10-13

18 Minnesota Higher Education Coordinating Board, *Summary of Responses to the Plans and Background Survey and Aptitude Test Score Trends for Minnesota High School Juniors, 1979-1988* (September 1988), 8.

19 Minnesota Higher Education Coordinating Board, *Summary of Responses to the Plans and Background Survey and Aptitude Test Score Trends for Minnesota High School Juniors, 1978-1987* (September 1987), 10.

College administrators meanwhile have registered alarm at the growing numbers of post-secondary students who enroll but then need remedial instruction.[20] In 1982-83, a survey of 83 Minnesota public and private post-secondary schools showed:

- **Over 15,000 Minnesota college students were enrolled in high school mathematics courses taught in post-secondary schools, and more than 18,000 took remedial reading, writing, and study skills courses.**

- **Public post-secondary schools spent an estimated $13.1 million or 2.4 percent of total instructional expenditures for remedial courses, skills development courses, and related support services.**[21]

Minnesota's education system faced criticism.

The University of Minnesota addressed some of these concerns through its increased preparation requirements for freshmen. Beginning in Fall 1991, all applicants to baccalaureate programs on the Duluth, Morris, and Twin Cities campuses must show evidence of high school-level competency in English, social studies, mathematics, science, and a second language. If prospective students do not meet the new requirements, they may suffer a competitive disadvantage but could be admitted with deficiencies. Students thereafter will have up to two years to correct deficiencies before admission to upper division programs.[22]

In addition, the State University Board in 1984 adopted a college-preparatory curriculum which is strongly recommended but not required for admission. This curriculum builds a case for Minnesota high school students to prepare for college by developing competencies in English, science, social studies, mathematics, art, a second language, and computer science.[23]

Business leaders in the 1980s also presented formal concerns about high school graduates' academic skills. Among corporate members of the Minnesota Business Partnership (MBP), a survey showed that 42 percent had encountered inadequate writing skills among ten percent or more of their newly hired professional and technical employees. The MBP consequently commissioned in-depth studies which raised additional issues and culminated in a formal proposal which would restructure and refocus public education in Minnesota.[24] MPB now continues to emphasize the need for improvements in students' mastery of core courses in English, social studies, mathematics, and science.

Through the influence of business leaders, academic education now is recognized as an important resource which facilitates economic development in

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20 Minnesota Higher Education Coordinating Board, *Remedial and Skills Development Instruction in Minnesota Post-Secondary Education* (May 1984).

21 Ibid., 2-3.

22 University of Minnesota, *High School Preparation Requirements* (June 1987).

23 Minnesota State University System, *Preparing for Success*, undated brochure.

24 Summarized in *Educating Students for the 21st Century* (Minneapolis: Minnesota Business Partnership, Inc., November 1984).

Minnesota. First, corporate success rests upon employees' level of skill. If skills are weak, businesses are limited in their ability to enter global markets and benefit from higher technology. Second, employers point out that they could save money if employees already knew how to read, write, use computers, and handle figures. One recent national estimate puts work-site education costs at $25 billion annually.[25] Third, unemployment costs would be reduced if employees entered the job market with stronger academic training. Business trends indicate that workers increasingly will be asked to learn and perform various jobs--not just one--during their career.

EVALUATION CRITERIA

In light of recent reform initiatives, it is particularly difficult to evaluate so complex and ambitious an endeavor as universal public education. At the same time, policy makers understandably are anxious to learn whether additional measures are necessary.

There is no consensus about the goals and objectives of public education.

We view education, or learning more generally, as a multi-faceted activity of such complexity that it sustains ongoing research and evaluation by professionals throughout the country. Yet we also appreciate the scarcity of statewide, comparative information which can be used in public policy discussions. Because of the shortage of this latter type of information, we adopted simple criteria and direct methods which we believe are useful in describing and evaluating important aspects of public education in Minnesota.

We looked to policy makers, educators, other researchers, and the public for suggestions about appropriate evaluation criteria but discovered a fundamental lack of consensus. In fact, a recent study suggests that the current shortage of statewide information may be the result of deeply divided opinions about the objectives and goals of public education in Minnesota. After a statewide survey, literature review, and group discussion, researchers could only conclude that:

- **There is a lack of consensus among the many providing and consuming sectors of Minnesota's education system.**[26]

In the absence of statewide consensus, nevertheless, we developed some basic criteria which we believe are appropriate to document and evaluate policy-relevant aspects of public education. We do not profess to cover all relevant aspects of the learning process but rather some critical elements which can be assessed objectively, systematically, and with the least amount of ambiguity on a statewide basis. Our evaluation is limited. We focus on the variety of academic courses available within school districts, the class schedules which

25 Dave Hage, "Business as Catalyst Can Improve Education," *Star Tribune* (Minneapolis, September 12, 1988), 1D, 9D.

26 Diane L. Morehouse and Mary L. Hoaglund, *Profiles of Educational Accountability* (Legislative Commission on Public Education, August 1988).

districts have developed, and the means by which instruction is formally provided to high school students in Minnesota.[27]

The criteria that we adopted reflect five aspects of high quality public education which have gained general acceptance in the United States. In addition, these criteria are consistent with Minnesota's firm commitment to maintaining and improving a strong system of public instruction.

Student-Teacher Interaction

Adequate time and individualized instruction are essential to a good education.

A direct, personal, ongoing relationship between teachers and students is ideal for learning. Given such a relationship, teachers can work closely with individual students, tailor material to individual needs, and reach students who might otherwise be less involved. Also, teachers can directly shape the classroom environment in which learning takes place and subtly encourage students' participation.

To the extent that mechanical communications media come between students and teachers, student-teacher interaction is diminished somewhat. Similarly, student-teacher interaction is reduced when students are allowed to sit in on classes but otherwise have limited opportunities to see teachers at other times during, before, or after the school day.

Instructional Time

Unless students undertake a regular, disciplined program of instruction, it is unlikely that they will gain mastery of a body of organized knowledge and academic skills. All students of course do learn independently, within and outside the classroom, but they usually must be led through a patterned sequence of increasingly difficult lessons. To develop mastery, most students need to think, listen, ask questions, complete assignments, do practice exercises, and get feedback--all of which takes time.

In other words, time is a necessary condition or a parameter in which learning takes place. Time of course is only one condition for learning, but it is vital and often neglected in policy discussions. Thus, we evaluate statewide differences in the duration of the school day, the length and number of class periods, and the amount of instructional time which is available for students' use. Further, we believe it is appropriate to expect that a high quality education system would allow students routine daily access to academic classes which are scheduled during every period.

Academic Classes

Classroom instruction in academic subjects is the primary justification for public schools' existence. It is indisputably important that schools provide classes in other subjects, meet special needs, and help students develop

27 Only 19 of the state's 436 school districts have multiple high schools, and the school districts allocate resources to them.

English, social studies, mathematics, and science classes are basic to all aspects of public education.

specific abilities, but general knowledge of English, social studies, mathematics, and science is essential to all other educational endeavors and to career development. Without knowing how to read, write, work with numbers, apply scientific principles, and understand social issues, the doors to creative expression and a productive future life would be closed. Moreover, the four "core" academic subjects encompass not just the "3Rs" but include the finest works in literature, the humanities, ethics, art and music history, and more.

Within the broad subject areas of English, social studies, mathematics, and science, we asked about particular types and levels of academic classes which are required by the State Board of Education and recommended for admission to some colleges. Further, we looked for classes in foreign language and computer programming which are part of the "new basics" curriculum.

Basic subjects may be taught in vocational classes, extra-curricular activities, and other settings, but for practical purposes, we confined our evaluation to academic class periods which are regularly scheduled in Minnesota school districts. Likewise, we recognize but leave unmeasured potential differences in instructional quality, course content, and suitability to individual needs. These are surely important factors in learning but go beyond the modest scope of our study.

Preparation for Further Education

In Minnesota today, most high school graduates attend post-secondary schools. Thus, it is appropriate to evaluate public education at least partly on the basis of the preparatory classes which districts provide.

Not all Minnesota graduates enroll in four-year colleges, but since this has become the norm, it is reasonable to expect that a good quality education system would provide the recommended courses. In our culture, public education plays a vital role in preparing future leaders, helping individuals to reach high levels of intellectual development, and encouraging students' academic aspirations, among other things.

At a minimum, public secondary schools should provide the level and type of classes which are recommended for admission to popular schools within the state's leading public university. Also, we assess the extent to which the education system provides the courses which are suggested by selective private colleges in Minnesota. Although some post-secondary schools are open to anyone with a high school diploma or the equivalent, we believe that Minnesota's outstanding national reputation makes it appropriate to judge public education by more demanding criteria.

Access to Education

The most important basis for our evaluation of education is the Minnesota Constitution which says:

> The stability of a republican form of government depending mainly upon the intelligence of the people, it is the duty of the legislature to establish a general and uniform system of public schools. The legislature shall make such provisions by taxation or otherwise as will secure a thorough and efficient system of public schools throughout the state.[28]

The Constitution says that the Legislature is ultimately responsible.

The Legislature therefore bears a responsibility to see that adequate education programs and levels of instruction are systematically available on a statewide basis. Individual and local variations are inevitable, but all citizens have the same basic rights to educational opportunities.

To measure the extent of variation in Minnesota's system of public education, we focused on the number, type, and level of academic high school courses which local school districts provide. Also, we examined students' average test scores and college performance as reflections of the thoroughness and efficiency of public education.

SUMMARY

State-level concerns about education have intensified during the 1980s. In response, we have developed basic criteria by which to evaluate some limited but important aspects of education. Our study describes the range, type, and amount of academic instruction, delivery methods, and simple outcomes but passes over many other aspects of education and human learning. We seek to describe the curriculum standards currently used in Minnesota, to show how school districts interpret and implement those standards, and to suggest further reforms in keeping with public demands, students' plans for further education, constitutional provisions, and an enduring statewide commitment to improving public education.

How good is Minnesota's system of public education? We provide some information which can help citizens and policy makers answer the question.

In the next chapter, we begin by examining the validity of the state's longstanding positive national reputation. Subsequent chapters provide detailed information about high school education around the state. Throughout, we take seriously the state's interest in steadily improving education and, finally, conclude our report with recommendations which we believe will help to further this goal.

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28 Minn. Constitution, Article XIII, Section 1.

EDUCATION INDICATORS

Chapter 2

Minnesota has formulated a unique approach to education reform and successfully maintained a respected system of public education. Its school districts serve students not only where the population is concentrated but also where people live in remote areas and agricultural communities. In addition, the state's innovative choice programs have created unprecedented opportunities for students and parents together to select public schools which they feel will provide individually appropriate learning experiences.

In this chapter, we review the basis for Minnesota's outstanding national reputation. We provide background information to help evaluate the variations in education programs which are detailed in succeeding chapters. Here, we ask:

- **How does Minnesota compare with other states on standard indicators of education performance?**

- **What strengths and weaknesses are revealed by additional education indicators?**

- **What opinion of education do students and members of the public hold?**

First, we reviewed the standard indicators which are routinely compiled by federal agencies to reflect the quality and status of education among states over time. Examples include graduation rate, expenditures, and college admission test scores. Second, we developed additional education indicators for Minnesota. These include the accreditation trend, Advanced Placement program participation, and student assessment test results over time. Finally, we reviewed survey data which show how Minnesota students and the general public evaluate public education.

STANDARD INDICATORS

The U.S. Department of Education annually publishes a wall chart which is widely used to compare each state's relative standing and measure progress toward the President's education goals. On this chart, Minnesota is the only state to reach and exceed the national goal of high school graduation for at least 90 percent of its ninth graders in public schools.[1]

Minnesota's high school graduation rate leads the nation.

After adjusting for migration and unclassified students, the U.S. Department of Education shows that Minnesota's graduation rate rose to 91.4 percent in 1986 compared with 88.2 percent in 1982. By comparison, the U.S. average graduation rate of 71.5 must rise 18.5 percentage points to reach the national goal set for 1990.

Neighboring states also have high graduation rates but fall short of the 90 percent mark. North Dakota ranks third and is less than half of one percentage point from the national goal. Iowa, Wisconsin, and South Dakota each have graduation rates above 80 percent and rank among the nation's top ten states.

The most recent federal data indicate these additional ways in which Minnesota's education system surpasses most other states:

- 11th in average teacher salaries.
- 18th in per-pupil expenditures.
- 23rd in expenditures as a percent of per-capita income.
- 11th smallest pupil/staff ratio.

Each state's population and income characteristics also affect education indicators; the wall chart shows that Minnesota ranks 16th in per capita income, 48th in its percent of schoolchildren living in poverty, and 45th in minority student enrollment.

American College Test Trend

The federal chart displays statewide test scores separately for two groups.[2] Minnesota is categorized as one of the 28 "ACT states" because 30 percent or more of its high school graduates take the American College Test (ACT). Twenty-two other states are ranked on scores from the Scholastic Aptitude Test (SAT) which is more popular in Eastern states.

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1 U.S. Department of Education, *Fifth Annual Wall Chart of State Education Statistics* (Washington, February 1988). The U.S. Department of Education calculates graduation rates by dividing the number of public high school graduates by each state's ninth grade public school enrollment four years earlier.

2 Appendix A displays state and national participation rates over time as well as scores on each of the three college admission tests which Minnesota students routinely complete.

Of the nation's ACT states, Minnesota ranked third in 1987 with an average composite score of 20.2. Wisconsin ranked first and Iowa second with scores of 20.4 and 20.3 respectively. North and South Dakota scores were somewhat lower but exceeded the national average of 18.7.

Federal indicators also show that college admission test scores in six states already have improved sufficiently to meet the President's 1990 test score challenge--that is, to regain half the points lost since the 1960s.[3] To reach this goal based on 1987 scores, Minnesota needed to gain 1.2 points on the ACT test compared with the national average of 0.4.

Instead, we found:

- **Minnesota's composite ACT score in 1988 dropped to its lowest point in 21 years.**[4]

Nationwide, composite scores continued to increase as they have since the school year ending in 1983. Thus, Figure 2.1 indicates that Minnesota's margin of advantage has narrowed in recent years.

Contrary to the national trend, Minnesota's ACT scores have continued to decline.

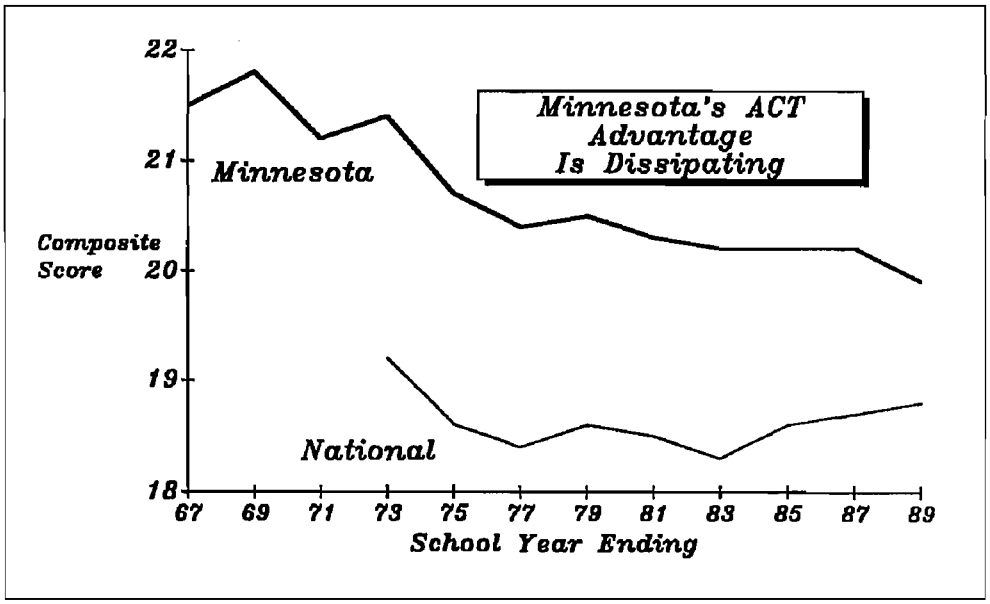

Figure 2.1: Composite American College Test Scores for Minnesota and the Nation, 1967-1988 (Source: American College Testing Program.)

3 Alabama, Arizona, Colorado, and Mississippi have reached the goal as ACT states. The District of Columbia, Georgia, and South Carolina have reached the goal for SAT scores.

4 American College Testing Program, *Trend Tables for ACT-Tested Students--Minnesota* (Iowa City, 1988). Current scores for other states are unavailable.

Research has shown that scores on another college admission test (the Scholastic Aptitude Test) tend to go down when participation increases, so the most recent drop in ACT scores could be explained partly by the fact that 44 percent of Minnesota's graduating seniors took the ACT examination this year compared with 35 percent one year before.[5] However, we found:

- **Minnesota's composite ACT score was at its highest in the late 1960s when a greater percentage--slightly more than half--of all seniors took the test.**

In addition, the percentage of seniors who take the ACT nationwide has risen from about one-fourth in the mid-1970s to about one-third in the mid-1980s, yet national scores have improved by half of one point.[6]

Figure 2.2 shows that Minnesota's historic test score advantage decreased on each of the ACT's four subtests by comparison with the nation as a whole. During the 1969-70 school year, the gap across four subtests was 1.2 to 2.2 points in Minnesota's favor. In 1987-88, the difference separating Minnesota's ACT subtest scores from the nation was only 0.4 to 1.6 points.

Scholastic Aptitude Test Trend

Minnesota's SAT scores tend to be higher than average. This year, Minnesota's statewide total SAT score was 1,001 compared with the U.S. average of 904. However, we found:

Since 1971, national SAT scores dropped 33 points; Minnesota's scores dropped 55 points.

- **Minnesota has experienced a greater loss of points on the SAT than the nation as a whole.**

Between the 1971-72 and 1987-88 school years, Figure 2.3 shows that the state's average mathematics SAT score fell from 547 to 531, and the average verbal score declined from 509 to 470. In total, the state experienced a 55-point loss over the period.

Nationwide, mathematics and verbal SAT scores have increased since the early 1980s even though the proportion of test takers rose from about 30 to 40 percent, and scores would be expected to decline as a result. The national score in mathematics now is eight points below the 1971-72 level, and the verbal SAT score has dropped 25 points (for a total loss of 33).

In addition, we found:

- **Most of the decline in Minnesota's total SAT scores occurred between 1971-72 and 1982-83, while test participation was constant or declining.**

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5 Brian Powell and Lala Carr Steelman, "Variations in State SAT Performance: Meaningful or Misleading," *Harvard Educational Review* 54 (1984): 398.

6 American College Testing Program, "1988 ACT Scores Increase Slightly Over Last Year," *ACT News* (September 20, 1988).

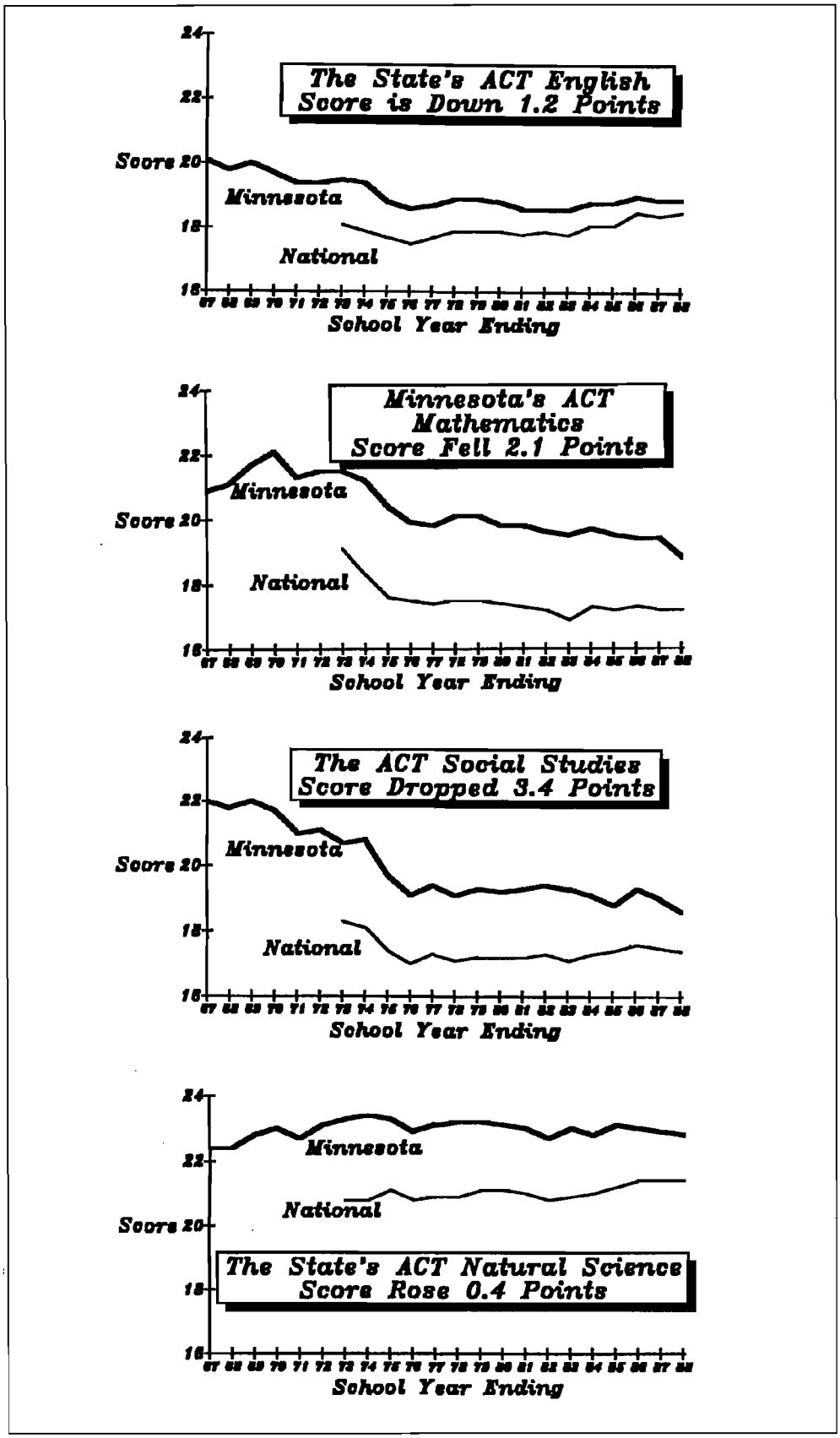

Figure 2.2: American College Subtest Scores for Minnesota and the Nation, 1967-88 (Source: American College Testing Program.)

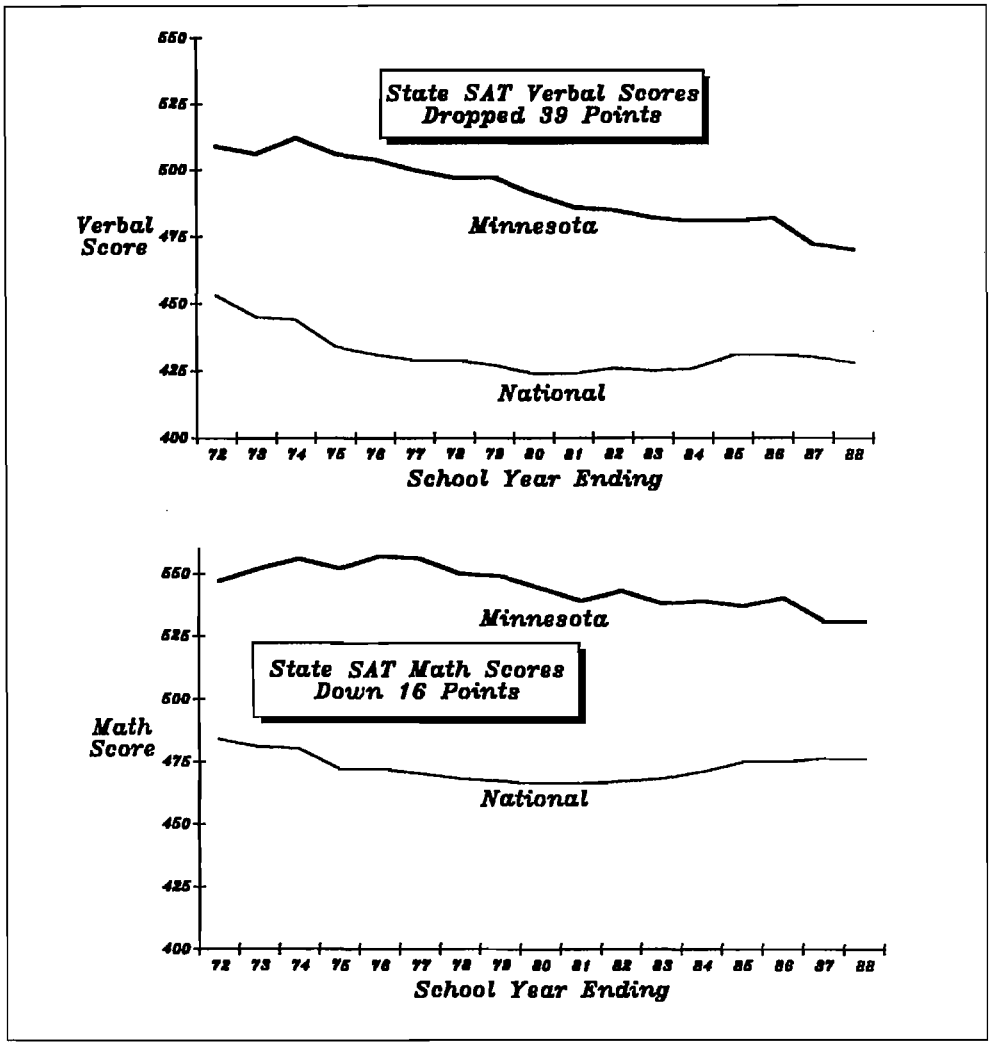

Figure 2.3: Scholastic Aptitude Subtest Scores for Minnesota and the Nation, 1972-88 (Source: College Board.)

As shown in Appendix A, nine percent of the state's high school seniors took the SAT in 1971-72. Participation then dropped as low as 5 percent and hovered at about 6 or 7 percent until 1980-81. Yet by 1982-83, when participation returned to its earlier level of 9 percent, scores had dropped 36 points. Since that time, participation has steadily grown, and scores have dropped only 19 points more.

The SAT tends to be taken by Minnesota students who are considering selective colleges and universities outside the Midwest.[7] In contrast, more than 70 percent of all Massachusetts and Connecticut seniors take the SAT. Because of such differences in participation, the College Board releases SAT scores for each state but cautions against blanket comparisons.[8] We generally agree

7 Carleton College and the College of Saint Thomas prefer the SAT but will consider applicants' scores on the Preliminary Scholastic Aptitude Test which is the state's most widely accepted college admission test.

8 College Board, *1988 Profile of SAT and Achievement Test Takers* (New York, 1988), iii.

with this perspective and have limited our score comparisons to the nation and Minnesota's four surrounding states which have similar population characteristics and low participation rates.

This year's results show that Iowa students earned the highest average scores among the five neighboring states, followed by South Dakota and then North Dakota students. SAT scores were similar and lower in Minnesota and Wisconsin.[9]

Over the past decade, Figure 2.4 shows that scores have increased in Iowa, and that state retained a relatively high ranking among its neighbors. Scores in North and South Dakota dropped substantially but remained high enough to put those states in second and third places. Wisconsin's scores in 1976-77 were lowest of the five states, but now:

- **Minnesota's composite SAT score has dropped below all four neighboring states'--Iowa, Wisconsin, North and South Dakota.**

On SAT scores, Minnesota has dropped below its neighbors and has come closer to the national average.

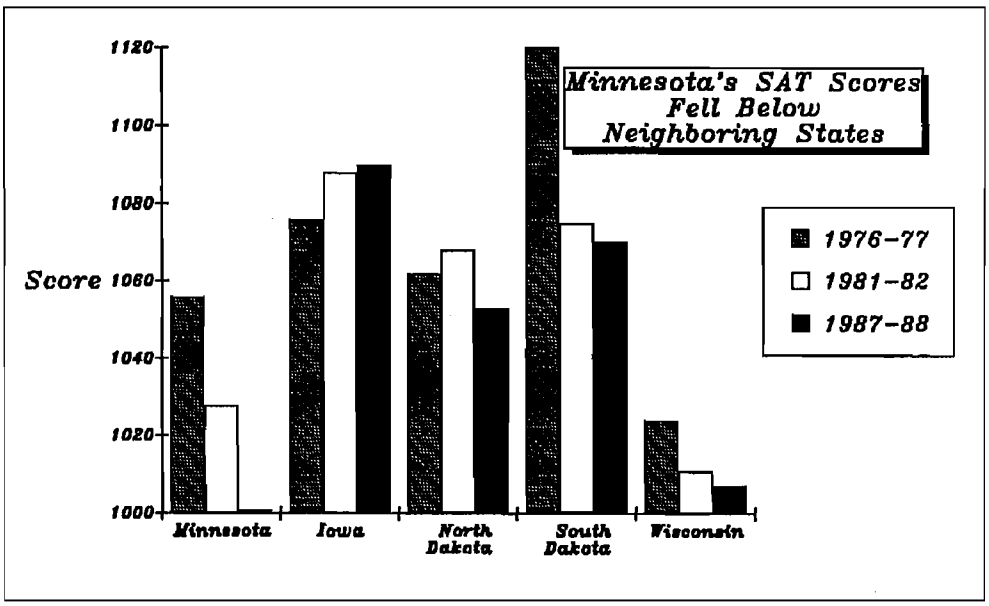

Figure 2.4: Composite Scholastic Aptitude Test Scores for Minnesota and Surrounding States, 1977-1988 (Source: College Board.)

9 College Board, "National SAT Scores Show Little Change for Third Straight Year," *News from the College Board* (September 20, 1988).

As we mentioned earlier, research has shown that seniors' level of participation is an important influence on statewide SAT scores.[10] For each percentage point of increased participation, the scores decline by approximately 2.76 points. So, almost all of Minnesota's 28-point SAT loss between 1982 and 1988 could be due to the fact that test participation went up by nine percentage points.[11] However, Minnesota's recent SAT performance remains questionable because growing percentages of students also took the test in the neighboring states. In Iowa, scores went up regardless and in South Dakota and Wisconsin, scores dropped fewer points than the formula would predict. Conversely, North Dakota's SAT score decline was nine points greater than the formula would suggest.

Likewise using a formula to correct for the influence of participation on SAT scores, Berman and his associates found similar results. Considering that only 9 percent took the test during the 1982-83 school year (compared with 33 percent nationwide), Minnesota's verbal SAT score was about average. Minnesota's mathematics SAT score was somewhat higher than the formula predicted, however.[12]

The Berman study also showed that Minnesota's SAT test score ranking was about average among 21 states where the percentage of test takers was in the same low range. The researchers compared scores among states where less than 10 percent of high school graduates took the test in 1983 and found:

After statistical adjustment, Minnesota's SAT scores appear mediocre.

- **Minnesota tied with Arkansas for 11th place among the 21 states ranked on verbal SAT scores.**

- **Minnesota ranked 7th (above Montana and below Kansas) in mathematics SAT scores among the 21 states.**

Of course, a low participation rate is only one reason why Minnesota's SAT scores are relatively high. When other factors were considered, research showed that:

- **Minnesota's SAT ranking for 1982 fell from 7th to 26th among the 50 states after statistical adjustments for median family income, the percent of females and blacks who took the test, and the overall rate of participation among high school seniors.[13]**

In the same study, Iowa and South Dakota's SAT rankings fell from 1st and 2nd to 5th place (tie), and Wisconsin dropped one notch from 10th to 11th place. Of the five bordering states, only North Dakota suffered a ratings decline similar to Minnesota's: its ranking fell from 3rd to 30th. Conversely,

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10 Powell and Steelman, "Variations in State SAT Performance."

11 Surrounding states' participation figures are available only for 1982 and 1988. The percentage increased from 3 to 5 in Iowa and North Dakota, from 3 to 6 in South Dakota, from 10 to 14 in Wisconsin, and from 8 to 17 percent in Minnesota.

12 Paul Berman, Douglas Elsass, Sara Peterson, and Daniel Weiler, *Student Performance in Minnesota, Vol. 1 Summary* (Berkeley, CA: Berman, Weiler Associates, February 1984), 18-22.

13 Powell and Steelman, "Variations in State SAT Performance": 404.

states including Maryland and New York with many test takers, more students living in poverty, and higher minority enrollments tended to move up in the rankings.

Preliminary Scholastic Aptitude Test Trend

A similar pattern of declining performance is indicated by the PSAT test which is taken increasingly by students in Minnesota as well as the nation.[14] As shown in Figure 2.5, we found:

- **This year, Minnesota's verbal PSAT score dropped below the national average.**

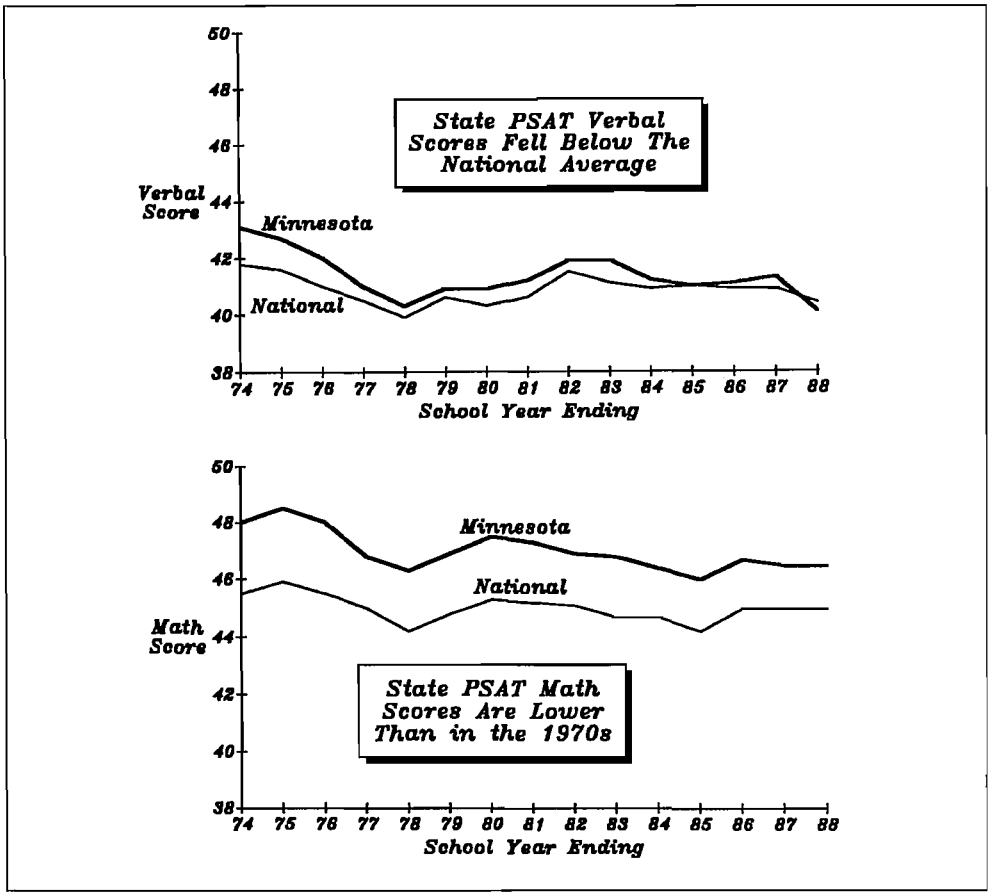

Figure 2.5: Preliminary Scholastic Aptitude Subtest Scores for Minnesota and the Nation, 1974-1988 (Source: College Board.)

14 The College Board estimates that the entire full-time college-bound student population now takes the PSAT examination in Minnesota. In the United States as a whole, participation in the PSAT increased to 83 percent in 1986-87 from 69 percent during the 1977-78 school year. *College Board, 10-Year Trend Data*, updated mimeo (Evanston, Illinois: Midwestern Regional Office, 1988).

Minnesota's mathematics score has remained above average but is 1.5 points lower than in 1973-74. By comparison, the nation's PSAT mathematics score fell only by 0.5 points over the same period.

As is true of other college admission tests, PSAT scores are sensitive to the number of students who participate. However, we believe the past two years' test results are particularly useful because, for the first time, a majority of Minnesota's juniors (51 percent) were represented.[15]

ADDITIONAL INDICATORS

Statewide tests of all public school students in 4th, 8th and 11th grade show that Minnesota children score above the national and regional average on basic tests of reading, social studies, science, and mathematics.[16]

Figure 2.6, which presents average results across the four subject areas, shows that:

- **Elementary and secondary test scores are four to seven percentage points above the national and regional norms.**

Minnesota has retained its advantage in assessment test scores.

The same items were administered twice before, and the trend shows that Minnesota students have earned generally higher average scores since 1977. In other words, the state has increased its advantage over the nation on basic tests (unlike college admission tests). However:

- **Minnesota secondary students have performed worse in social studies over the past ten years.**[17]

As shown in Table 2.1, national secondary social studies scores dropped even more--by 4 to 13 percentage points compared with declines of 5 to 8 points among Minnesota students. Further, the table shows that social studies test scores improved among Minnesota's elementary students but not among fourth graders in the central U.S. or the nation as a whole.

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15 Next year, this trend will end and participation in the ACT test will increase further as the Higher Education Coordinating Board begins substituting the ACT for the PSAT in its Post-High School Planning Program.

16 Depending on the subject, the Minnesota Department of Education's statewide assessment tests include 9 to 34 percent of the same questions which are used in tests developed for the congressionally-mandated National Assessment of Educational Progress Program (NAEP). Within Minnesota districts, representative classes of students in grades 4, 8, and 11 take the tests according to directions provided by the department. District personnel administer the tests, and the department compiles and analyzes the results.

17 Minnesota Department of Education, *Results of the Minnesota Statewide Educational Assessment in Science, 1982-83* (September 1985); *Statewide Educational Assessment in Mathematics, 1982-83* (May 1984); *Results of Minnesota Statewide Educational Assessment in Social Studies, 1981-82* (December 1983); *Statewide Educational Assessment in Reading, 1981-82* (July 1983). Supplemental and recent figures were supplied by the Department of Education.

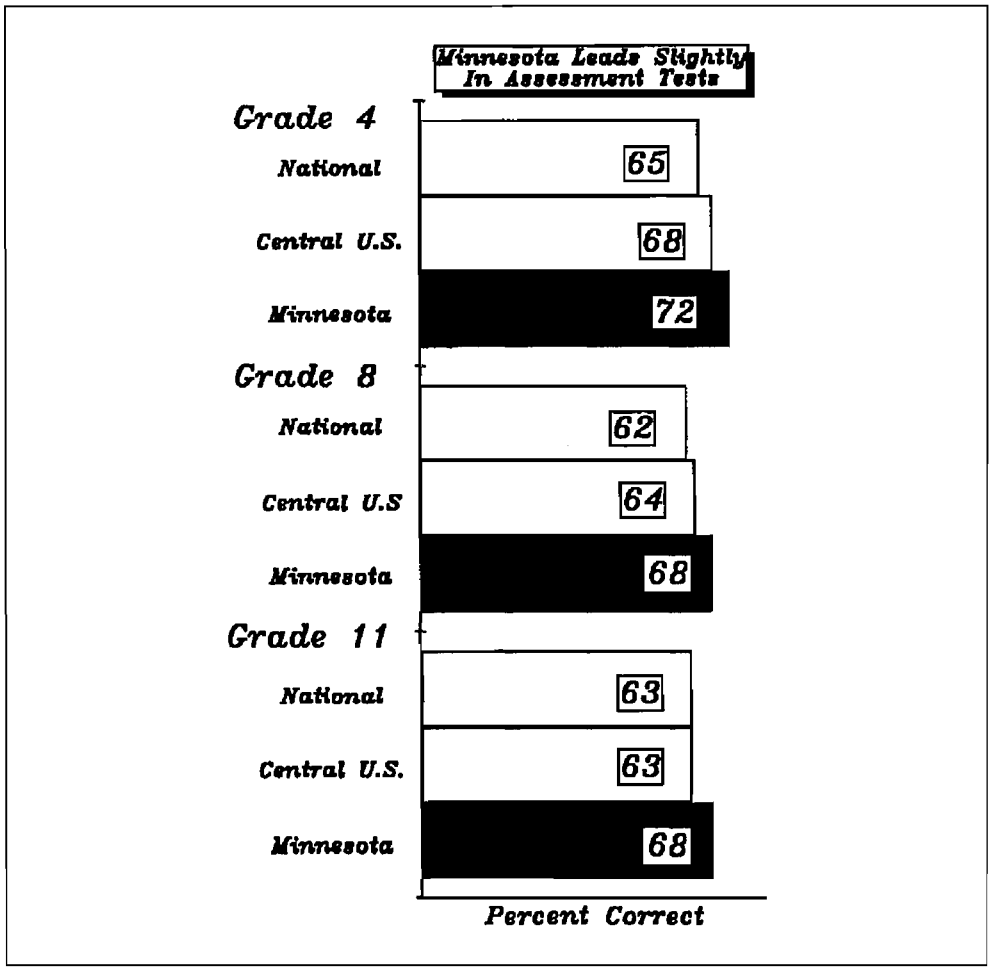

Figure 2.6: Average Percent Correct on Identical Test Items in Minnesota, the Central U.S., and Nation, 1985-87 (Source: Minnesota Department of Education.)

Minnesota secondary students did make large gains in mathematics: over the past ten years, scores rose by 8 to 10 percentage points. Also, secondary science and reading scores improved by 2 to 5 points over the period.

Among elementary students, science and reading scores improved by 3 to 4 percentage points in Minnesota but not in the nation or central U.S. However, Minnesota's elementary mathematics score has dropped one percentage point since 1977.

Advanced Placement

Educators in Minnesota and other states agree that increased Advanced Placement (AP) participation is a positive indicator of educational opportunity and more rigorous high school programs.[18] Although no national goal

18 Minnesota Department of Education, *Access to Excellence* (1988).

	Science	Mathematics	Social Studies	Reading	Combined Average
MINNESOTA					
Grade 4	+3	-1	+4	+4	+3
Grade 8	+4	+10	-5	+3	+3
Grade 11	+2	+8	-8	+5	+2
CENTRAL U.S.					
Grade 4	0	-3	0	0	-1
Grade 8	0	+8	-4	0	+1
Grade 11	0	+4	-13	0	-2
NATIONAL					
Grade 4	0	-3	0	0	-1
Grade 8	0	+10	-4	0	+2
Grade 11	0	+4	-13	0	-2

Source: Minnesota Department of Education.

Table 2.1: Cross-Time Difference in Percent Correct Answers on Identical Test Items, Minnesota, Central U.S., and National Results, 1977-1987

has been set for participation in the College Board's AP program, the federal wall chart ranks and compares each state.

Students must take one or more standardized tests to be counted as a participant in this national program. Depending on performance, the AP tests make it possible later to skip entry-level college courses in many subjects.

State students' performance on Advanced Placement tests has declined.

Nationwide, participation in the AP program has nearly doubled in the past five years. In 1987, 9.7 percent of high school graduates were AP candidates compared with 4.7 percent in 1982. Over this period, about two-thirds of the candidates consistently passed their tests with scores of three or more on a five-point scale.[19]

Our analysis of Minnesota's AP participation shows that:

- **The percentage of test takers nearly doubled between 1985 and 1988, but Minnesota public school students' average score and passing rate fell to approximately the national average.**

Table 2.2 shows that 5.3 percent of Minnesota's public school graduates took AP tests in 1988 for a participation rate about half the national average. In 1985, 73 percent passed the tests, and the average score was 3.17. This year, 68 percent passed, and the average score was 3.07.

Minnesota's AP participation may be depressed by the state's post-secondary option program which gives students unusual direct access to college courses.

19 College Board, *AP Yearbook 1987* (New York, 1988), 4.

	Minnesota				U.S.			
	1985	1986	1987	1988	1985	1986	1987	1988
Candidates as a Percent of Public School Graduates	2.8	3.6	4.5	5.3	8.5	9.9	9.7	10.6
Average Test Score on Five-Point Scale	3.17	3.07	3.03	3.07	3.02	3.05	3.04	3.07
Percent Who Passed (Scores of 3 to 5)	73	70	66	68	66	67	66	67
Number of Candidates	1,552	1,876	2,391	2,852	207,785	238,507	278,037	292,164

Source: College Board.

Table 2.2: Public School Students' Advanced Placement Test Results, Minnesota and the Nation, 1985-1988

Also, it is understandable that scores would decline as newly involved students and faculty adapt to the AP Program's stiff requirements.

Accreditation

The North Central Association of Colleges and Schools (NCA) is part of the national Commission on Schools which has established a respected set of standards for education programs, services, and facilities. If the standards are met and schools desire, NCA grants accredited status. If accredited schools subsequently fall short of standards, NCA issues warnings and may withdraw accreditation.

In Minnesota, NCA serves as the state's only official accrediting agency. Participation is voluntary, but the program is supported by the Department of Education which provides offices and staff. Public and private schools currently are accredited at various levels from elementary to post-secondary.

The Commission on Schools defines the North Central Region as a 19-state swath running diagonally across the United States from Arizona to Ohio (including Minnesota along with West Virginia). Among these states, the most recent figures (1979-80) show that 81 percent of all high school graduates attended NCA-accredited schools.[20] Earlier in the 1970s, 77 percent of secondary graduates nationwide received diplomas from public and private high schools accredited by NCA.

In contrast:

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20 William R. Shirer, "Trends in NCA Accredited Schools", *North Central Association Quarterly* 57 (1982): 317.

- **Minnesota's percentage of graduates from accredited public and private schools dropped five points between 1980 and 1987.**

In 1980, 77 percent of Minnesota's graduates came from accredited schools.[21] Based on calculations by the director of Minnesota's NCA office, 72 percent of the state's graduates received degrees from accredited public and private schools in 1987.

Over the past ten years, NCA records show that several Minnesota public high schools withdrew from the accreditation program. Some closed their doors, but others continue in operation today. However, because some new high schools became accredited between 1977 and 1987, we found that the percentage of accredited public high schools remains unchanged at 27 percent.

Figure 2.7 maps the Minnesota districts where at least one public high school is accredited. Our analysis revealed that the program is widely used in the Twin Cities metropolitan area but not outstate. During the 1987-88 school

Fewer students graduate from accredited high schools today than in 1980.

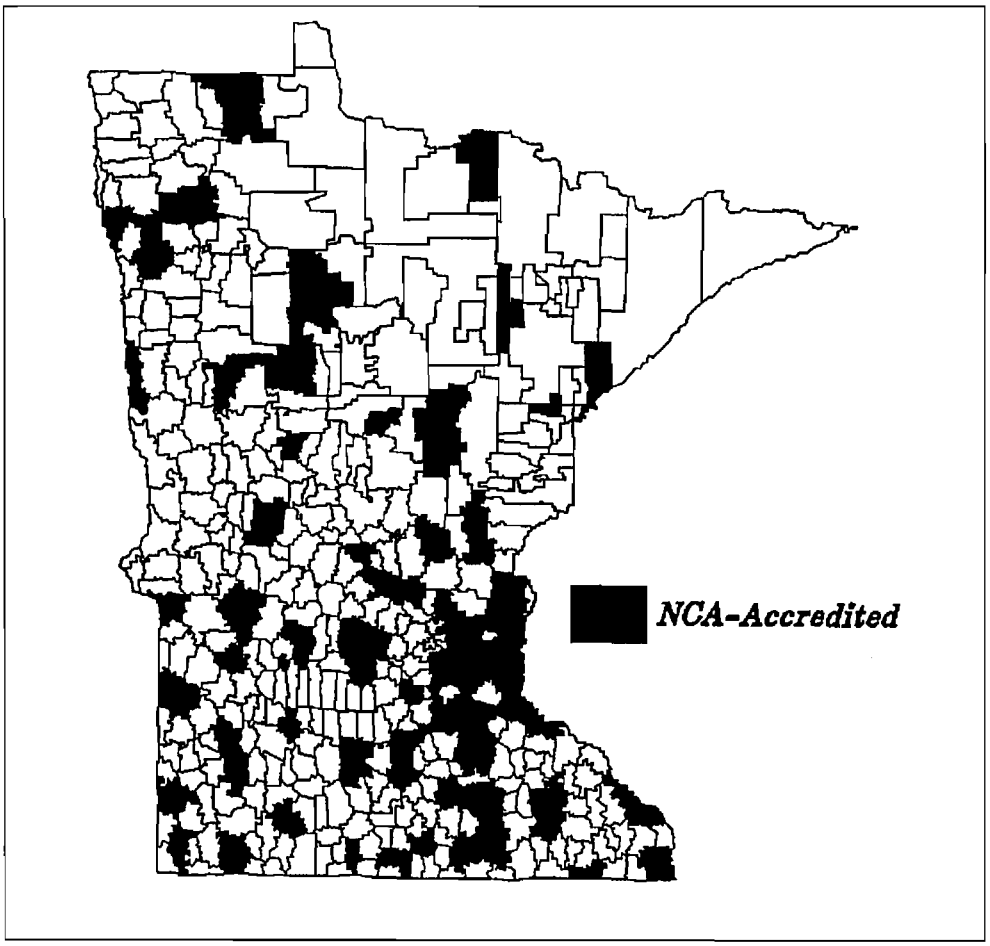

Figure 2.7: School Districts with One or More Accredited High Schools, 1987-88 School Year (Source: North Central Association of Colleges and Schools.)

21 Ibid., 317.

year, 83 percent of all Twin Cities metropolitan area districts had at least one accredited public high school. In other regions, the percentage ranged from a low of 8 to a high of 24.

Public Approval

When asked directly, citizens and students typically agree that Minnesota education is good or excellent. The statewide Northstar Poll last year found that 49 percent of adults rated public education good, and 22 percent called it excellent. Twenty percent of the 695-person sample rated the system only fair, and five percent said Minnesota education is poor.[22]

Minnesota high school seniors tend to concur with the adults. Through an annual survey conducted by the American College Testing Program, the students regularly assess high school education. Consistently, majorities of about two-thirds of the ACT-tested seniors have described their education program as "good" or "excellent" since the 1981-82 school year. About one-fourth call high school education "average," while 10 to 12 percent describe their program as "below average" or "very inadequate."[23]

As shown in Figure 2.8, the attitudes of ACT-tested seniors in Minnesota are five percentage points more positive than seniors across the nation and three points more positive than those in other Midwestern states. These results are based on the opinions of 24,603 students or 42 percent of all Minnesota high school graduates from the Class of 1988.

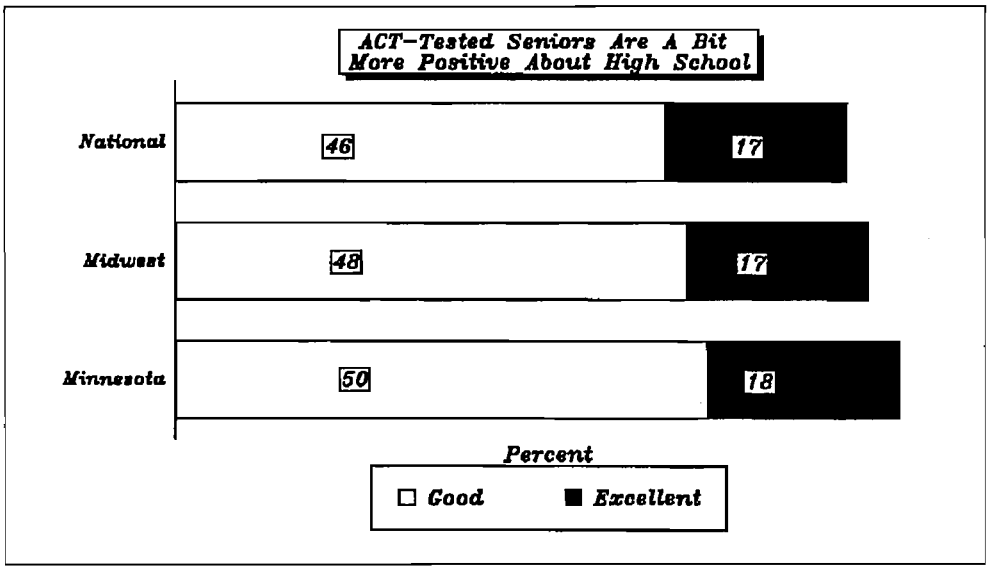

Figure 2.8: ACT-Tested Seniors' Evaluation of the Adequacy of Their High School Program in Minnesota, the Midwest, and Nation, 1987-88 School Year (Source: American College Testing Program.)

22 Steven Dornfeld and Ellen Tomson, "New Initiatives in Education Favored by Public," *St. Paul Pioneer Press Dispatch*, March 1, 1987, 1A, 10-11A. The question was: "How do you rate public education in Minnesota?"

23 American College Testing Program, *ACT High School Profile Report*, annual (Iowa City, 1982-88).

However, other surveys suggest that dissatisfaction has increased among students and adults over time. When we reviewed the responses of representative statewide samples of Minnesota adults in 1955, 1984, and 1987, results indicated:

- **State residents are more likely today than in the past to say that public schools are worse than those they attended.**

Similar but different samples and survey questions make it difficult to pinpoint the change, but statewide polls suggest that about one-third of Minnesota adults feel that public education has deterioriated since their childhood. By comparison, less than one-fourth of the state's residents registered such an opinion during the 1950s.

In the 1950s, one-fourth of adults said schools were declining; today, one-third have that view.

In 1955, one Minnesota Poll item established that 67 percent of adults felt public schools were doing a better job of preparing children for problems they would face as grown-ups.[24] Five percent indicated that schools were doing a poorer job in this respect, and 22 percent said there was very little difference.

A second Minnesota Poll question from 1955 showed that 48 percent of state residents felt public schools were doing a better job of teaching reading, writing, and arithmetic to children compared with schools of their day. Twenty-two percent said schools were doing a worse job, 19 percent saw little difference, and 11 percent made other replies or had no opinion.

About 30 years later, the Minnesota Poll asked: "In general, would you say that the schools do a better job now than they did when you went to school, a worse job, or is there no difference?" Only 30 percent replied that schools were doing a better job, while 37 percent said they were doing a worse job, 24 percent saw no difference, and 9 percent had no opinion.[25]

More recently, the Northstar Poll asked a different question and showed that 58 percent of Minnesotans think that public schools today are better than those they had attended. However, 29 percent said they were worse, and 13 percent didn't say.[26] College graduates and Twin Cities residents were particularly disaffected: one-third or more said schools had become worse. In addition, about two-thirds of the adults in this poll said they would "be willing to pay higher state taxes if the increase went to improve public schools."

We also found a slight increase in dissatisfaction among seniors who are surveyed regularly by the Minnesota State Board of Vocational Technical Education. We looked at the responses over time especially to this item: "I am

24 Minneapolis Tribune, "Poll Studies Minnesotans' Views on School Problems" (November 27, 1955). The question was: "In comparison with the schools in your day, do you think the public schools today do a better job or a poorer job of preparing children for the problems they will face as grown-ups, or do you think there's very little difference?"

25 Minnesota Poll, February 10-27, 1984, unpublished tabulations based on a representative sample of 1,222.

26 Dornfeld and Tomson, "New Initiatives Favored by Public," 11A. "No difference" was not a response option to the question: "Would you say today's public schools are better or worse than the schools you attended?".

satisfied with my choice of high school classes (yes or no)."[27] Results show that most seniors are satisfied. However:

- **The proportion of dissatisfied seniors grew from 11.5 percent in the Class of 1980 to 14.4 percent in the Class of 1986.**

Among the Classes of 1981 and 1982, 11.9 and 10.9 percent of the seniors (respectively) said they were dissatisfied. The annual survey was discontinued for 1983, and no information is available about satisfaction for the Class of 1984. However, when the pre-graduation survey item was given to the Class of 1985, dissatisfaction registered 15.8 percent.

Further, we examined special tabulations of responses where the majority of seniors completed the state board's pre-graduation survey and found:

- **Nonwhite and northeastern Minnesota seniors are less satisfied than other students with high school.**

Growing numbers of high school seniors are unhappy with their choice of classes.

Among the 187 nonwhite seniors who completed surveys from the Class of 1986, 20 percent said they were dissatisfied with their choice of high school programs. In the northeastern economic development region (#3), 19 percent said they were displeased. In all other economic development regions, dissatisfaction was close to the statewide average of 14.

We also obtained summaries of the reasons which seniors gave for their dissatisfaction with high school classes. Changes in personal goals were most common, cited by 32 percent. Miscellaneous reasons were second in frequency (26 percent), followed by schedule conflicts (20 percent).

Finally, we looked at responses to an item which asks dissatisfied seniors to select the major area of study they would take if they could start high school classes over. A plurality of 46 percent said that they would have prepared for college.

Students' generally positive attitude toward education is further reflected by the fact that the majority of Minnesota high school graduates subsequently do go to college. Nationally, only about one in three go on to college.[28]

Moreover, Minnesota seniors' enrollment in post-secondary programs has risen dramatically over the past ten years. Figure 2.9 shows that nearly two-thirds of all former high school students were enrolled in college or vocational school one year after graduation in 1986. By comparison, only about half the graduates said they were enrolled in college or vocational programs during the mid- to late-1970s. Four-year colleges alone enrolled 45 percent of public school graduates from the Class of 1986.[29]

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27 Minnesota State Board of Vocational Technical Education, *Plans After High School,* updated mimeo (1988).

28 U.S. Department of Education, *Trends in Minority Enrollment in Higher Education* (Washington, April 1988), 14.

29 John M. Sedey, *Minnesota High School Follow-up '87: Class of 1986 One Year Later* (Minnesota State Board of Vocational Technical Education, August 1988), 8.

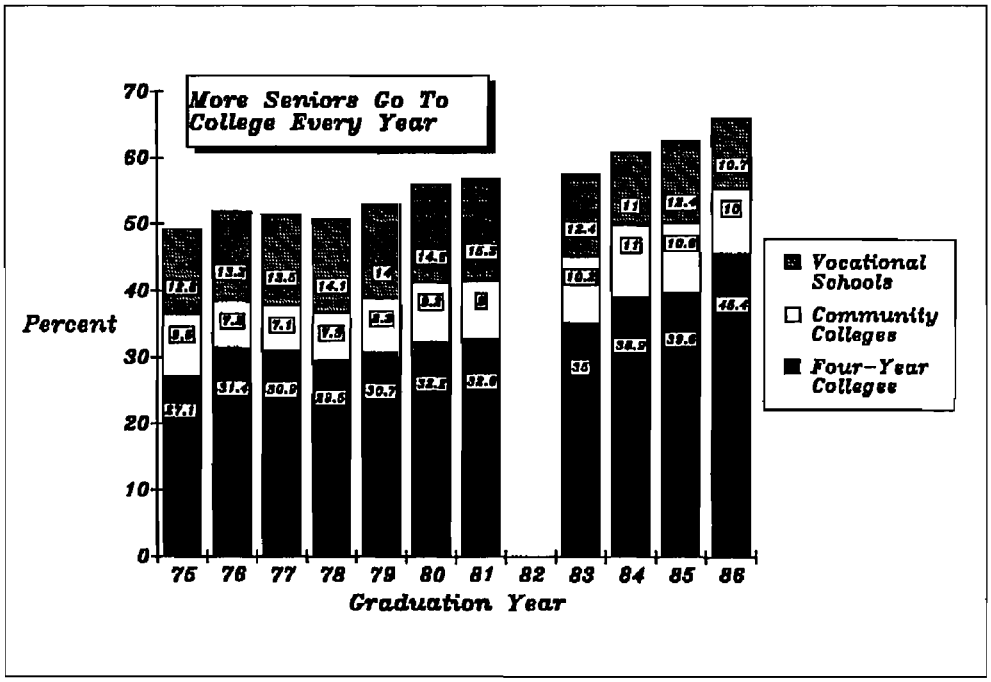

Figure 2.9: Minnesota High School Graduates' Educational Activity One Year Later, Classes of 1975-1986 (Source: Minnesota State Board of Vocational Technical Education.)

SUMMARY

Compared with the nation as a whole and other states, Minnesota enjoys favorable socioeconomic conditions which contribute to relatively positive education indicators. We noted that fairly few students drop out of school, students and the public generally are satisfied, and most seniors enroll in post-secondary schools. In addition, test scores usually are better than the national average, and students increasingly prepare for the rigorous national Advanced Placement examinations.

But we found that college admission test scores often were better in the past when similar or greater percentages of students participated. Further, the admission test score gap between Minnesota and the nation has narrowed, and other indicators suggest some deterioration in the performance of Minnesota's education system. Secondary social studies test scores have declined, smaller percentages of students graduate from accredited schools, and surveys suggest that dissatisfaction has risen among students and the public at large.

Even if Minnesota's education performance indicators were unchanged, Chapter 2 showed that the state's advantage would be reduced because college admission test scores are improving nationally. As we discussed in Chapter 1, many other states--but not Minnesota--adopted aggressive, basic reforms which have been credited with reversing the downward trend in only a few years.

Essentially, our review of background information revealed that Minnesota now faces the same situation which prompted the national education reform movement--declining college admission test scores. We think the Legislature should be concerned about these trends. To preserve Minnesota's national reputation, policy makers could re-examine the recommendations developed by *A Nation At Risk* and outlined in Chapter 1. For example: increased graduation requirements, a longer school day and year, more emphasis on academic studies, and better working conditions for teachers. Some of the basic reform measures which have been adopted elsewhere could be helpful.

In the next chapter, we describe the state's current role in high school education and its standards for graduation, curriculum, instructional time, and academic performance. We compare Minnesota's standards with those of other states and show considerable differences which national studies suggest are also related to education performance.

SETTING STANDARDS FOR HIGH SCHOOLS

Chapter 3

As we discussed in Chapters 1 and 2, Minnesota has traditionally enjoyed a strong national reputation for public education. Since the beginning of the 1980s, Minnesota has been recognized for enhancing secondary education with many innovative, voluntary programs directed at local districts, students, teachers, and administrators. However, little has been done to ensure that Minnesota's standards have kept pace with changes in the secondary education system.

It is important to examine the state's current assortment of standards because secondary education is provided through a varied, increasingly complex delivery system. In addition, and perhaps more important, districts' adherence to meaningful standards should provide assurance that all students in the state have equal access to quality education.

This chapter examines Minnesota's existing standards and compares them with standards in other states. Our analysis revolves around two key questions:

- **How does the Legislature, the State Board of Education, and the Department of Education regulate public secondary education?**

- **How do Minnesota's standards for grades 9 through 12 compare nationally?**

STATE-LEVEL EDUCATIONAL GOVERNANCE

According to the Minnesota Constitution: "... it is the duty of the legislature to establish a general and uniform system of public schools. The legislature shall make such provisions by taxation or otherwise as will secure a thorough and efficient system of public schools throughout the state."[1] Thus, the state's responsibility goes beyond simply creating a system of school districts throughout the state. The constitution requires that system to be general, uniform, thorough, and efficient.

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1 *Minn. Constitution*, Article XIII, Section 1.

The 1985 Legislature further defined the goals of that system: ". . . the purpose of public education in Minnesota is to help all individuals acquire knowledge, skills, and positive attitudes toward self and others that will enable them to solve problems, think creatively, continue learning, and develop maximum potential for leading productive, fulfilling lives in a complex and changing society."[2]

Together, the Constitution and statutes require the state to ensure that all students have equal access to sound educational programs that not only provide basic skills, but also permit them to pursue post-secondary education.

This section provides an overview of how Minnesota finances and governs secondary education in light of these responsibilities. In this discussion, we distinguish only very generally between the standards set by the Legislature and those set by the State Board of Education or enforced by the Department of Education. We do so for two reasons. First, school district administrators perceive themselves operating under generalized "state" regulation rather than separate regulations by the different layers of state government. Second, responsibility over all public education rests ultimately with the Legislature even though it has delegated considerable authority.

Historical Trends

The state has gradually assumed a greater share of education financing.

Through the years, the state has gradually assumed a greater share of education financing, due partly to financial inequities among districts and increasing property taxes. As the state's financial commitment grew, so too has its interest in how local school districts spend that money.

Financial Support

Historically, the state has responded to its constitutional mandate by creating and funding local school districts. Minnesota has a long history of providing financial support for public education.[3] The first state aid distribution was made as early as 1863. And, by 1915, state categorical aids for vocational education, special education, and pupil transportation already were in place.

Initially, state support for public education was minimal; local property taxes provided most district revenue. From 1900 through 1930, state aids provided only about 20 percent of revenues. By 1960, state support had increased to 40 percent. However, reliance on local property taxes to fund most district operations led to considerable financial inequities since districts with low

2 *Minn. Laws* (1985), Chapter 240, Section 1.

3 For a more thorough discussion, see Minnesota Department of Education, *The ABC's of Minnesota School Finance: Paying for the Public Schools in 1987-88 and 1988-89* (November 1987).

property valuations had fewer resources to draw upon than higher valued districts.

For years the Legislature has wrestled with questions of financial equity.

The Legislature for years has wrestled with the question of financial equity and, indirectly, program equity. Although the state initiated equalization payments for operating expenditures as early as 1915, these played only a minor role in district funding.[4] Then, in 1957, the Legislature created the foundation aid program, which combined equalization aid and basic aid in one unified program. Foundation aid further established a guaranteed level of support per pupil unit to be funded with both local and state tax dollars.[5]

Over time, however, foundation aid made up less and less of districts' operating costs. To compensate, school districts relied on local property taxes which, in some cases, rose rapidly. In 1971, the Legislature devised a plan to reduce differences between districts' foundation aid and operating costs while placing restrictions on local property tax levies. This plan, sometimes called the "Minnesota Miracle," also increased the state's share of district revenues to about 63 percent.

The "miracle" lasted only a few years; financial inequities began to grow again in the late 1970s. In 1983, the Legislature introduced a "tiered" foundation aid program. Four years later, the Legislature replaced that program with the general education aid program, which is designed to increase equity among districts today.

The general education aid program combines foundation aid, retirement aid, and eight categorical aids into one payment. Three additional cost factors may increase state aid but not local levies. While these cost factors are similar to those of previous formulas, they have been reduced in total dollars and focused on fewer districts.

Figure 3.1 shows how state support for public education and local reliance on property taxes have changed since the early 1970s. Although state aid as a percentage of total district revenues generally grew during the 1970s (peaking at 72 percent during the 1981-82 school year), it has since stabilized around 62 percent.[6]

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4 Equalization payments for capital expenditures have been in place only since 1978.

5 Pupil units are determined by applying weights to districts' average daily membership (ADM). Currently, each kindergarten ADM counts as 0.5 pupil units; each prekindergarten, handicapped kindergarten, and elementary ADM counts as 1.0 pupil unit; and each secondary ADM counts as 1.35. Thus, districts receive more funding for secondary students than elementary students.

6 The federal government plays only a minor role in secondary education. During the 1986-87 school year, the federal government contributed only four percent of district operating revenues. See Minnesota Department of Education, *School District Profiles, 1986-87.*

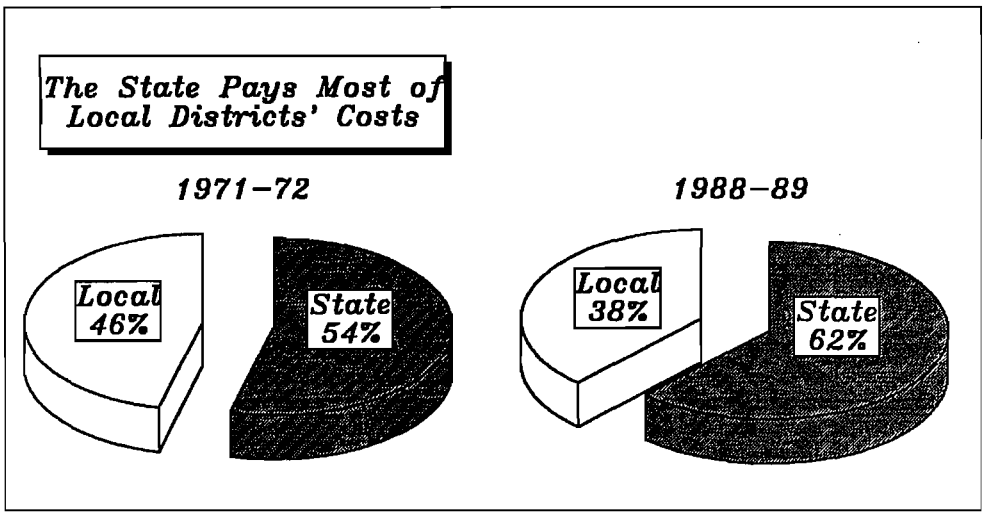

Figure 3.1: State and Local Governments' Share of District Revenue, 1971-1989 (Source: Senate Counsel and Research.)

Since the late 1960s, the state has guaranteed a uniform amount of operating revenue per pupil unit to all districts. For the 1987-88 school year, this amount, commonly referred to as the "formula allowance," was $1,720 per pupil unit.[7] Both state and local government contribute to this, based on local government's ability to pay. The local share is determined by each district's equalized property valuation, which is the assessed valuation of taxable property in a district, adjusted by the Equalization Review Committee to compensate for differences in local assessment practices. The State Department of Education computes each district's local share by applying a uniform tax rate (determined by the Legislature) to its assessed valuation. This amount is then collected through local property taxes.[8]

An increasing number of districts rely on referendum levies.

However, equalized property valuation varies widely among districts. For 1985, it ranged from $154 to $125,387 per pupil unit and averaged $38,487.[9]

Differences in property wealth, for which the funding formula tries to compensate, may affect each district's ability to supplement state funding for education. For the most part, additional revenue to maintain or expand programs, especially during enrollment declines, must come through referendum levies which must be approved in local elections.

An increasing number of districts are using referendum levies. During the 1988-89 school year, 239 of 436 districts are collecting additional operating revenue through referendum levies, up from 216 two years earlier.

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7 This increased to $2,755 per pupil unit for the 1988-89 school year but also includes funding for retirement contributions and most categorical programs.

8 Districts whose levy limitations would raise as much or more than the formula allowance per pupil unit receive no basic state aid. In such districts--15 during the 1987-88 school year--levies are limited to pupil units times the formula allowance.

9 1985 valuation was used to compute state education aids for the 1987-88 school year. See Minnesota Department of Education, *The ABC's of Minnesota School Finance*, 2.

Program Involvement

Minnesota has a strong tradition of local control over education. The state has traditionally encouraged districts to design their own programs to reflect local needs and desires.

Thus, the state has set few academic standards for school districts over the years. For the most part, curriculum issues have been left to teachers and school administrators. Instead, the state has been satisfied generally with specifying broad time requirements and a few required topics or subject areas. For example, there are statutory requirements mandating that instruction be provided in health and physical education, special education, morality, chemical abuse and its prevention, environmental conservation education, the Declaration of Independence and U.S. Constitution, and American Indian language and culture.[10]

As the state gradually increased its share of district funding, curriculum became a stronger interest.

However, as the state gradually increased its share of district funding, programming became a stronger interest. Financial equity questions remain, but legislative concern now encompasses issues of program equity and quality as well.

At least three factors contributed significantly to increased state concern over education standards and policies. First, *A Nation at Risk's* very critical analysis of public education caused states across the nation, including Minnesota, to review their education standards. Second, increased national and international business competition has contributed to greater state involvement in education issues. The relationship between education and economic development policies has been strengthened in the last few years as economic development strategies recognize high quality educational resources as vital ingredients for economic growth and recovery. Third, studies have shown that districts have difficulty providing curriculum as enrollment (and thus revenues) decline, as described in Chapter 6.

Related concerns led the 1983 Legislature to direct the Commissioner of Education to report on needed changes in secondary education. The report was to focus on how well current requirements prepared students for post-secondary education.[11] Among other items, the commissioner was to examine student graduation standards and recommend increased district curriculum requirements. The Legislature also directed the commissioner to evaluate the possibility of extending the school year.[12]

Subsequently, two major regulatory changes occurred in secondary education: (1) higher minimum curriculum requirements for districts, calling for two years of a single foreign language and increasing mathematics and science requirements from one year each to four years each; and (2) state development of desired learner outcomes which describe the knowledge and skills each

10 Minn. Stat. §§126.02 through 126.115.

11 Minn. Laws (1983), Chapter 314, Article 8, Section 22.

12 Minn. Laws (1983), Chapter 314, Article 8, Section 24.

major curriculum area is supposed to cover.[13] Also, the Legislature directed the Department of Education to develop a curriculum monitoring system to ensure district compliance with state standards.

However, few additional changes were made to the state's basic system for regulating education. Instead of greater regulatory reform, the state concentrated on creating voluntary programs to enhance secondary education. These programs, outlined in Figure 3.2, focus on: (a) improving the delivery of secondary programs, (b) increasing the range of student choices, and (c) enhancing teacher and administrator professionalism.

Instead of greater regulatory reform, the state created voluntary programs to enhance secondary education.

Legislative interest in program issues remains high. For example, the Legislative Commission on Public Education, created in 1983, was expanded to include an Educational Organization Task Force in 1988. Also this year, the Senate Education Committee created 13 study groups to help committee members better address education issues. Although all of these groups are interested in funding issues, program questions predominate.

STATE STANDARDS

This section examines the state's influence over instructional programs through state standards and regulations. To facilitate our examination, it is necessary to differentiate between "program" standards and "performance" standards.[14] We define *program standards* as the inputs necessary for successful education. Such standards include curriculum offerings and graduation requirements as well as requirements that set time in school, class size, and staffing ratios.

Program standards can be directed at students, teachers, or districts. Student program standards largely amount to "gatekeeping." For example, they may specify the number and type of courses students must take to graduate. Also, they may define attendance or homework policies. Teacher program standards are largely directed at ensuring instructional quality; they may specify instructional materials to be used in classes or specific topics to be covered. District program standards aim to ensure widespread opportunity; they may specify the range and level of available courses or the amount of time districts must hold classes.

In contrast, *performance standards* represent the evidence of successful education. They relate to demonstrated performance through achievement tests, grades, or observed behavior.

These standards also can be directed at students, teachers, or districts. For example, student performance standards may require a passing score on a standardized test or a certain grade-point average for graduation. Teacher

13 The Legislature required districts to adopt policies which establish measurable learner objectives in 1984 (*Minn. Laws* (1984), Chapter 464, Article 8, Section 5). It did not require the department to develop model learner outcomes until 1985 (*Minn. Laws* (1985), First Special Session, Chapter 12, Article 8, Section 15) and essential learner outcomes until 1987 (*Minn. Laws* (1987), Chapter 398, Article 8, Section 23).

14 This section draws from a typology by Margaret E. Goertz, *State Educational Standards: A 50-State Survey* (Princeton, N.J.: Educational Testing Service, January 1986).

FIGURE 3.2

CHRONOLOGY OF MAJOR LEGISLATION AFFECTING HIGH SCHOOL EDUCATION
1973 TO 1988

YEAR	(a) DISTRICT ORGANIZATION	(b) STUDENT CHOICE	(c) STAFF PROFESSIONALISM	(d) REGULATORY REFORM
1973	■ Pilot education service area established.			
1974	■ Secondary vocational cooperative centers established.			
1976	■ Educational Cooperative Service Units (ECSUs) created.			■ Planning, Education, and Reporting (PER) created.
1977				■ 170 days of instruction required. ■ Regional and district comprehensive plans required.
1979	■ Experimental "pairing" permitted.			
1981			■ Career Teacher Act.	
1983	■ Special education cooperatives authorized. ■ Minnesota Technology Demonstration Act funds interactive television in schools. ■ Agreements for secondary education encouraging district pairing.		■ Educational Effectiveness Program to improve education in participating schools as evidenced by outcome data. ■ In-Service Education Act funds staff training activities. ■ Academic Excellence Foundation created to promote excellence through a public-private partnership.	■ SBE required to adopt higher district curriculum standards, effective with 1985-86 school year. ■ Districts required to develop dicipline policies.
1984	■ Interdistrict Cooperation Act encourages district pairing.	■ Programs of Excellence allow students to move between districts.		■ Districts to adopt policies establishing learner objectives.
1985		■ Post-Secondary Enrollment Options permit high school students to attend post-secondary institutions for credit.	■ Excellence in Teaching Act. ■ Exemplary Teacher Grants available to develop alternative teacher education programs.	■ SDE to develop model learner outcomes. ■ Assurance of Mastery Program required districts to measure achievement in mathematics and English communication arts.
1987	■ Education districts permitted. ■ Secondary School Facilities Act provides funding for cooperative secondary schools. ■ Area Learning Centers created. ■ Program Improvement Grants provide funds for cooperation.	■ Open enrollment permits students to attend school in participating districts. ■ High school graduation incentives program created for at-risk students.	■ School-based management. ■ Grants provided to teacher mentors. ■ Administrator's Academy created for in-service training. ■ Teacher centers created to provide research and technical assistance.	■ State to adopt essential learner outcomes; districts required to measure curriculum against them.
1988	■ Year-round education permitted in select districts.	■ Mandatory open enrollment phased-in.		■ Mandatory attendance to age 18 effective for students who begin school in 2000-2001 or later.

performance standards may require passage of periodic competency tests or achievement of a certain grade-point average in order to teach. Finally, district performance standards, sometimes used to make accreditation or funding decisions, may require that each district's students achieve a minimum level of knowledge reflected by standardized tests.

Program and performance standards are inter-related.

Program and performance standards are inter-related. Ideally, program standards which define in part what goes into an educational program should lead to certain educational outcomes expressed in terms of minimally acceptable performance standards. Figure 3.3 summarizes Minnesota's program and performance standards for students and districts. This information indicates that:

- **Minnesota's education regulations focus mainly on program--or input--standards rather than performance standards.**

Because the state has not defined minimum levels of acceptable performance for either districts or students, there is no assurance that students graduating from high schools around the state possess minimum competencies in basic skills. This is especially worrisome in view of declining test scores and student

DISTRICT PROGRAM STANDARDS

- 6-hour school day
- 170-day school year
- 1,020 hours per school year
- Curriculum to include 600 hours of English (communication skills); 480 hours each of social studies, mathematics, and science; 240 hours each of foreign language, music, and visual arts; 200 hours of physical education/health; 120 hours of home economics/industrial arts; and 1,200 hours of electives
- Written discipline policies

STUDENT PROGRAM STANDARDS

- 20 credits to graduate (2,400 hours)
- 480 hours of English (communication skills), 360 hours of social studies, 200 hours of physical education/health, and 120 hours each of mathematics and science
- Mandatory attendance up to 16 years of age[a]

DISTRICT PERFORMANCE STANDARDS

- Curriculum assessment program, including essential learner outcomes
- Develop instructional improvement plans based upon curriculum assessment
- Student assessment program in mathematics and English (communication skills)

STUDENT PERFORMANCE STANDARDS

- No statewide standards

[a]This increases to 18 years for students who begin school in 2000-2001 or later.

Figure 3.3: Minnesota High School Education Standards

dissatisfaction noted in Chapter 2. Further, we found that required district reports to communities concerning student and district performance often are promotional and vary so much in form that they make inter-district performance comparisons impossible.

Program Standards

State program standards place requirements upon districts to provide instructional time and a distribution of subject areas within the curriculum. Program standards also govern students' attendance and graduation requirements.

Instructional Time Standards

District time standards specified in Minnesota statutes and state board rule define the length of the school year and school day. *Minn. Stat.* §124.19 requires high schools to provide a minimum of 170 instructional days per year, not including summer school. While statutes require high schools to be in session at least 175 days a year, not all of these days must be devoted to instruction. Up to five days can be used for parent-teacher conferences, teacher workshops, or teacher in-service training.

Standards also require that the high school day be at least six hours long. This excludes lunch time, but includes "passing time", or the time students spend moving between classes, as well as study halls, homeroom and non-credit-bearing activity periods.

Districts must provide at least 1,020 hours per school year.

Multiplying Minnesota's yearly standard (170 days) by its daily standard (6 hours) results in a minimum district requirement of 1,020 hours per school year.

Curriculum and Graduation Standards

The Legislature has delegated authority to define district curriculum standards and student graduation standards to the State Board of Education. Currently, state board rules require that districts *offer* but not necessarily deliver a minimum number of hours in each broad curriculum area sometime during the four years of high school:

- 600 hours of English (communication skills);
- 480 hours each of social studies, mathematics, and science;[15]
- 240 hours each of one foreign language, music, and visual arts;
- 140 hours of physical education;[16]
- 120 hours of industrial arts/home economics;
- 60 hours of health; and

15 Social studies must include 120 hours of studies of America, which includes American history, and 120 hours of contemporary world problems.

16 Physical education must be offered for a minimum of 80 hours in grade 9 and 60 hours in grade 10.

- 1,200 hours of electives.

The state defines student graduation standards in two ways: (1) the total number of credits needed to graduate, and (2) the number of credits students must earn within broad curriculum areas.

A student needs to complete at least 2,400 hours of instruction to receive a diploma.

The state board requires high school students to earn at least 20 credits in grades nine through twelve to graduate. Each credit represents a minimum of 120 hours of instruction. Thus, a student needs to complete at least 2,400 hours of instruction to receive a diploma.

State board rules further define the subject areas in which slightly more than half of students' total instructional time must be spent:

- 480 hours of English (4 years);
- 360 hours of social studies (3 years);[17]
- 120 hours of mathematics (1 year);
- 120 hours of science (1 year);
- 200 hours of physical education and health (1.7 years); and
- 1,120 hours of electives (9.3 years).

It should be noted that these curriculum and graduation standards are very general. Consequently, districts have considerable discretion in complying. For example, curriculum standards require districts simply to *offer*, not provide, the required number of hours in each curriculum area. Also, they do not address how districts must deliver or schedule their curriculum. Nor do standards specify the types or content of courses which must be included in curriculum areas or graduation requirements. These shortcomings contribute to many of the problems discussed in Chapters 4, 5, and 6.

Performance Standards

As we discussed earlier, performance standards prescribe what constitutes evidence of successful education. The state's performance standards are reflected by the Planning, Evaluation and Reporting process (PER).[18] This is esentially a district-oriented assessment program with both curriculum and student competency components.

PER's curriculum component requires districts to develop a curriculum review process which includes testing a sample of students in at least three grades in two curriculum areas each year. The process is intended to measure whether districts' programs meet their own goals and desired learner outcomes.

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17 Of this, 120 hours must consist of American studies, such as American history, and 120 hours must cover contemporary world problems.

18 Minn. Stat. §§126.65 through 126.67.

In 1987, the Legislature amended PER to require districts to measure whether their programs meet state-specified learner outcomes, also known as "essential learner outcomes."[19] These outcomes are being developed by the Department of Education with assistance from the State Curriculum Advisory Council, education professionals, and the general public. They specify the knowledge and skills the major curriculum areas are expected to develop.[20]

To measure whether districts' curricula meet local goals as well as the state's, districts may either develop their own testing procedures or use tests developed by the Department of Education. During the 1986-87 school year, about two-thirds of the districts (296 of 436) used the department's "piggyback" assessment tests among their 4th, 8th, and 11th graders.[21]

The state's assessment program generally does not serve as a district or student performance standard.

Districts can "piggyback" or administer these tests along with the Department of Education's statewide assessment program. However, some of their students must be tested through the statewide assessment program once every three years. The state's assessment program is intended to measure aggregate statewide performance in meeting essential learner outcomes in the major curriculum areas, not to measure district or student performance. Thus, it generally does not function as a district or student performance standard.

PER's student competency component requires districts to assess student achievement through the Assurance of Mastery (AOM) Program. Districts must test students in mathematics and English at least four times between kindergarten and 12th grade. Students who fail districts' various standards then must be offered (but need not accept) remedial help.

Our analysis of PER shows that:

- **PER has serious shortcomings as a district performance standard.**

The state holds no one accountable for districts' achievement scores reflected by the department's assessment tests or their own tests. Although districts must publish summaries of test results in a consistent manner, they need not disclose how many students fail to achieve state learner objectives or district assurance of mastery standards. And although districts receive some additional state funds for satisfying reporting requirements, the Department of Education in the past simply allocated these monies to all districts which submitted reports regardless of content.[22]

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19 Minn. Laws (1987), Chapter 398, Article 8, Section 23.

20 There are two levels of learner outcomes. First, *Minn. Laws* (1985), First Special Session, Chapter 12, Article 8, Section 15 requires the department to develop *model learner outcomes* in at least English, social studies, mathematics, and science for kindergarten to 12th grade. They reflect the full range of possible outcomes in each curriculum area. Second, the 1987 Legislature required districts to include *essential learner outcomes* in their curriculum. These represent a subset of model learner outcomes. The department has developed essential learner outcomes so far only in mathematics; those for English are near completion. Committees to develop essential learner outcomes for the remaining curriculum areas have just been formed.

21 Minnesota Department of Education, *A Report on the Biennial Evaluation of School District Testing Programs* (February 1988).

22 For example, 401 of 436 districts submitted PER reports for the 1986-87 school year. Twenty-five percent neglected to include an evaluation of their testing program as required by law. See Minnesota Department of Education, *A Report on the Biennial Evaluation of School District Testing Programs* (February 1988).

In addition:

- **PER's Assurance of Mastery Program is lacking as a student performance standard.**

First, students are not required to achieve minimum levels of competency in tested subject matters to be promoted or graduate. Second, the state does not review districts' minimum standards to ensure some degree of consistency. Thus, students offered remedial help in one district may not be offered remedial help in another.

It should be noted that recent proposals of a State Board of Education study committee recommend that students be required to meet district AOM standards in mathematics and English to graduate.[23] Such a requirement would be a first step in establishing student performance standards, although minimum levels of competency would still vary among districts.

Finally, PER data will not be included in the Department of Education's integrated data base (IDB).[24] This is a new statewide computer system which will collect data on finances, students, staff, and curriculum while reducing the number of reports districts must file. However, if IDB does not collect achievement data, it will be difficult to examine relationships between program inputs and outcomes. The Legislature as well as the department and districts themselves badly need this type of information to evaluate education in Minnesota.

Monitoring

Although the state has an assortment of standards that districts are expected to meet, our examination revealed that:

- **The Department of Education does not monitor regular education programs on a routine basis.**

In fact, the 1983 Legislature had to direct the department to measure district compliance with then-existing curriculum requirements and to develop an ongoing system to ensure future compliance.[25] And while the curriculum monitoring project was begun in 1985, it provides little meaningful information useful in describing or monitoring districts' actual curricula.[26]

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23 Minnesota State Board of Education Study Committee, *Recommended Rule Changes in Graduation Requirements and Minimum Program Offering* (July 1988).

24 Minn. Laws (1987), Chapter 398, Article 7, Section 15 requires the department to collect and maintain data on each student, staff, and program by district.

25 Minn. Laws (1983), Chapter 314, Article 8, Section 22.

26 Chapter 6 discusses this project in greater detail.

The Department of Education has a regular education monitoring function within its Office of Monitoring and Compliance, which has traditionally monitored only special education programs. Regular education monitoring, however, is a low priority. No staff within the office are assigned to monitor regular education programs on a full-time basis. Furthermore, the only staff person monitoring regular education does so on a part-time basis (.25 FTE) and is employed in another office altogether.[27]

Regular education monitoring is a low priority.

In addition to being understaffed, regular education monitoring in the Office of Monitoring and Compliance is severely underfunded. The office budgeted only about $2,500 for consultants and special expenses for regular education monitoring in 1986-87; this amount decreased to $2,000 for 1987-88.

NATIONAL COMPARISONS

Minnesota's educational standards contrast sharply with those of other states. Our analysis shows that:

- **Minnesota has weaker program or input standards, especially student graduation requirements, than many other states. Further, other states are ahead of Minnesota in developing performance standards.**

Program Standards

Table 3.1 compares Minnesota with other states on three types of district program requirements: instructional days per year, hours per school day, and hours per school year. We find that:

- **While Minnesota requires a relatively long school day (six hours), the number of instructional days required annually is less than most states, and the overall number of school hours per year is only about average.**

Table 3.1 indicates that 24 states (shown in Figure 3.4) require districts to be operational for more hours per school year than Minnesota.

Minnesota, along with Virginia and Alaska, requires the fewest number of instructional days per year. In all, only eight states (including Minnesota) require less than 175 instructional days annually. Nineteen states require at least 180 instructional days.

Minnesota's six-hour secondary school day requirement is slightly higher than the national average of 5.6 hours. Daily requirements range from 4 to 6.5 hours across the nation. Twenty-three states (including Minnesota) generally

27 Other staff in the department are called in to help monitor regular education on a case-by-case basis.

Minnesota requires about the average number of hours per school year.

State	Instruction Days Per Year	Hours Per Day	Hours Per Year
Alabama	175	6	1,050
Alaska	170	5	850
Arizona	175	6	1,050
Arkansas	175	5	875
California	175	6	1,050
Colorado	176	6	1,056
Connecticut	180	4	720
Delaware	180	6	1,080
District of Columbia	184	-[a]	--
Florida	180	5	900
Georgia	180	6	1,080
Hawaii	175	6	1,050
Idaho	177	5	885
Illinois	176	5	880
Indiana	175	6	1,050
Iowa	179	-	--
Kansas	180	6	1,080
Kentucky	175	6	1,050
Louisiana	175	5	875
Maine	175	5	875
Maryland	180	6	1,080
Massachusetts	180	5.5	990
Michigan	180	5	900
MINNESOTA	**170**	**6**	**1,020**
Mississippi	175	5	875
Missouri	174	6	1,044
Montana	173	6	1,038
Nebraska	180	6	1,080
Nevada	175	5.5	962.5
New Hampshire	180	5.5	990
New Jersey	180	4	720
New Mexico	177	5.5	973.5
New York	177	5.5	973.5
North Carolina	180	6	1,080
North Dakota	173	6	1,038
Ohio	178	5	890
Oklahoma	175	6	1,050
Oregon	175	-[a]	--
Pennsylvania	180	5.5	990
Rhode Island	173	5.5	952.5
South Carolina	180	6	1,080
South Dakota	171	5.5	940.5
Tennessee	180	6.5	1,170
Texas	175	6	1,050
Utah	180	6	1,080
Vermont	175	5.5	962.5
Virginia	170	5.5	935
Washington	180	6	1,080
West Virginia	180	5.75	1,035
Wisconsin	175	-[a]	--
Wyoming	175	6	1,050
NATIONWIDE	176.7	5.6	989

Source: Education Commission of the States and Educational Testing Service.

[a]No state requirement.

Table 3.1: State Requirements for Length of High School Day and Year

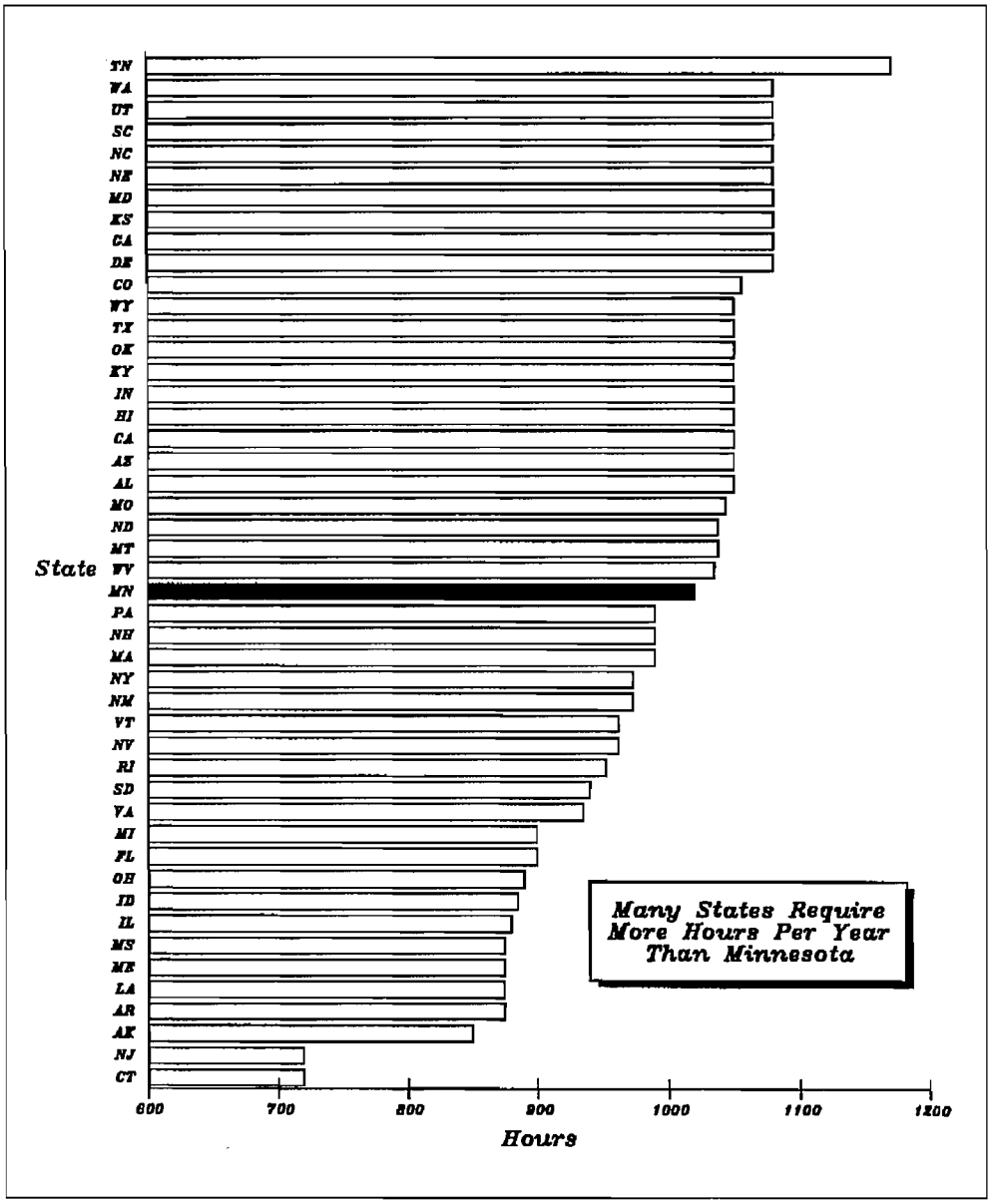

Figure 3.4: Required Hours Per School Year by State

require a six-hour day. Only one state, Tennessee, requires a longer school day.

In addition:

- **Minnesota requires fewer instructional days per year than it did in 1967.**

In the early 1960s, the State Board of Education defined a credit hour as five 50-minute classes or their equivalent per week for 36 weeks, which equals 180 days. By 1967, however, the Legislature had adopted a 175-day year. Ten years later, in 1977, the Legislature permitted districts to use up to five of

these days for teacher workshops and training, thereby reducing the amount of instruction time required to its present 170 days. Throughout this period, Minnesota's requirement of a six-hour school day remained constant.

Since 1983 when *A Nation at Risk* exposed serious problems in education, only a few states have increased their time requirements significantly. Instead, most state reforms focus on how time in school might be better used. Thus, no state even approaches the 7-hour, 200 to 220 day high school calendar recommended in the report.[28]

Furthermore, Minnesota's requirements, as well as those of the United States as a whole, are low when compared with those of other countries. According to *A Nation at Risk*, it is not unusual for academic high school students in England and other industrialized countries to spend 8 hours a day at school, 220 days per year.[29]

In 1983, at the direction of the Legislature, the Department of Education evaluated the idea of extending the school year in Minnesota.[30] But rather than increase the school year or day, the report recommended that districts assess the quantity and quality of their present classroom time and, where needed, increase the effectiveness of that time.[31]

The department projected that lengthening the school year by each additional day of school in Minnesota for 1984-85 could cost as much as $12.6 million. However, we calculate this to be less than one percent of the total revenues received by districts for that school year. The department estimated that the cost for lengthening each school day by half an hour over the school year could be as high as $90.8 million. We calculate this to be four percent of total revenues received.[32]

Table 3.2 describes student graduation requirements across the nation. These data indicate:

- **Minnesota's 20-credit graduation requirement is near the national average of 19.7.**

As shown in Figure 3.5, 18 states have higher graduation requirements than Minnesota, while 15 have lower requirements.

While Minnesota's graduation requirements have remained unchanged since 1983, most other states increased their requirements as *A Nation at Risk* recommended. At least 41 states increased the number of credits students must earn to graduate, and standards in 11 of these states now exceed Minnesota's requirement.

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28 National Commission on Excellence in Education, *A Nation at Risk*, 29.

29 *Ibid.*, 21.

30 *Minn. Laws* (1983), Chapter 314, Article 8, Section 24.

31 Minnesota Department of Education, *Report on Extending the School Year* (November 1983).

32 The department noted that these estimates were based on the full participation of all school districts and the application of various financial assumptions to all districts which may tend to yield "upper-end" or "high-cost" projections.

TABLE 3.2

STUDENT GRADUATION REQUIREMENTS BY STATE

State	Effective for Class of	English	Social Studies	Mathematics	Science	Physical Education/ Health	Other & Electives	Total
Alabama	1989	4	3	2	2	1.5	9.5	22
Alaska	1985	4	3	2	2	1	9	21
Arizona	1991	4	3	2	2		9	20
Arkansas	1988	4	3	-------5[a]-------		1	7	20
California	1987	3	3	2	2	2	1	13
Colorado[b]								
Connecticut	1988	4	3	3	2	1	7	20
Delaware	1987	4	3	2	2	1.5	6.5	19
District of Columbia	1985	4	2	2	2	1.5	9	20.5
Florida	1989	4	3	3	3	1	10	24
Georgia	1988	4	3	2	2	1	9	21
Hawaii	1983	4	4	2	2	1.5	6.5	20
Idaho	1988	4	2	2	2	1.5	9.5	21
Illinois	1988	3	2	2	1	4.5	3.5	16
Indiana	1989	4	2	2	2	1.5	8	19.5
Iowa[b]			1.5			1		
Kansas	1989	4	3	2	2	1	9	21
Kentucky	1987	4	2	3	2	1	8	20
Louisiana	1989	4	3	3	3	2	8	23
Maine	1989	4	2	2	2	1.5	4.5	16
Maryland	1989	4	3	3	2	1	7	20
Massachusetts[b]			1			4		
Michigan[b]			0.5					
MINNESOTA	1982	4	3	1	1	1.7	9.3	20
Mississippi	1989	4	2	2	2	-	8	18
Missouri	1988	3	2	2	2	1	12	22
Montana	1986	4	1.5	2	1	1	10.5	20
Nebraska	1991							20
Nevada	1992	4	2	2	2	2.5	10	22.5
New Hampshire	1989	4	2.5	2	2	1.25	8	19.75
New Jersey	1992	4	2	3	2	4	6.5	21.5
New Mexico	1990	4	3	3	2	1	10	23

Table 3.2, continued

State	Effective for Class of	English	Social Studies	Mathematics	Science	Physical Education/ Health	Other & Electives	Total
New York	1989	4	4	2	2	.5	6	18.5
North Carolina	1987	4	2	2	2	1	9	20
North Dakota	1984	4	3	2	2	1	5	17
Ohio	1988	3	2	2	1	1	9	18
Oklahoma	1987	4	2	2	2	-	10	20
Oregon	1988	3	3.5	2	2	2	9.5	22
Pennsylvania	1989	4	3	3	3	1	7	21
Rhode Island	1989	4	1	1	1	-	9	16
South Carolina	1987	4	3	3	2	1	7	20
South Dakota	1989	4	3	2	2	-	9	20
Tennessee	1987	4	1.5	2	2	1.5	9	20
Texas	1988	4	2.5	3	2	2	7.5	21
Utah	1988	3	3	2	2	2	12	24
Vermont	1989	4	3	-------5[a]------		1.5	1	14.5
Virginia	1989	4	3	2	2	2	8[c]	21
Washington	1991	3	2.5	2	2	2	7.5	19
West Virginia	1989	4	3	2	2	2	8	21
Wisconsin	1989	4	3	2	2	2		13
Wyoming[b]			1					18

Source: Education Commission of the States, 1987.

[a]Students must take at least three years of science and two years of mathematics or two years of science and three of mathematics.
[b]No state requirements beyond those specified.
[c]Students must take one additional year of math or science as an elective.

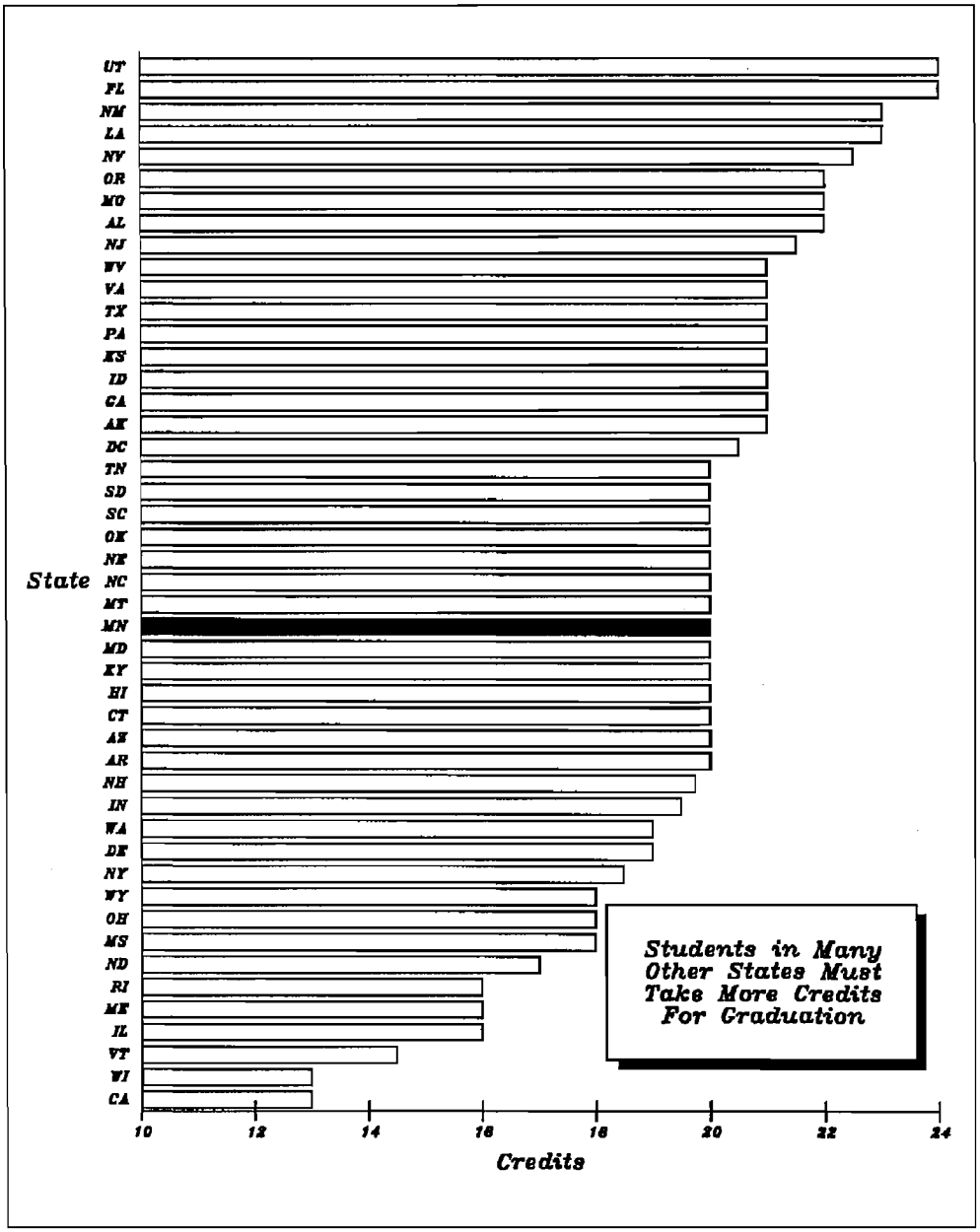

Figure 3.5: Required High School Graduation Credits by State (Source: Education Commission of the States, 1987.)

Table 3.2 also compares student graduation requirements by subject areas. Results show:

- **Minnesota requires students to take substantially less mathematics and science than almost any other state.**

Minnesota's requirements for English and social studies are similar to those of other states. However, 43 states require two or more years of mathematics

for graduation; 10 require three years. Only one other state has a mathematics requirement at Minnesota's low level.[33]

In science, 40 states require two or more years of high school study before graduation. Minnesota is one of only five states requiring a single year of science to graduate.

Minnesota is one of only two states requiring one year of mathematics to graduate and one of only five states requiring one year of science.

Unlike Minnesota, most other states have increased specific requirements for students' graduation. Since 1980, 42 states increased their mathematics requirements and 36 increased their high school science requirements.

In addition, we found that:

- **A growing number of states are establishing more rigorous curricular requirements for college-bound students.**

To date, 17 states and the District of Columbia, shown in Figure 3.6, have established honors-level high school diplomas which require students either to complete additional credits or more advanced coursework. For example, New York offers a Regents Diploma that requires students to take three years of a single foreign language. Florida's Academic Scholars Diploma requires students to study a foreign language for two years and mathematics and science for four years each.

Alabama
California
District of Columbia
Florida
Georgia
Indiana
Kentucky
Louisiana
Michigan
Missouri
New York
North Carolina
Oklahoma
Rhode Island
South Carolina
Tennessee
Texas
Virginia

Figure 3.6: States with High School Honor Diplomas (Source: Education Commission of the States, 1987.)

In 1983, the Minnesota Legislature directed the State Department of Education to make recommendations for changes in student graduation standards.[34] In its report to the Legislature, the department did not recommend an increase. Rather, it pointed out the need to develop a set of outcomes or expectations from learning. In addition, the department recommended: "... local school boards determine the requirements for high school graduation and achievement standards in their local district or use the State Department of Education model, whichever is more rigorous."[35]

More recently, a State Board of Education study committee proposed requiring high school students to complete two years each of mathematics and science courses rather than

33 Note that increased requirements have yet to take effect in some states.

34 *Minn. Laws* (1983), Chapter 314, Article 8, Section 22.

35 Minnesota Department of Education, *Commissioner's Report on Need for Curriculum Changes* (October 1983).

the one year now needed to graduate.[36] This proposal is being considered by the state board and will be discussed in public hearings. If adopted, Minnesota's requirements in mathematics and science would be comparable to most other states.

Performance Standards

A number of states have enacted student competency standards within the last five years. Thus, our analysis found:

- **Other states are more likely than Minnesota to ensure students' satisfactory performance and educational achievement.**

Unlike Minnesota, 20 states require students to pass minimum competency tests to graduate.

Thirty-six states (including Minnesota) require statewide assessment to monitor student performance or identify students who need remedial help. However, many states have gone a step further. As shown in Figure 3.7, 20 states now require students to pass minimum competency tests as a condition for graduation. For example, by 1991, New York's minimum competency test will cover reading, writing, mathematics, American history and government, science, and global studies.

Also, a small number of states are using these tests to monitor district performance. In Arkansas, student achievement is a measure of district performance. If fewer than 85 percent of students in a school meet state-established minimum standards, the school must participate in a state-administered improvement program. New York has a similar program that requires low-performing schools to develop self-improvement plans. If insufficient progress is made to correct deficiencies, the state requires specific corrective action. In South Carolina, principals are evaluated partly on the basis of student performance, and schools are awarded incentive money for improved student achievement scores over time.

Finally, many states have adopted performance standards for teachers. As Table 3.3 shows, these go beyond basic certification programs. At least 33 states, including Minnesota, require aspiring teachers to pass state tests before training or being certified to teach. Since April 1988, Minnesota has required prospective teachers to pass a basic skills test as a condition of state licensure.

Alabama
Arizona
California
Delaware
Florida
Georgia
Hawaii
Kentucky
Maryland
Mississippi
Nevada
New Jersey
New York
North Carolina
Ohio
Oregon
South Carolina
Tennessee
Texas
Virginia

Figure 3.7: States Which Require Students to Pass a Minimum Competency Test to Graduate (Source: Education Commission of the States, 1987.)

36 Minnesota State Board of Education Study Committee, *Recommended Rule Changes in Graduation Requirements and Minimum Program Offering* (July 1988).

State	Entrance Into Teacher Education: Test	Entrance Into Teacher Education: Minimum GPA	Completion of Teacher Education/Certification: Test of: Basic Skills	General Knowledge	Professional Knowledge	Specialty Area	Minimum GPA
Alabama	X	X			X	X	X
Alaska							
Arizona	X	X	X		X		X
Arkansas			X	X	X	X	X
California			X				
Colorado	X						X
Connecticut	X	X					X
Delaware			X				
Florida	X	X	X		X		
Georgia	X	X	X			X	X
Hawaii			X[a]	X[a]	X[a]		X
Idaho							X
Illinois							X
Indiana				X	X	X	
Iowa							
Kansas	X	X	X	X	X		X
Kentucky	X	X	X	X	X	X	X
Louisiana		X	X	X	X	X	X
Maine			X	X	X		
Maryland							
Massachusetts							
Michigan		X					
MINNESOTA			X[b]				
Mississippi	X		X	X	X	X	X
Missouri	X	X				X	
Montana							X
Nebraska			X			X	
Nevada			X			X	
New Hampshire			X				
New Jersey	X	X				X	X
New Mexico			X	X	X	X	
New York			X	X	X		
North Carolina	X				X	X	
North Dakota							X
Ohio							
Oklahoma		X				X	X
Oregon	X	X	X				
Pennsylvania			X	X	X	X	
Rhode Island							
South Carolina	X					X	
South Dakota							X
Tennessee	X		X	X	X	X	X
Texas	X					X	
Utah							
Vermont							
Virginia			X	X	X	X	X
Washington							
West Virginia			X			X	
Wisconsin							
Wyoming	X						

Source: Educational Testing Service, *State Educational Standards: A 50-State Survey* (Princeton, N.J., January 1986).

[a]Required for employment, not certification.
[b]Minnesota's requirement became effective April 1988.

Table 3.3: States' Use of Testing and Grade Point Averages for Teacher Education and Certification, 1984-85

SUMMARY

This chapter has outlined Minnesota's high school standards. As indicated earlier, Minnesota has not been as aggressive about standard-setting as other states in recent history. The standards used by the state to hold districts accountable and to ensure equal access to sound education are loose and incomplete by comparison.

Minnesota's standards leave more room for variations and unequal opportunities than other states' standards. Further, Minnesota's inability to measure how well its education system is performing places the state at risk of failing to meet its constitutional mandate to establish a general, uniform, thorough, and efficient system of public schools throughout the state.

As we point out, Minnesota's standards attempt to regulate inputs more directly than the outcomes of education. They exert some control over district practices by defining state policy and specifying minimum expectations in terms of instructional hours, days, credits, and curriculum hours. However, Minnesota's standards are low in comparison with other states, especially regarding student graduation requirements. Chapter 5 describes some of the ramifications of these low requirements. In addition, our curriculum standards are weakly monitored, quite general, and often vague. As we point out in Chapters 5 and 6, districts enjoy considerable discretion, and we found wide variation in interpretation.

In contrast to practices in other states, Minnesota has done little to define minimum levels of acceptable student or district performance. Instead, districts have considerable latitude to determine their own policies for acceptable performance. This gives rise to the problems we discuss in Chapter 7 and may be related to some of the performance issues raised in Chapter 2.

DISTRICTS AND THEIR ORGANIZATION

Chapter 4

The organization of school districts and the education services they now provide have changed considerably over the last ten years. Many of these changes were in response to Minnesota's increased program requirements adopted in 1983. In addition, legislative incentives for voluntary changes in program delivery methods have contributed to diverse delivery systems.

This chapter analyzes the current number and nature of districts and how they have evolved. We focus on two questions:

- **How has Minnesota's number of districts changed in relation to legislation, demography, and national trends?**

- **How are districts now organized to provide high school education for students in grades 9 through 12?**

NUMBER OF DISTRICTS

Until the 1970s, legislative interest in education issues centered chiefly on school district consolidation. Consequently, the number of districts in the state has decreased dramatically since the turn of the century. Since then, legislative interest has focused on inter-district cooperation, reducing not the overall number of districts but the number of education services provided independently.

History

Minnesota's public school system was established officially in 1847 when the state became a U.S. territory.[1] Originally, school districts were organized around townships. The Legislature required all townships with five or more

1 This section draws from two major sources: Minnesota Department of Education, *History of the State Department of Education in Minnesota* (undated); and University of Minnesota, *Minnesota K-12 Education: The Current Debate, the Present Condition* (Minneapolis: Center for Urban and Regional Affairs and the College of Education, 1985).

families to establish a school district. However, because many townships were large and transportation was limited, the 1851 Legislature gave county commissioners authority to establish smaller school districts organized around neighborhoods. This action contributed significantly to an increase in the number of school districts which reached 8,000 by 1900.

Over the next 60 years, the Legislature used various methods to reduce the number of school districts. Voluntary consolidation laws were enacted in 1901, 1903, and 1905, but had little impact. By 1945, there were still 7,657 districts in the state.

Significant consolidation legislation, still voluntary, was finally passed in 1947 when the Legislature created a state advisory commission on school reorganization. The Legislature also authorized counties to establish committees to survey their educational programs to see whether reorganization was warranted. Committee recommendations were voted on in local referenda. The first election under this provision in late 1948 revealed popular support for consolidation and resulted in the merger of nine districts. Subsequent elections produced more consolidations.

By 1960, there were only 2,581 districts, a decrease of about 5,000 in 15 years. Many of these remaining districts nonetheless were non-operating. That is, children went to other (operating) districts for their entire education. In addition, many districts operated only elementary schools.

To deal with the still-unwieldy number of districts, the 1963 Legislature passed the state's first mandatory school consolidation bill. This legislation required non-operating districts to join districts with schools. However, most non-operating districts complied by joining districts which maintained only elementary schools. Consequently, in 1967, the Legislature required all districts to operate both elementary and secondary schools. This brought the total number of districts to 446 by 1972. Additional consolidations slowly reduced this number to Minnesota's present count of 436 school districts.[2]

Recently the Legislature has encouraged inter-district cooperation.

Until the 1970s, legislative attempts to increase the efficiency of education focused on reducing the number of districts which provided few or no services. More recently, the Legislature has concentrated on encouraging inter-district cooperation, thereby reducing the number of education services provided independently while maintaining the same number of local governing units.[3]

In the early 1970s, legislative actions focused on creating regional service centers to help districts provide low-incidence or shared services. The 1973 Legislature authorized an experimental education service area in southwest/central Minnesota to determine the role regionalized services might play. The experiment was deemed sucessful and, in 1976, Educational Cooperative Service Units (ECSUs) were created.[4] They were to help provide shared ser-

2 We include all districts. Other sources may exclude non-operating, experimental, or unique districts.

3 Figure 3.1 presents a chronology of major legislation related to district organization.

4 *Minn. Laws* (1976), Chapter 8, Section 1.

vices to small districts and promote regionalized planning. In addition, legislation authorizing secondary vocational cooperatives and special education cooperatives was passed in 1974 and 1983 respectively.[5]

In the late 1970s, the state began to encourage inter-district provision of basic educational services. The 1979 Legislature passed experimental pairing legislation that permitted districts to discontinue any grades or portions of grades from kindergarten through 12 by making arrangements with another "paired" district.[6] This approach was expanded by the 1983 Legislature which enacted the Agreements for Secondary Education Act.[7] The measure permitted districts with fewer than 375 students in grades 7 through 12 to arrange for other districts to provide their students' secondary education. Also, inter-district cooperation agreements replaced the experimental pairing legislation which expired in 1984. These allow districts of any size to discontinue any grades or portions of grades and permitted agreements with other districts as long as three grades remain.

The 1987 Legislature encouraged greater and more widespread district cooperation through more direct financial incentives. It authorized many districts to band together as "education districts."[8] Groups of five or more districts (or four districts with 5,000 pupils or occupying an area of at least 2,000 square miles) now may develop joint, comprehensive education plans.

The 1987 Legislature also appropriated funds for regional high schools. The Cooperative Secondary Facilities Act authorizes three or more districts meeting certain standards to apply for state funds to pay for up to 75 percent of the cost of a new secondary facility.[9] Additional funding for cooperative efforts also became available recently to eligible districts through program improvement grants.[10]

Districts Today

Minnesota's 436 school districts vary significantly in geographic size, enrollment, and services.

Minnesota's 436 school districts currently vary in geographic size and enrollment as well as services. As Figure 4.1 suggests, districts in the north tend to cover vast, sparsely populated areas. By comparison, southern districts are small and tightly bunched. The state's smallest district covers just 1.75 square miles while the largest spans 2,716 square miles and maintains high schools more than 100 miles apart.[11]

For purposes of analysis, we have grouped districts geographically into five categories (see Figure 4.2). Twenty-six percent are northern districts found in economic development regions 1, 2, 3, and 5. Central districts (30 percent)

5 *Minn. Laws* (1974), Chapter 252, Section 1 and *Minn. Laws* (1983), Chapter 342, Section 15.

6 *Minn. Laws* (1979), Chapter 10.

7 *Minn. Laws* (1983), Chapter 314, Article 8.

8 *Minn. Laws* (1987), Chapter 398, Article 8, Section 2.

9 *Minn. Laws* (1987), Chapter 400, Section 33.

10 *Minn. Laws* (1987), Article 8, Sections 33 and 38.

11 Minnesota Department of Education, *ABC's of School Finance*, 3.

Northern districts cover vast, sparsely populated areas; southern districts are more compact.

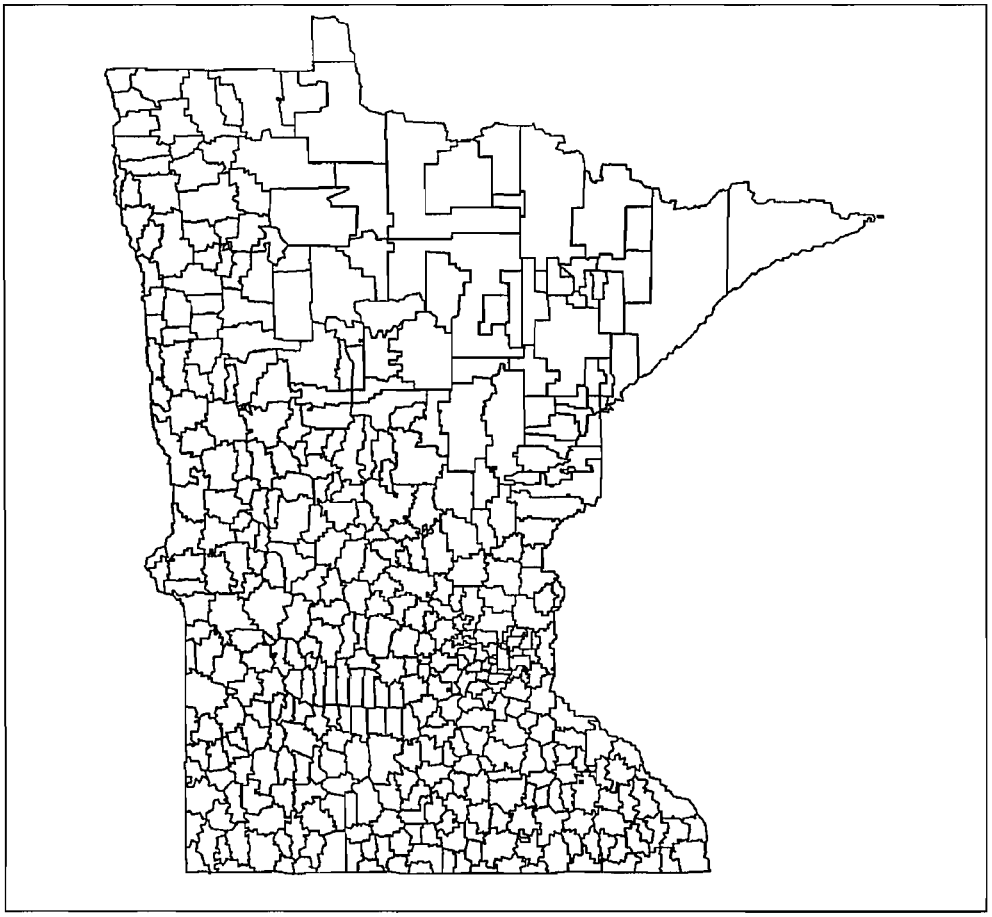

Figure 4.1: Minnesota School Districts

encompass regions 4, 6, and 7, which run diagonally from the state's western border to the Twin Cities' extended boundaries. One-third of the districts are in the southern tier of development regions 8, 9, and 10. The remaining 11 percent of districts are in the Twin Cities development region (11), which we have subdivided into its suburban and urban parts.

Although there are relatively few districts in the Twin Cities development region, Table 4.1 shows that:

- **Nearly half of the state's public high school students attend grades 9 through 12 in the metropolitan area.**[12]

12 Official enrollment figures for the 1987-88 school year were not available. We estimated these data by adjusting 1986-87 enrollment data for districts entering into formal pairing agreements for the 1987-88 school year.

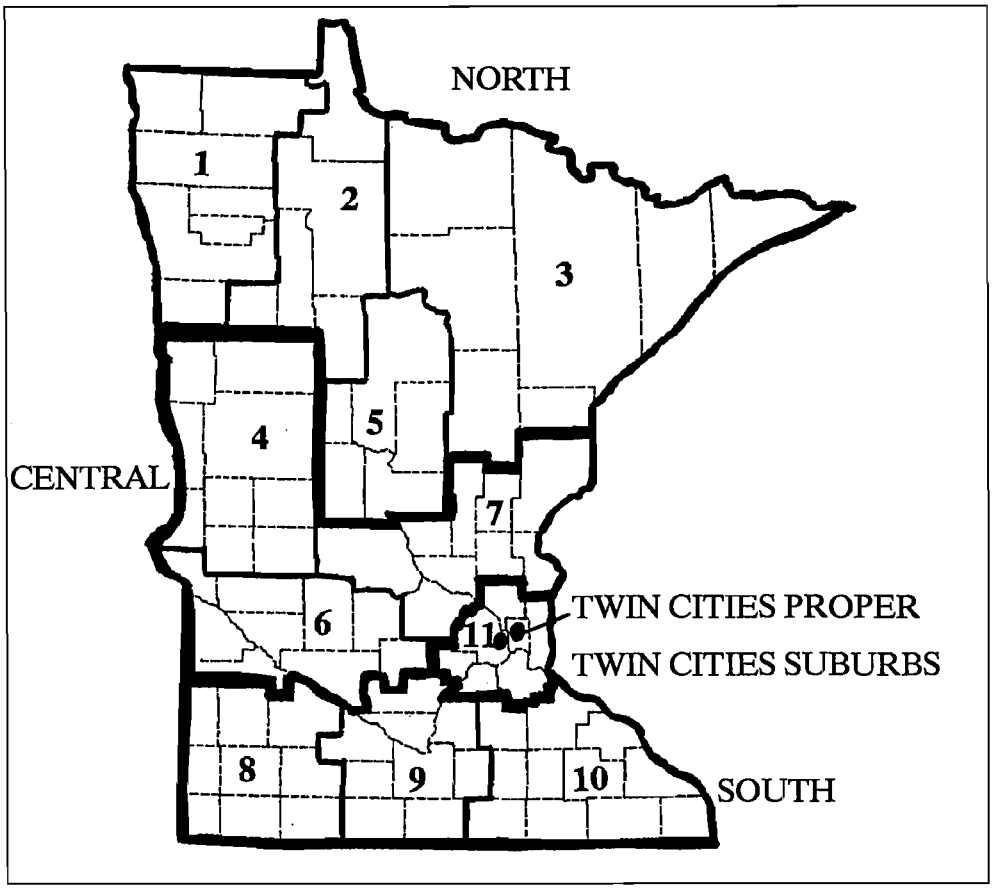

Figure 4.2: Districts by Geographic Region

	Districts		High School Students (ADM[a])	
Region	Number	Percent	Number	Percent
North	107	26%	36,226	16%
Central	118	29	42,480	19
South	137	33	42,030	18
Twin Cities Suburbs	46	11	86,839	38
Twin Cities Proper	2	<1	20,558	9
TOTAL	410[b]	100%	228,133	100%

Source: Minnesota Department of Education.

[a]ADM refers to average daily membership for the 1986-87 school year.
[b]Only 410 of the state's 436 districts served students in grades 9-12 for four full years during the 1986-87 school year.

Table 4.1: High School Enrollment by Region, Grades 9 Through 12

Each of the outstate district groups serves about 40,000 high school students or 16 to 19 percent of the state's total.

This pattern of uneven enrollment is tied to the state's geography and demography. We categorized high school districts according to the number of 26-student class sections they could create.[13] Examples of districts with various numbers of class sections are shown in Figure 4.3.

Number of Class Sections	High School Students Per Grade	Example Districts
1/2	Up to 13	Borup Delavan Marietta-Nassau Verdi
1	13-26	Argyle Finlayson Taylors Falls Villard
2	26-52	Bertha-Hewitt Harmony Remer Sleepy Eye
3	52-78	Ely Hayfield Red Lake Sebeka
4	78-104	Jordan Pelican Rapids Pipestone Roseau
5-6	104-156	Brooklyn Center East Grand Forks Park Rapids Sauk Centre
7-10	156-260	Detroit Lakes Marshall Orono Red Wing
Over 10	Over 260	Buffalo Fergus Falls Minneapolis Winona

Figure 4.3: Examples of Minnesota School Districts by Class Sections, 1987-88

13 District enrollment is often categorized in terms of sections. Our definition of a section (26 students) is similar to that used by the Minnesota Department of Education in its report, *Financing State Board of Education Minimum Program Requirements at an Adequate and Equitable Level*. At the authors' suggestion, however, we reduced the definition from 30 to 26 students.

The Minneapolis-St. Paul urban districts can field more than ten class sections of each high school grade, with an average class size of 26. Most of the Twin Cities suburban districts (63 percent) also could assemble more than ten high school class sections of 26 students each in grades 9 through 12. In contrast, few outstate districts have enrollment sufficient to produce more than two 26-student class sections. In fact:

- **About one-fourth of the outstate districts have only enough students to produce half a class section (up to 13 students per high school grade) or one full class section of 26.**

The practical effect is that some Minnesota graduating classes in 1987 had more than 2,000 students while others had fewer than 10. Also, based on the state's 1986-87 enrollment figures, we found:

Some graduating classes in 1987 had more than 2,000 students while others had fewer than 10.

- **Only about half of Minnesota's 436 school districts have sufficient enrollment to meet various minimums recommended by previous studies.**

In fact, 42 percent of all local districts have fewer total enrollees (kindergarten through 12th grade) than the 500 high school students recommended in an Illinois study.[14] One-half the public high schools have 316 or fewer students--substantially fewer than the 375 students in grades 7 through 12 suggested by a University of Minnesota study.[15] In fact, one of Minnesota's public high schools enrolled only 52 students in all of grades 9 through 12 during the 1986-87 school year.[16]

Our analysis also shows that districts enrolling few students are costly to operate. We examined total operating expenditures by district (shown in Table 4.2) and found that:

- **Districts with the fewest students (13 or fewer per grade) are the most costly--spending 38 percent more per student than the statewide average.**

Most of this is due to the lower student-staff ratios found in districts with the smallest enrollment--ratios 40 percent lower than the statewide average.

In addition to examining districts by enrollment, we looked at the composition of the student body and found that:

- **Twin Cities metropolitan area districts have a high percentage of minority students (35 to 40 percent) by comparison to the statewide median of 1.5 percent.**

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14 Illinois State Board of Education, *School District Organization in Illinois* (Springfield, May 1985).

15 Charles H. Sederberg, Vernon L. Hendrix, and Michael Sjeklocha, *A Minimum Foundation Service Program* (Minneapolis: Center for Educational Policy Studies, March 1979).

16 Minnesota Department of Education, *Information on Public Secondary and Middle Schools for 1986-87*, 4.

Small districts are the most costly to operate.

Number of Class Sections	Operating Expenditures Per Student	Students Per Licensed Staff
1/2	$5,365	8.4
1	4,076	11.7
2	3,744	13.2
3	3,797	14.3
4	3,708	15.0
5-6	3,733	15.1
7-10	3,888	15.9
Over 10	3,997	16.2
Statewide Average	$3,877	13.9

Table 4.2: Operating Expenditures Per Student and Students Per Licensed Staff by Class Sections, 1986-87

In the suburban Twin Cities student population, less than six percent of students come from racial and ethnic minority groups. Forty-one outstate districts had no minority enrollment whatsoever during the 1986-87 school year, but a few (four) served mainly "minority" populations, namely American Indian students.

Finally, we examined the percentage of adults with college education by district and found that:

- **School districts in the Twin Cities metropolitan area have a higher proportion of adult college graduates than districts elsewhere in the state.**[17]

Statewide, half the districts have more than 8.5 percent adult college graduates, and half have less. Most of the Twin Cities area districts are in the highest category and have more than ten percent adult college graduates. Conversely, most outstate school districts have 8.5 percent or fewer college-educated adults.

National Comparisons

Minnesota districts have fewer students on average than districts in other states. We analyzed data from the National Education Association and found that:

- **Minnesota has about 1,000 fewer students per school district than the national average.**

Table 4.3 shows the number of operating districts and public school enrollment by state for the 1986-87 school year. As these data indicate, each Min-

17 Based on district-specific 1980 U.S. Census figures from the Minnesota State Planning Agency.

Only 13 states had fewer students per district than Minnesota.

Rank	State	Operating Districts	Total Enrollment	Enrollment Per District
1	Hawaii	1	164,336	164,336
2	Dist. Columbia	1	86,405	86,405
3	Maryland	24	675,747	28,156
4	Florida	67	1,607,320	23,990
5	Louisiana	66	793,400	12,021
6	Utah	40	415,994	10,400
7	Nevada	17	161,200	9,482
8	North Carolina	140	1,091,552	7,797
9	Virginia	139	974,754	7,013
10	South Carolina	92	610,700	6,638
11	West Virginia	55	351,691	6,394
12	Georgia	187	1,096,372	5,863
13	Tennessee	141	823,283	5,839
14	Alabama	130	733,735	5,644
15	Delaware	19	94,410	4,969
16	California	1,028	4,377,989	4,259
17	Kentucky	178	642,778	3,611
18	New York	723	2,588,936	3,581
19	Rhode Island	40	134,147	3,354
20	Pennsylvania	500	1,674,161	3,348
21	Mississippi	154	498,649	3,238
22	Indiana	304	964,761	3,174
23	Colorado	176	558,415	3,173
24	New Mexico	88	268,765	3,054
25	Michigan	565	1,671,500	2,958
26	Texas	1,090	3,209,515	2,945
27	Ohio	615	1,793,500	2,916
28	Connecticut	165	471,916	2,860
29	Arizona	220	614,565	2,793
30	Washington	297	761,771	2,565
31	Massachusetts	367	841,250	2,292
32	Wyoming	49	100,955	2,060
33	Alaska	55	110,418	2,008
34	New Jersey	592	1,107,467	1,871
35	Illinois	997	1,825,185	1,831
36	Idaho	116	211,360	1,822
37	Wisconsin	431	767,819	1,781
38	**MINNESOTA**	**432**[a]	**693,134**	**1,604**
39	Oregon	302	449,300	1,488
40	Missouri	545	800,606	1,469
41	Kansas	304	416,091	1,369
42	Arkansas	333	437,438	1,314
43	Iowa	436	481,346	1,104
44	New Hampshire	158	163,717	1,036
45	Oklahoma	636	603,132	948
46	Maine	228	207,349	909
47	South Dakota	193	124,607	646
48	North Dakota	282	118,094	419
49	Vermont	274	90,200	329
50	Nebraska	887	266,604	301
51	Montana	544	153,121	281
Nationwide (including the District of Columbia)		15,423	39,881,460	2,586

Source: National Education Association, *Rankings of the States, 1987.*

[a]As reported to the National Education Association by the Department of Education. While Minnesota has 436 districts, two are non-operating. Two more were considered unique for the purposes of these data and thus not included.

Table 4.3: Average Enrollment Per School District by State, 1986-87

nesota district had an average of 1,604 students. The national average was 2,586 students per district. Only 13 states had fewer students per district than Minnesota.

Minnesota's low ranking reflects a pattern typical of the north central United States. Nationally, the number of districts has declined as states have assumed greater responsibility for education financing. However, this portion of the country has maintained more districts largely due to a tradition of strong local control.[19]

DISTRICT COOPERATION

This section examines the educational services provided by Minnesota's school districts. Currently, the state provides funds to 436 districts. But two are non-operating (Franconia and Prinsburg); they have neither elementary nor secondary schools.[20] Prinsburg students attend a local private, parochial school while Franconia students go to school in Osceola, Wisconsin.

Fewer districts are providing four full years of high school.

Districts with High Schools

Over the past several years progressively fewer school districts are providing four full years of high school. Table 4.4 shows the trend over the most recent three school years. Ninety-four percent of the state's districts provided all high school grades just two years ago. However:

- **Today, 89 percent of the state's school districts provide four full years of high school.**

In all, 386 of the total 436 districts serve students in grades 9 through 12. Ten districts serve secondary students for something less than the full four years. The remaining 38 districts serve only elementary students.[21]

The main reason for the decreasing number of high school districts is the fact that many districts took advantage of legislation passed during the late 1970s and mid-1980s which encouraged them to reduce the number of grades served. By combining their high school enrollments, these districts can offer a broader curriculum to their students than they could individually. As we show in Chapter 6, the size of a district's high school enrollment is positively related to the breadth of high school curricula. That is, districts serving smaller num-

19 David Strang, *The Administrative Transformation of American Education: District Consolidation 1938-1980* (Stanford, California: Stanford University, Education Policy Institute, December 1985).

20 Minn. Stat. §§122.34 and 122.355 permit non-operating districts if 75 percent of students attend a private school or if a tuition agreement has existed with a Wisconsin school for the past 25 years.

21 Appendix B lists the districts without four-year high school programs.

	1986-87		1987-88		1988-89	
	Number	Percent	Number	Percent	Number	Percent
Non-Operating Districts	2	<1%	2	<1%	2	<1%
Elementary Grades Only	18	4	30	7	38	9
Through Grade 9	3	1	5	1	5	1
Grades 10 through 12	3	1	5	1	5	1
Grades 9 through 12	410	94	394	90	386	89
TOTAL	436		436		436	

Source: Minnesota Department of Education and Superintendent Survey.

Note: Some percentages do not total 100 due to rounding.

Table 4.4: School Districts by Highest Grade Level Served

bers of high school students have fewer and less advanced academic courses than districts serving more students.

A second reason for the decreasing number of high school districts is declining student enrollment. During the 1977-78 school year, there were 431,000 students in grades 7 through 12 in Minnesota's public schools; more than 68,000 graduated from high school. Ten years later, secondary enrollment was down by more than 100,000 students, and only about 54,000 graduates were expected. During this same period, more than 200 elementary schools closed.[21] Today, the "baby boomlet" shown in Figure 4.4 is causing some

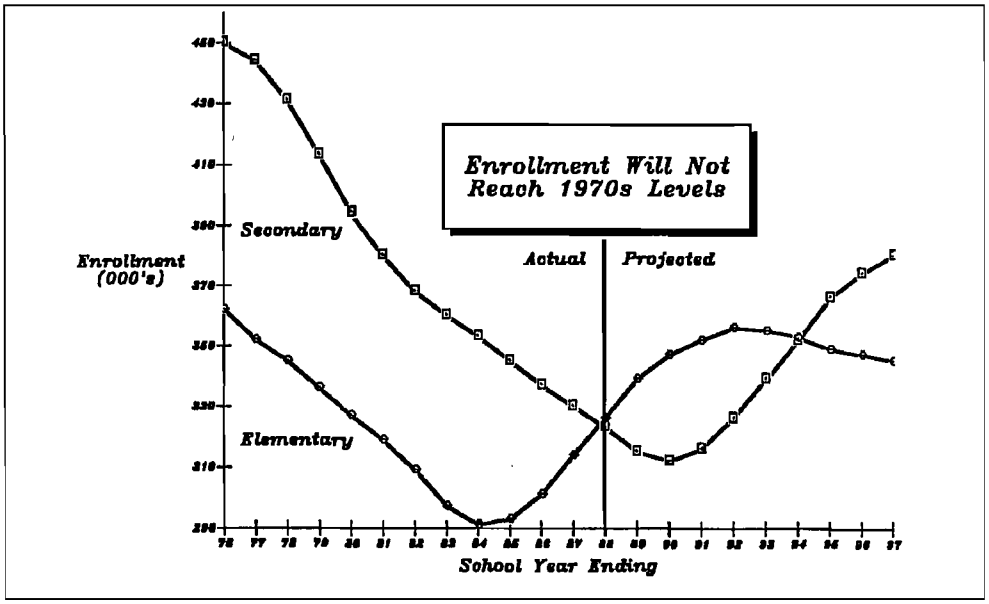

Figure 4.4: Elementary and Secondary Public School Enrollment, 1976-1997
(Source: Minnesota Department of Education.)

21 Minnesota Department of Education, *Information on Public Secondary and Middle Schools for 1986-87* (February 1988), 1, 2.

elementary schools to reopen, but secondary closings may continue. The number of high school graduates is projected to dip below 50,000 during the early 1990s, and throughout the forseeable future, secondary enrollment will remain far below previous levels.[22]

Table 4.5 shows, however, that districts can cooperate in many other ways short of district pairing. In fact, there is so much other cooperation that:

- **Districts with high schools no longer have to provide the full range of services normally associated with a high school education.**

Districts can and do cooperate in many ways.

	Participating Districts	
	Number	Percent
Cooperation to Reduce the Number of Grades Served		
Agreements for Secondary Education	17	4%
Inter-District Cooperation	68	16
Secondary Schools Facility Act	4	1
Cooperation to Reduce the Number of Staff		
Shared Superintendents	82	19
Shared or Part-Time Teachers[a]	274	63
Cooperation to Reduce the Number of Programs		
Special Non-Academic Programs		
Educational Cooperative Service Unit Members[a]	427	98
Secondary Vocational Center Members	170	39
Special Education Cooperative Members[a]	403	92
Intermediate District Members	31	8
Education District Members	38	9
Shared Extra-Curricular Activities[a]		
Academic	129	30
Athletic	78	18
Basic Curriculum		
Joint Powers Agreements for Interactive Television	100	23
Mid-day Transportation Agreements[b]	83	19
High School Correspondence Courses[a]	177	41

Source: Minnesota Department of Education and Superintendent Survey.

[a]1987-88 school year data.

[b]Based on transportation aid records for the 1986-87 school year. However, additional districts may have similar transportation agreements but not receive specific aid.

Table 4.5: Major Ways Districts Cooperate, 1988-89

22 Minnesota Department of Education, *Information on Minnesota High School Graduates for 1986-87* (July 1988), 1, 3.

We classified Minnesota's various inter-district cooperative options according to whether they : (1) *reduce the number of grades* served per district; (2) *reduce the number of staff* needed by each district; or (3) *reduce the number of programs* delivered.[23]

First, as we pointed out earlier, districts may enter into formal agreements to share in delivering services to students at certain grade levels. During the 1988-89 school year, 81 districts are involved in such agreements. (Some districts have more than one agreement in place.) Most of these districts discontinued serving specific grades. A few districts have not reduced the number of grades they serve, but receive students from others which have.

Second, two or more districts may share staff--especially those involved in agreements that reduce the number of grades served. For example, during the 1988-89 school year, 82 districts share superintendents. Also, in our survey of superintendents, we found that most high school districts (70 percent) hire teachers part-time or share teachers with other districts, especially to teach foreign languages.

Third, districts may enter into agreements for specific types of programs or services which are provided at another district or separate entity. Common examples include secondary vocational centers and special education cooperatives.

Many districts also share extra-curricular programs both for academic and athletic competitions. Academic extra-curricular activities frequently shared include speech, music, and drama. During the 1987-88 school year, 78 districts shared teams for sports, while 129 districts shared academic extra-curricular activities.[24]

Off-site instruction is a lesser-known form of district cooperation.

Agreements that permit districts to purchase instruction in the basic curriculum areas (English, social studies, mathematics, science, and foreign languages) are lesser-known forms of district cooperation. These agreements reduce the number of courses districts must deliver through their own teachers. Instruction is instead provided off site.

Off-Site High School Instruction

Throughout this report, we distinguish between on-site and off-site instruction. *On-site* instruction is the norm--that is, courses taught within a district by teachers who are employed for students' benefit. This provides for maximum student-teacher interaction, is appropriate for the widest range of student abilities and motivations, and permits parents and students maximum input into curriculum content and scheduling.

Due to inter-district cooperation, however, students increasingly receive instruction from teachers not employed directly by their own districts. We define this as *off-site* instruction. This may occur through interactive

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23 These classifications overlap somewhat because staff may be reduced when districts discontinue programs or grades.

24 Minnesota State High School League, *Dues Registration Edit List*, 1987-88.

television, mid-day transportation arrangements, and high school correspondence programs.

We believe that off-site instruction is, in general, less desirable than on-site. As we will discuss, off-site techniques provide for varying amounts of student-teacher contact, introduce mechanical or distance impediments, and are not always appropriate for students who are poorly motivated. Further, parents and students have reduced control over education when districts rely on off-site instruction. Local residents elect only their own school boards and serve on committees for their own districts, not those where instruction originates when off-site methods are used.

We believe that off-site instruction is, in general, less desirable than on-site instruction.

Decreased student-teacher contact time is perhaps the most worrisome aspect of off-site instruction. The California Commission on the Teaching Profession indicates that "a teacher's most basic resource is time to work with students, especially time to give each student individual help."[26] Educators such as John Goodlad have expressed concern about the trend for students to receive less teacher contact as they progress through the grades. To reverse this trend, he argues for greater humanization of the learning process for students at all grade levels.[27] Ernest Boyer also stresses the need to increase student-teacher interaction.[28] Theodore Sizer calls for more personalization of education, and also points out that more attention from teachers increases students' self-esteem.[29]

Districts generally use off-site instruction in one of two ways: to meet the state's curriculum requirements or to enhance curricula beyond state requirements. As we discussed in Chapter 3, the Minnesota Department of Education does not monitor districts' use of off-site instruction. Also, Minnesota has relatively weak standards for education programs. In contrast, at least one other state limits how extensively districts can use off-site techniques. In Nebraska, districts must offer at least 77 percent of the required curriculum hours on site.

Interactive Television

Districts frequently use fully interactive television systems (ITV) to provide instruction to students. These systems permit teachers in host sites to teach students at several remote sites, while allowing all students and teachers to see and talk with one another on television.

The popularity of interactive television has grown within the past five years. In 1983, the Legislature adopted the Minnesota Education Technology Act, which awarded about $4.3 million to 20 technology demonstration sites over a three-year period.[30] In addition, the act authorized aid for any district which developed a written technology utilization plan, provided funds for technol-

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26 Senate Office of Research, *Class Size--When More Can Be Less*, (Sacramento, California: March 1988), 32.

27 John Goodlad, *A Place Called School* (New York: McGraw-Hill, 1983).

28 Ernest Boyer, *High School: A Report on Secondary Education in America* (New York: Harper and Row, 1983).

29 Theodore Sizer, *Horace's Compromise* (Boston: Houghton Mifflin Company, 1984).

30 Minn. Laws (1983), Chapter 314, Article 8, Sections 10 through 20.

ogy in-service training for teachers, encouraged the development and evaluation of courses, and purchased computerized "courseware" duplication rights.

Today, about 100 of the state's high school districts use ITV for instruction. As Figure 4.5 shows, most ITV development runs diagonally across the state, from northwestern to southeastern Minnesota. The extreme southern, northeastern, and north central portions of the state are less developed than others.

About 100 high school districts use interactive television for instruction.

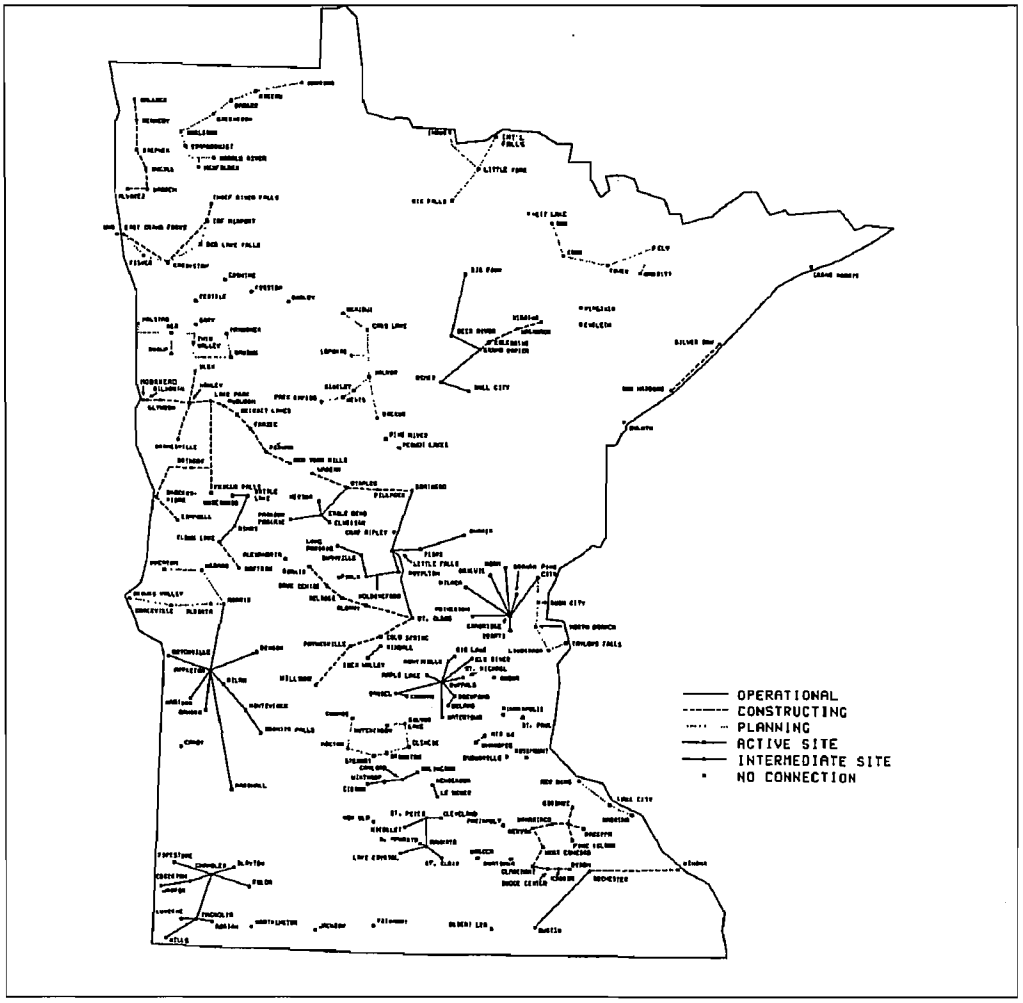

Figure 4.5: Interactive Television Development in Minnesota (Source: Ed Lethert, SECO, Inc., 1988.)

To some extent, undeveloped regions of the state reflect both geographical and cost considerations. The most popular and effective systems use fiber-optic or cable technologies, which are not equally available throughout the state. Interactive television can be expensive--generally, an initial investment of $75,000 per district is necessary.[31] Planning and constuction costs for sys-

31 Gilbert Valdez, *Evaluation and Implementation of Minnesota's Distance Learning Demonstration Sites* (St. Paul: 1988).

tems installed around 1984-85 averaged $592,199.[32] Early systems relied chiefly on broadcast or cable television systems. Fiber-optics, although more expensive, is more common today because of superior transmission capabilities.

Interactive television was initially perceived as one mechanism to help districts meet the increased curriculum requirements adopted by the State Board of Education in 1983. However, more districts use ITV to enhance rather than provide the basic curricula required by the State Board of Education. Interactive television does permit districts to offer high school courses which would have insufficient enrollment to warrant hiring a teacher. In addition, as more systems link with post-secondary institutions, college-level courses become more accessible to more students.

Most districts use television to enhance rather than provide basic curricula.

Because many systems carry classes before the start of the regular school day, ITV allows students to take more courses each day or add flexibility to their daily schedules. Interactive systems also provide staff development activities and numerous opportunities for community education after the regular school day.

An evaluation sponsored by the Minnesota Department of Education indicates that student performance in ITV classes is about the same as performance in teacher-taught classes. Students taking ITV classes generally enjoy them and student-teacher interactions are high.[33]

However, the evaluation also shows that ITV classes do not work well for students who are experiencing academic difficulties. Students who dropped out of ITV classes reported that they had difficulties keeping up or having questions answered. We found that receiving sites generally are unsupervised with no adults in the classroom, although many are located near administrative offices where students can go to get help with discipline or technological problems.

Because participating districts can have different daily or yearly schedules, reduced instruction time can also be a problem. For example, we visited one district where ITV students had to take six weeks of study hall because the host district used trimesters rather than semesters. In another district, students could lose some instructional time daily because class periods in participating districts started and ended at different times.

Another problem occurs when different districts provide the first and second year of classes in given subjects. Because teachers in various districts include more or less material in first-year courses, some ITV students in second-year courses are behind when classes start, while others may go unchallenged.

Finally, courses which require hands-on experiences or much personal contact do not lend themselves to ITV. For example, science courses with laboratory components pose logistic and safety problems. A few districts do offer physics over ITV in which cases teachers forgo laboratory experiences, make travel arrangements, or demonstrate on television.

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32 Quality Education Development, *Interactive Television Findings, Issues and Recommendations* (St. Paul, February 1987).

33 Ibid., 6.

While we have some concerns about the decreased opportunities for student-teacher contact when districts use interactive television systems to provide courses, we have serious reservations about districts using related systems that are not fully interactive. A few districts are looking into satellite television to provide curriculum. These systems are less expensive than interactive television, but provide no student-teacher contact. Although students can see and hear teachers, teachers cannot see and hear students. Student-teacher interaction is accomplished via toll-free telephones. However, officials at one Wisconsin high school using satellite television report that students have at times spent the entire day trying unsuccessfully to get through to teachers by telephone. By the next day, students may no longer care about why they were calling.[34]

We do not believe that students should have to surmount extraordinary barriers to get a high school education. Thus, districts should be prohibited from using systems that are not fully interactive to meet state curriculum requirements, and standards for other technologies should be developed.

Student Transportation

Districts involved in mid-day transportation agreements pay nearby districts to provide courses for their students. Students then travel to the other district for part of each school day.[35]

The Minnesota Department of Education reimburses districts for mid-day inter-district transportation costs when students are transported to receive education programs. During the 1986-87 school year, we found that83 districts received $471,420 in state aid for this purpose. As discussed in Chapter 3, the department does not now monitor how much districts rely on transportation arrangements either to meet curriculum requirements or enhance programs. However, we found that a staff person previously approved academic classes eligible for transportation reimbursement, but that practice was discontinued in 1987.

Some districts use mid-day transportation agreements to meet state curriculum requirements.

Transportation agreements can vary considerably. For example, one student might drive to another district for an advanced math class which otherwise would be unavailable. Other students may be bused to another district for French because their own district offers only Spanish. In these instances, we believe transportation agreements enhance districts' curricula.

However, as we show in Chapter 6, some districts use mid-day transportation agreements to meet state curriculum requirements rather than enhance their curricula. In these instances, districts may require students to spend a significant portion of their day elsewhere. For example, we visited one district that offered only English and social studies classes to their students in grades 10 through 12. The district bused these students to another district for an additional four classes.

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34 Katy Read, "Teaching Johnny on TV," *Duluth News-Tribune* (Duluth: June 12, 1988), 1B, 4B.

35 We refer to these agreements as transportation agreements to distinquish them from student tuition agreements where parents pay tuition to non-resident districts to educate their children full-time. They also are distinct from formal agreements wherein students spend the entire day in another "paired" district.

Student transportation is carried to the extreme in another district we visited. For the current school year, all 9th and 11th graders are bused to another district for English and science classes for the first period of the day and then returned. Seniors are bused for the first two periods and then returned. Later, all 12th and some 11th graders are bused out for the last three periods of the day while 9th and 10th graders are bused out for the last two. At the end of the day, students are bused back to their home district and then to their homes.

From our superintendents' survey, we were able to identify about 10 instances where districts relied on student busing to meet state curriculum or student graduation requirements or provide electives. In these cases, it was not uncommon for students to be bused out for three of the five to six classes they were required to take daily.

We believe that:

- **Students who are transported to take basic subjects have unequal, reduced access to teachers and courses.**

Heavy reliance on mid-day transportation agreements presents impediments to students' education.

Heavy reliance on mid-day transportation agreements presents impediments to students' education. First, students may lose instructional time, particularly when districts operate on different schedules. One district that we visited required their students to eat lunch on the bus to save time. Another indicated to us that teachers in the host district did not schedule tests on days when the remote district did not have school. Instructional material was covered nonetheless. Second, students from the remote districts have unequal access to teachers and instructional facilities after school. Third, administrative controls are weakened and jurisdictional questions surface when students spend significant portions of their day in another district. We visited one district where the superintendent was powerless to improve attendance since students were bused to another district. Dress codes and discipline policies naturally vary. Further, parents must travel to not one but two districts to visit with teachers and observe classes. While parents' local school board and district staff are accountable to them, those of the neighboring district are not.

Correspondence Courses

High school correspondence courses represent a third off-site instructional technique which is commonly used in Minnesota. State Board of Education rules permit districts with limited curriculum offerings to use correspondence courses to expand their curriculum.[36] As we show in Chapter 6, however, some districts use correspondence courses to meet state curriculum requirements.

Our analysis of available data shows that:

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36 Minn. Rules §3500.2900 Subp. 4 also permits districts to use correspondence courses for special education students, secondary students unable to attend high school, and high school dropouts.

- **There were at least 2,281 enrollments in high school correspondence courses during the 1986-87 school year.**

We learned that Minnesota Department of Education does not monitor district use of correspondence courses, even though state rules require the department to approve high school correspondence vendors.[37]

District officials told us that they use these major vendors for high school correspondence courses: University of Missouri, University of Wisconsin, University of Nebraska, University of Minnesota, and North Dakota State University. Of these, North Dakota State University (NDSU) is used most often. In fact, Minnesota's high school students accounted for 36 percent of NDSU's total program enrollment of 4,209 in 1986-87.[38] Table 4.6 show the number of high schools using NDSU over the last few years. Some superintendents told us they use NDSU over other sources because the courses cost less.

School Year	Minnesota Enrollments [a]	Number of MN High Schools [a]	Percent of Total Program Enrollment
1981-82	NR[b]	131	--
1982-83	NR[b]	166	--
1983-84	2,189	157	34%
1984-85	2,098	159	34
1985-86	1,987	151	38
1986-87	1,805	154	36
1987-88	1,232	162	--

Source: North Dakota State University, *Division of Independent Study Annual Reports.*

[a]Includes both public and private schools. Private school use is low, however. During the 1987-88 school year, only 3 of the 162 high schools using correspondence courses were private schools.

[b]Not reported.

Table 4.6: Minnesota's Use of North Dakota State University's High School Correspondence Program, 1981-1988

Almost half of Minnesota's high school districts use correspondence courses--sometimes for basic course requirements.

From our survey of superintendents, we found that:

- **Forty-five percent of high school districts reported using correspondence courses during the 1987-88 school year.**

Some districts rely quite heavily on these programs. According to NDSU records, one Minnesota district's enrollments equaled 41 percent of its high school students during the 1986-87 school year, while enrollments in some other districts involved about 25 percent. One-third to one-half of the high school students at different schools in one district that we visited took high school correspondence courses during the 1985-86 school year. The district

37 Minn. Rules §3500.2900, Subp. 4.

38 North Dakota State University's high school correspondence program enrollment was the 8th highest in the nation during the 1986-87 school year.

staffed formal "learning centers" to facilitate enrollment and monitor student progress. In the past two years, however, this district stopped encouraging correspondence courses. Primary reasons include cost, curriculum erosion (some courses students were taking duplicated district offerings), quality, and appropriateness of the material.

Currently, the state does not restrict the total number of correspondence credits students can count toward graduation.[39] We asked superintendents about their local policies regarding correspondence credits and found:

- **At least 12 percent of districts permit unlimited correspondence courses as a means to graduate from high school, and 22 percent have no policy on the matter.**

As Table 4.7 shows, other districts allow anywhere from half a credit to 10 credits, while at least 18 percent preclude high school correspondence courses entirely. The State Board of Education is now considering limiting districts' future reliance on correspondence courses.[40] A proposal before the board would no longer permit districts with limited high school offerings to rely on correspondence courses as a substitute.

	Districts	
Number of Credits	Number	Percent
None	61	18%
0.5-5.0	117	34
6-10	5	1
No Limit	41	12
No Policy	75	22
State Policy/Within Limits	3	1
Not Applicable	39	11
Total Responding to Question	341	

Source: Superintendent Survey. The question was: "[Indicate the] Maximum correspondence credits which can be counted toward graduation?"

Table 4.7: Maximum Correspondence Credits Districts Permit for Graduation, 1987-88

Under special circumstances already permitted in rule, we have learned that high school correspondence courses can be beneficial. For example, they are useful for serving home-bound students and may help certain at-risk students.

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39 Before the State Board of Education increased curriculum requirements in 1983, its rules limited high school correspondence credits earned to three.

40 See Minnesota State Board of Education Study Committee, *Recommended Rule Changes in Graduation Requirements and Minimum Program Offering* (July 1988). This proposal would limit the use of correspondence credits to special education students, students unable to attend secondary school due to unusual circumstances, secondary school dropouts, and students whose class has already graduated and need three or fewer credits.

However, educators generally regard correspondence courses as a viable option only for the most motivated students. Thus:

- **We have serious reservations about districts' reliance on correspondence courses.**

The inherent lack of classroom discussion and interaction is a serious shortcoming which is exacerbated when districts, as we found, use correspondence courses to replace teachers or meet the state's curriculum requirements. Figure 4.6 lists popular correspondence courses used by some Minnesota districts. Speaking and listening are vital in foreign language courses, yet we learned that these represent some of the most popular high school correspondence courses.[40] The subject matter of another popular course, "Alcohol, Tobacco, and Drugs," also suffers from the lack of teachers' modeling and classroom interaction.

Alcohol, Tobacco and Drugs
Wildlife Management
United States History I and II
Individual and Team Sports
World History I and II
Spanish I through IV
Developmental English
Psychology
Personal Management for Independent Living
Sophomore English
Physical Science I and II
German I through IV
Sociology
French I through III
Senior Language
The Novel
Junior Language
Photography

Figure 4.6: Popular Correspondence Courses (Source: North Dakota State University.)

In the past, correspondence courses have also been used in Minnesota to make up for the time lost in mid-day busing between districts. Students in one district we visited sometimes took correspondence courses because they lost so much time during the school day being bused between districts for classes.

We question districts' reliance on interactive television, mid-day busing, and correspondence courses, especially for basic subjects and courses required for graduation.

SUMMARY

This chapter has shown how districts can and do cooperate with one another to provide administrative as well as academic education programs. As we saw, 89 percent of Minnesota's school districts provide four full years of high school. Most of the other 11 percent of districts have taken advantage of legislation permitting districts to combine resources to more effectively serve their high school students.

However, some districts with four-year high school programs must rely on other districts to provide the classes in major subject areas (English, social studies, mathematics, science, and foreign language) required by state standards. Many districts having problems meeting state requirements on their own bus their students to other districts for portions of the school day or use correspondence courses. (Chapter 6 discusses the extent to which this is occurring throughout the state.) We have serious concerns about extensive use of such practices that decrease student-teacher contact, limit parent and stu-

40 Audio cassettes are sometimes exchanged by mail to help with these limitations.

dent input into curriculum content and scheduling, and are appropriate for only the most motivated of students. Extensive use of such practices place the state at risk of failing to meet its constitutional mandate to provide equitable education services to all students.

The next chapter shows how districts schedule high school instruction on a daily and yearly basis. As we have shown, scheduling can be critical to successful inter-district cooperation and the preservation of adequate instructional time.

INSTRUCTIONAL TIME VARIATIONS

Chapter 5

Sufficient instructional time, or time on task, is a necessary but often neglected condition for learning. Most research indicates that a moderately positive relationship exists between time on task and achievement. While time on task is neither the most nor the least important ingredient for learning, ". . . research in ordinary schools shows that improving the amount and quality of instruction can result in vastly more effective and efficient learning." [1]

In its 1983 report, *A Nation at Risk*, the National Commission on Excellence in Education sharply criticized American schools for their poor use of time. It pointed out that:

- Compared to other nations, American students spend much less time on school work.
- Time spent in the classroom and on homework is often used ineffectively.
- Schools are not doing enough to help students develop either the study skills required to use time well or the willingness to spend more time on school work.[2]

While Chapter 3 described the state's minimum time requirements, this chapter examines the amount of time districts require students to be in school. We focus on these questions:

- **How much time are Minnesota students in grades 9 through 12 required to spend in school?**
- **How does this vary among districts?**
- **What strategies are districts using to increase instructional time?**

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1 Herbert J. Walberg, "Improving the Productivity of American Schools," *Educational Leadership* 41: (1984), 26.

2 National Commission on Excellence in Education, *A Nation at Risk*, 21.

It should be noted that we have not examined how students choose to spend their time in school beyond what their district requires. It is important to remember that time itself does not produce learning, but merely exists as a condition for it to occur. The amount of learning that occurs in any time period depends on many factors, including student motivation and teacher quality, which are not examined here.

TIME ALLOCATION

This section examines how districts respond to state requirements. In addition to looking at the overall school year, we analyze the amount of instructional time actually available to and required of students throughout the state.

Yearly and Daily Instructional Time

As we discussed in Chapter 3, the state requires that districts provide at least 170 days of high school instruction annually. Each day must be at least 6 hours long, so the official minimum school year is 1,020 hours.

However, the State Board of Education can grant exemptions, weather conditions can interfere, and districts can "bank" time if their school day exceeds the required six hours.[3] As shown in Table 5.1:

- **Most high school districts exceed the state's official requirements for daily and annual instructional time.**

Further, we found that the majority of districts interpret state requirements as minimum guidelines--not as norms. Nine percent of districts which enrolled 28 percent of high school students held six-hour days during the 1987-88 school year. The remainder had longer days. Only 13 percent of districts which enrolled 6 percent of high school students met for 170 days or less. Finally, 1 percent (with 1 percent of statewide high school enrollment) met only for the state's required total of 1,020 hours.

In Chapter 3, we also reported that the state requires districts to be operational for fewer days of instruction today than it did during the 1960s. To find out how districts responded, we obtained historic data from the Minnesota School Board Association.[4] Results show that:

- **Districts today operate for three fewer instructional days than during the 1968-69 school year.**

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3 *Minn. Stat.* §§120.64 through 120.67 permit the State Board of Education to grant exemptions to districts using four-day weeks. During the 1987-88 school year, three districts operated under this schedule. Also, *Minn. Stat.* §124.19, Subd. 4 permits districts to meet for as few as 160 days if the secondary school day lasts more than six hours.

4 Minnesota School Board Association, *Licensed Salaries and Related Information, 1968-69 and 1985-86 and 1986-87* (St. Peter, undated).

Most school districts exceed state requirements for time in school.

	High School Districts	High School Students
HOURS PER SCHOOL DAY[a]		
6 Hours (State Requirement)	10%	28%
6:01-6:15	42	35
6:16-6:30	36	27
More than 6:30	13	10
District Average:	6:17	
District Median:	6:15	
STUDENT DAYS PER YEAR[a]		
Less than 170	1%	1%
170 (State Requirement)	12	5
171-174	51	57
175	23	20
More than 175	13	15
District Average:	173	
District Median:	174	
STUDENT HOURS PER YEAR		
1,020 (State Requirement)	1%	1%
1,021-1,050	13	26
1,051-1,080	28	29
1,081-1,110	30	21
More than 1,110	28	22
District Average:	1,090	
District Median:	1,088	

Note: Some percentages do not equal 100 due to rounding.

Source: Superintendent Survey.

[a]Figures based on districts operating a five-day week.

Table 5.1: Amount of Time Districts are Operational for Students

As Table 5.2 indicates, the average number of operational days for student instruction dropped by two between the 1968-69 and 1986-87 school years. For last year, our superintendents' survey indicates a reduction of one more day.

Over the same period, teacher in-service training and conference days increased from three to eight annually. This increase corresponds to statutory language adopted in 1977 (and discussed in Chapter 3) that permits districts to use five days annually for teacher training and parent conferences.

From our survey of superintendents, we learned that teachers worked an average of 181 days during the 1987-88 school year. However, eight of these days were devoted to teacher in-service training and parent conferences--not student instruction.

	School Year		
	1968-69	1986-87	1987-88
Average Number of Student Instructional Days	176	174	173
Average Number of Non-Instructional Teacher Days	3	7	8

Source: Minnesota School Board Association, *Licensed Salaries and Related Information, 1968-69 and 1985-86 and 1986-87*, and Superintendent Survey.

Table 5.2: Operational Changes in the Length of the School Year, 1968-1988

Our survey also shows that the six-hour school day is not necessarily equivalent to instructional or class time, even after lunchtime is subtracted. Passing time (the time students spend moving between classes), homeroom, and non-credit bearing activity periods are generally counted as well as class time.

To determine the maximum amount of class time actually available to high school students, we multiplied the maximum number of daily classes students could take by their average length as reported by superintendents. Results (Table 5.3) show that:

- **Most districts actually provide slightly less than six hours of daily class time to high school students.**

Most districts provide less than six hours of daily class time.

	High School Districts	High School Students
MINIMUM CLASS TIME STUDENTS MUST TAKE DAILY		
Less than 4 Hours	3%	8%
4:00-4:30	29	29
4:31-5:00	44	52
More than 5 Hours	24	10
District Average:	4:47	
District Median:	5:00	
MAXIMUM CLASS TIME STUDENTS ARE ALLOWED DAILY		
5:00-5:30	13	37
5:31-6:00	57	41
6:00-6:30	26	13
More than 6:30	4	9
District Average:	5:55	
District Median:	5:50	

Note: Some percentages do not equal 100 due to rounding. Figures based on districts operating on five-day weekly schedules.

Source: Superintendent Survey.

Table 5.3: Daily Minimum and Maximum Class Time, 1987-88

Although the 1987-88 high school day averaged a total of 377 minutes or 6 hours and 17 minutes, class time was actually 355 minutes or 5 hours and 55 minutes on the average. Moreover:

- **More than one-third of Minnesota's high school students are limited to a maximum of five and one-half hours of class time daily.**

Further, districts allow high school students to spend some of their school day outside instructional classes. Using data collected in our survey of superintendents, we looked at the minimum number of classes students were required to take daily. We found that:

- **Only ten percent of high school students are required to take more than five hours of classes daily.**

High school students are allowed to devote a significant portion of the school day to non-credit-bearing activities. Districts require students to take classes for an average of only 4 hours and 47 minutes a day. Looking at the data another way, we calculate that one-half of the state's high school student population is required to spend only 4 hours and 35 minutes of each day in classes.

Instructional Time Required for Graduation

The state requires students to earn at least 20 credits to graduate from high school.[5] Local school districts are free to set higher but not lower graduation requirements. We asked superintendents about high school graduation policies in their districts and found that:

- **Most districts require more credits than the state's minimum of 20 for graduation.[6]**

Overall, Minnesota high school students need an average of 21.8 credits to graduate. However, as Table 5.4 shows, 20 percent of districts (which enrolled 29 percent of students) required only the state minimum of 20 credits during the 1987-88 school year.

Because the state does not regulate the length or number of daily class periods, we found that the actual amount of instruction represented by a credit hour can vary widely among districts (as shown in Table 5.4). As Table 5.5 indicates, most districts operate on a seven-period day, and class periods

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5 Each credit is roughly equivalent to one class held daily for a year.

6 State Board of Education rules permit districts to define their secondary programs as grades 9 through 12 or grades 10 through 12. Students in 9 through 12 programs must earn at least 20 credits to graduate, while students in 10 through 12 programs must earn at least 15. To compare districts, we defined high school as grades 9 through 12, and computed graduation requirements over the course of four years.

Most districts require high school students to spend more time in classes than the state requires.

	High School Districts	High School Students
CREDITS TO GRADUATE		
20 or less (State Requirement)	20%	29%
20.0-21.9	26	28
22.0-22.9	30	29
23 or more	24	14
District Average:	21.8	
District Median:	22.0	
HOURS PER CREDIT		
120 or less (State Requirement)	1%	1%
121-140	15	10
141-145	30	25
146-150	27	18
151-160	23	37
More than 161	4	10
District Average:	147	
District Median:	146	
TOTAL HOURS FOR GRADUATION		
2,400 or less (State Requirement)	1%	1%
2,401-3,020	24	19
3,021-3,190	26	31
3,191-3,350	24	26
More than 3,351	25	24
District Average:	3,190	
District Median	3,190	

Note: Some percentages do not equal 100 due to rounding.

Source: Superintendent Survey.

Table 5.4: Instructional Time Districts Require in Grades 9 through 12 for High School Graduation

last an average of 51 minutes. However, the number of periods ranges from 4 to 9, and one can last as long as 90 minutes.

Although the Department of Education defines a credit hour as 120 hours, we found that districts actually provide an average of 147 hours per credit (as shown in Table 5.4).[7]

The state defines a credit as the equivalent of 120 hours so it requires only 2,400 total hours to graduate. However, we calculated the actual number of instructional hours needed for graduation and found that:

7 To determine how districts defined a credit hour, we multiplied their length of class periods by their number of annual school days and divided by 60. This gave us clock hours per credit.

	High School Districts	High School Students
INSTRUCTIONAL PERIODS PER DAY		
5 or less	1%	1%
6	10	39
7	75	55
8 or more	14	5
District Average:	7	
District Median:	7	
MINUTES PER CLASS PERIOD		
40-45	7%	2%
46-50	54	44
51-55	36	47
56-59	2	7
More than 60	1	1
District Average:	51	
District Median:	50	

Note: Some percentages do not equal 100 due to rounding. Figures based on districts operating on five-day weekly schedules.

Source: Superintendent Survey.

Table 5.5: Variations in Daily High School Class Schedules

- **Districts actually require an average of 3,197 instructional hours in grades 9 through 12 to graduate.**[8]

This is fully one-third more hours on average than the state's minimum requirement of 2,400. As would be expected, Tables 5.4 and 5.5 also show substantial variation in the amount of time high school students must spend in classes before graduation. In fact:

Districts require vastly different amount of class time for students to graduate.

- **One-fourth of the state's districts require high school students to take up to 3,020 hours of instruction to graduate, while another fourth require graduates to finish at least 3,351 hours--a difference which amounts to nearly one-third of a year.**

At the extremes, some graduates must take the equivalent of more than one additional year of high school classes than their peers. We found that district graduation requirements range from about 2,400 to over 3,900 total hours. This represents a difference of about 62 days a year. Over the course of four years, this difference would accumulate to about 250 days--much more than the state's current requirement of 170 annual days of instruction.

8 We multiplied each district's clock hours per credit by the number of credits they required for graduation.

DISTRICT VARIATIONS

To help explain district variations, we examined the relationship between instructional time and the following variables: total enrollment, minority enrollment, projected enrollment change, geographic location, percent of district residents who graduated from college, student-staff ratio, levy referendum (if any), and total expenditures. In general, we found few systematic relationships that explain the wide variations previously described. Below we present selected descriptive data from our analysis.

Enrollment

Statewide, we find that districts with smaller student bodies (one-half and one-section districts) tend to hold longer school days but meet for fewer days annually. Also, they tend to have more but slightly shorter class periods daily. Where districts' enrollment covers many sections (over 10), hours per school day and year tend to be fewer. As Table 5.6 shows, larger districts (seven and more sections) generally offer fewer hours of instruction annually than other districts.

Very small districts (half section) require the fewest hours to graduate.

Number of Class Sections	High School Districts	High School Students	Hours Per Year	Hours to Graduate
1/2	2%	<1%	1,095	2,796
1	16	2	1,097	3,174
2	28	8	1,087	3,176
3	15	7	1,095	3,195
4	9	5	1,096	3,215
5-6	9	8	1,098	3,238
7-10	8	11	1,088	3,230
Over 10	13	59	1,072	3,211
Average			1,090	3,190

Note: Some percentages do not total 100 due to rounding.

Source: Superintendent Survey.

Table 5.6: Variations in Instructional Time by Class Sections

However, very small districts (half section) require the fewest hours to graduate--13 percent less than the statewide average. In contrast, mid-sized districts (five and six sections) require the most class time.

Geographic Region

In general, Twin Cities metropolitan area districts have fewer but longer class periods each day than outstate districts. Because they generally have a slight-

ly shorter school day, they offer fewer hours of instruction annually (Table 5.7). However, the metropolitan area districts require students to put in more instructional hours to graduate.

Region	High School Districts	High School Students	Hours Per Year	Hours to Graduate
North	27%	16%	1,082	3,193
Central	29	19	1,089	3,210
South	32	18	1,101	3,160
Twin Cities Suburbs	12	38	1,077	3,212
Twin Cities Proper	<1	9	1,058	3,230
Average			1,090	3,190

Note: Some percentages do not equal 100 due to rounding.

Source: Superintendent Survey.

Table 5.7: Variations in Instructional Time by Geographic Region

We learned that districts in southern Minnesota tend to provide more instructional hours to high school students annually than districts in other areas. However, since southern districts base credits on slightly fewer hours, they tend to require the fewest instructional hours for graduation.

STRATEGIES TO INCREASE INSTRUCTIONAL TIME

District policies can significantly increase the amount of instructional time accessible to students, regardless of the high school day's length. Such policies, shown in Table 5.8, include: (a) flexible scheduling of class periods and teachers; (b) requiring students to do homework; (c) extending the school year to twelve months; and (d) providing non-remedial classes during the summer.

Strategy	High School Districts	High School Students
Flexible scheduling of class periods	12%	21%
Homework	8	13
Year-round schedule	<1	<1
Non-remedial summer school	18	36

Source: Superintendent Survey.

Table 5.8: District Strategies to Increase Instructional Time

Flexible Scheduling

One strategy districts can use to increase instructional time available to students is to schedule an extra class period at the start or end of the regular school day. They can stagger the time when teachers start or end their work day and thereby offer additional classes at little or no cost. The resulting class periods, sometimes referred to as "early bird" classes, may encourage students to enroll in an extra class and may also add flexibility to their schedules.

"Early-bird" classes were available in 45 districts.

In our survey of high school superintendents, we asked whether districts used a staggered schedule during the 1987-88 school year so that students could take an extra class at the start or end of the day. We found that:

- **Only 12 percent of high school districts stagger teachers' schedules so that students have access to additional classes.**

Forty-five districts which enrolled 21 percent of the high school student population did report using this strategy to increase the number or type of credit-bearing courses they offered during 1987-88. All but the very smallest districts (one-half section) used this technique; slightly more than one-fourth had more than 10 sections. About two-thirds of these districts were in central or southern Minnesota. We found early or late classes offered in all major subject areas: English (communication skills), social studies, mathematics, science, and foreign language.

Teachers' availability before and after the standard school day can likewise increase students' access to instruction. We learned that most districts discourage students from remaining in the building after school without teacher supervision. As in the scheduling of instructional periods, if districts staggered teachers' starting and ending times so that some teachers simply reported earlier while others simply stayed later, student access to instructional facilities and staff might increase at little or no additional cost.

Homework

Policies that require students to engage in a certain number of hours of meaningful homework can be a good way to increase student time on task at little or no cost to districts. For example, if districts required as little as one hour of homework per night, instructional time would increase by the equivalent of almost one school day per week.

In a 1983 report to the Legislature, the Department of Education recognized schools' responsibility to assign meaningful homework to students. It recommended that "Local boards of education, school administrators, teachers, and parents need to examine their own local policies concerning homework to be satisfied that appropriate effort and the necessary time are required to secure the greatest benefit to the learner." [9]

9 Minnesota Department of Education, *Commissioner's Report on Need for Curriculum Changes* (October 1983), 33.

We asked superintendents whether their districts had formal homework policies in 1987-88 and, if so, the amount of time students were expected to spend on homework each weeknight. We found that:

- **Only 31 high school districts (eight percent) had formal policies on homework.**

Few districts have formal homework policies.

These districts reported that their policies set minimum expectations that students will spend from one to three hours per weeknight on homework. Seventy-one percent of these districts are outside the seven-county metropolitan area. We did find homework policies in districts of all enrollment sizes except the very smallest (half-section).

This percentage of Minnesota high school districts with homework policies appears to be far below the national average. In a U.S. Department of Education survey, high school principals were asked whether their schools had policies or guidelines on the amount of required homework.[10] Almost half of those surveyed, 47 percent, indicated that they had policies which required homework during the 1987-88 school year. Although fewer principals in the central states reported homework policies (32 percent), Minnesota's percentage of high school districts with homework policies (8 percent) is still quite low.

Year-Round Schedules

Year-round programs increase the amount of instructional time available to students and also offer numerous advantages. First, students can graduate one year early if they attend high school full-time for three years. Second, this gives students more flexibility in planning their schedules. Third, year-round programs increase the number of classes students can take during their four years of high school. Fourth, they allow students to easily make up credits needed to graduate.

Year-round education is not a new concept although Minnesota only recently authorized a 12-month learning program in five school districts.[11] During the 1970s, a few overcrowded schools across the country implemented year-round scheduling. In Minnesota, Mora began year-round elementary school in 1973 to better utilize existing facilities.[12] Currently, there are over 410 schools across the country on year-round schedules.[13]

Thus far, only one Minnesota district (North Branch) is operating a 12-month program. Starting in June 1988, approximately 130 students (from five districts) and 10 teachers participated. Summer-term courses were held in three four-week sessions, with each subject offered three hours a day for 20 days.

10 U.S. Department of Education, *Public High School Principals' Perceptions of Academic Reform* (Washington, May 1988).

11 Minn Laws (1988), Article 7, Section 61. State funding was not increased, but rather made available for 12 months per year instead of 9.

12 Mora discontinued year-round scheduling after the 1985-86 school year.

13 Charles Ballinger, *A Position Statement on Year-Round Education* (San Diego: National Association for Year-Round Education, March 22, 1987).

Non-Remedial Summer School

Districts may also use non-remedial summer school to increase instructional time. This strategy offers many of the advantages of extended-year schedules, especially if districts provide a wide variety of courses. Analysis of superintendents' response to our questionnaire shows that:

- **Eighteen percent of districts (enrolling 36 percent of secondary students) offered non-remedial summer school during the 1987-88 school year.**

About half of these districts had at least seven sections of students; about one-third were in the Twin Cities metropolitan area. Courses in all major subject areas were offered, although not necessarily in all districts.

SUMMARY

This chapter shows major differences in the amount of instructional time provided to and required of high school students in Minnesota. To a large extent, we believe these differences are due to the state's permissive and often low education standards which, as we discussed in Chapter 3, allow districts considerable discretion. Although we saw in Chapter 4 that the state encourages inter-district cooperation in numerous ways, the variations documented here may present obstacles to successful cooperation and raise questions of equity and adequacy for students.

The next two chapters focus on curriculum variations within the school day (as Minnesota high school districts define it) and some of the ramifications of such variations. Then, in Chapter 8, we discuss alternative approaches and present recommendations to reduce variations while improving access to education.

HIGH SCHOOL CURRICULA

Chapter 6

As we discussed in Chapter 3, local school districts and the state share responsibility for curricula in Minnesota's public high schools. The State Board of Education sets minimum requirements both for the student (graduation requirements) and the school (curriculum requirements). Nevertheless, the local school districts have primary responsibility for designing their curricula and may set graduation requirements above the minimum state requirements.

This chapter focuses on the following questions:

- **How do Minnesota's high school curriculum requirements compare with entrance standards of area colleges, national accreditation standards, and high school curricula recommended by the U.S. Department of Education?**

- **To what extent do high school programs meet state curriculum requirements and college entrance standards?**

- **How much do high school programs vary across the state? What explains these differences? To what extent are program differences related to school enrollment, financial resources, geography, or population characteristics?**

- **What courses do Minnesota high school students take? How has this changed over time? How do courses taken by Minnesota students compare with those taken by students in other states?**

The curriculum measures we use in this chapter are based on the number and type of academic courses available as well as the delivery method used to teach the courses (e.g., on-site or off-site). We did not attempt to determine course content nor measure instructional quality.

CURRICULUM STANDARDS

In our evaluation, we compared Minnesota high school curricula against a variety of standards. First, we examined the minimum high school curriculum requirements set by the State Board of Education. Second, we looked at the high school courses which are recommended for admission to area colleges.

We emphasized college entrance standards because preparation for college is an increasingly important objective for high school education. Between 1979 and 1988, the proportion of high school juniors planning to complete at least four years of college increased from 41 to 64 percent.[1] High schools do help to fulfill other objectives, including vocational training, art performance, and citizenship preparation. However, our report focused on academic education, which is essential to other educational endeavors and career development.

While courses recommended by colleges may not be appropriate for all students, schools that do not offer such courses may deprive their students of important opportunities. Our survey and an earlier study found that every district has students who plan to attend a four-year college.[2] Also, college standards are one of the factors that the state board considers when setting high school curriculum requirements.

Other standards we reviewed are the North Central Association standards, the "new basics" standards recommended by the National Commission on Excellence in Education, and the "James Madison" model high school curriculum proposed by the U.S. Department of Education.[3] The North Central Association of Colleges and Schools is the only organization that accredits high schools in Minnesota. As described in Chapter 2, the association requires comprehensive reviews of participating high schools, including their curricula.

State Curriculum Standards

Superintendents say that state curriculum standards make a difference.

The State Board of Education sets the official minimum curriculum requirements for all public high schools in Minnesota. Our survey of school superintendents found that they think that state curriculum requirements are important. In fact, we found that superintendents rated state requirements as a critical explanation for high school curricula more often than any of nine other factors. As shown in Table 6.1, 44 percent of superintendents said that state board requirements were critically important, compared with 36 percent for financial resources, the second-highest rated factor. Other factors rated critically important by at least 10 percent of superintendents were local board requirements, student enrollment, student/parent demand, college entrance requirements, and faculty training/goals.

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1 Minnesota Higher Education Coordinating Board, *Summary of Responses to the Plans and Background Survey, 1979-88*, 8.

2 Kerry Kinney Fine and Mary Jane Lehnertz, *Post-High School Plans of Minnesota Students* (Minnesota House of Representatives Research Department, 1988).

3 U.S. Department of Education, *James Madison High School* (Washington, 1987).

Rank		Percent Who Rate it Critically Important
1	State board requirements	44
2	Financial resources	36
3	Local board requirements	31
4	Number of students enrolled	29
5	Student/parent demand	20
6	College entrance requirements	13
7	Faculty training/goals	11
8	Inter-district cooperation	7
9	Population characteristics	6
10	Physical plant/buildings	4

Source: Superintendent Survey.

Table 6.1: Superintendents' Explanations for High School Curricula

Table 6.2 summarizes how state curriculum requirements have changed during recent years. Before the 1985-86 school year, the state required high schools to offer essentially the same courses as the state required students to take to graduate. School districts were required to offer four years of English (also called communication skills), three years of social studies, only one year of mathematics, and one year of science. They were not required to offer any foreign languages, music, or art. As a result, these state standards had little effect on high school curricula in Minnesota.

Current standards, which became effective during the 1985-86 school year, substantially increased districts' curriculum requirements. For example, the state board increased mathematics and science requirements from one to four years each and added a two-year requirement each for foreign language, music, and art.[4] Other requirements are that districts must offer five years of English and four years of social studies courses.

State curriculum requirements have increased recently, but they are general and permissive.

For most subjects, state standards are general and permissive. Local districts decide what courses should be taught and which requirements they satisfy. In mathematics, science, and English, the state standards say nothing about the courses to be taught or the content of the courses. In social studies, the state board requires that school districts offer one year of American studies, which includes American history, and one year of contemporary world problems. Also, districts must offer two years of a single foreign language during high school (as opposed to one year of two different languages).

Figure 6.1 summarizes the type of courses Minnesota high schools provided on site daily in 1987-88.

- **Only 45 percent of high school courses were in the core academic areas of English, social studies, mathematics, and science.**

4 The State Board of Education defines one year as 120 hours of instruction. As a result, a high school that provides 145 hours of instruction during a year-long course may meet the four-year requirement with three full-year courses and one semester course.

Curriculum Areas	1984-85	1985-86 Through 1988-89	State Board of Education Study Committee's Recommendation[a]
English (communication skills)	4	5	5
Math	1	4	7
Science	1	4	4
Social Studies	3	4	4
Foreign Language	--	2	3[b]
Music	--	2	4.5[c]
Visual Arts	--	2	
Health	0.5	0.5	0.5
Physical Education	1.2	1.2	1
Industrial Arts/ Home Economics	--	1	--[d]
Electives	--	10	14[d]

NOTE: State Board of Education rules define one year as 120 hours of classroom instruction.

[a]The State Board of Education is currently considering these recommendations.

[b]Three years of one foreign language may be offered at any time from PK-12th grade. If the last year is offered before 12th grade, another course, program, or services must be provided to ensure maintenance of skills.

[c]The rule changes under discussion combine music and visual arts requirements into one fine arts category.

[d]Rule changes related to industrial arts, home economics, and vocational courses are under discussion by a separate study committee. How the study committee spells out these requirements may affect the total number of electives required.

Table 6.2: Curricular Offerings Required for Minnesota High Schools, Years Required for Grades 9 through 12

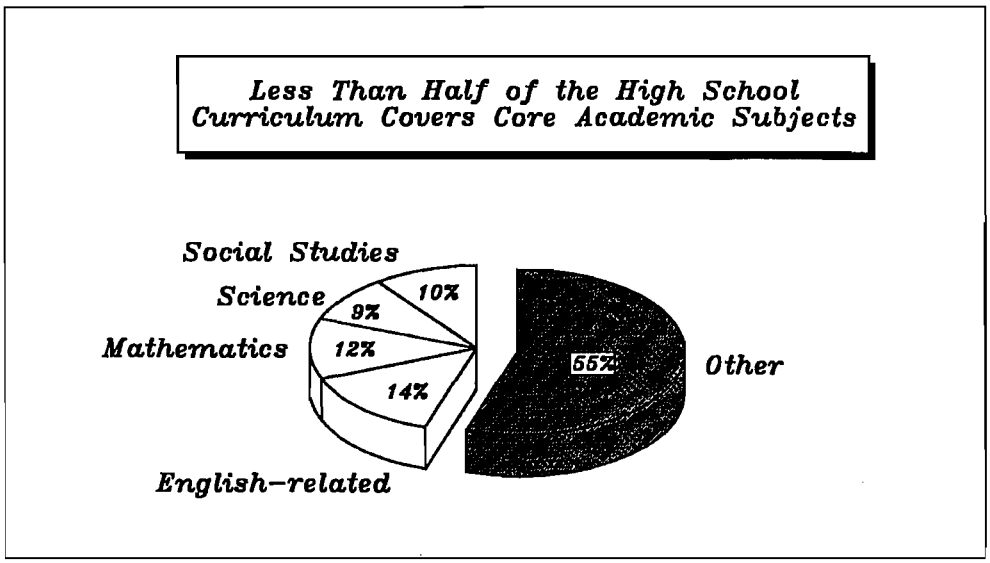

Figure 6.1: Distribution of High School Courses Taught On Site Daily by Subject Area

The academic subject with the most courses was English (14 percent), followed by mathematics (12 percent), social studies (10 percent), and science (9 percent). The percent of high school courses devoted to academic subjects varies greatly among high school districts. Academic courses constitute 42 percent of all courses in Minnesota's 51 largest high school districts (over 10 class sections per grade), compared with 62 percent in the state's 7 smallest high school districts (one-half class section per grade or less).

In reviewing high school registration materials, we noticed considerable variation in the type of courses which districts count toward the state's subject requirements. For example, computer programming may be treated as mathematics or vocational instruction. We found driver's education and military training included under the social studies category. In one district, we learned that vocational agriculture counts as science and "basic business" as mathematics. Also, some districts count foreign language as English.

Driver's education may count as social studies and vocational agriculture as science.

Current state standards also allow school districts wide latitude in their method of delivering courses. To meet state requirements, school districts may count courses taught through interactive television, high school correspondence programs, or other school districts.[5] If a district offers two courses every other year, it can count both courses toward state requirements. Also, districts can meet state requirements by offering different levels of a subject in the same class.

College Entrance Standards

Table 6.3 summarizes entrance standards adopted by several public and private area colleges, including the University of Minnesota (College of Liberal Arts and Institute of Technology), the Minnesota State University System, the University of Wisconsin, and three selective private colleges--Macalester College, Carleton College, and Hamline University.

We chose this mix of colleges to represent a range of curriculum standards. The private college standards are more demanding, but we found that public university standards will be similar to them in 1991. We excluded community colleges because they do not require any particular curriculum.

As Table 6.3 shows, these colleges typically recommend that high school students take at least four years of English, three years of mathematics, three years of science, three years of social studies, and two or three years of a single foreign language. In addition, Macalester and Carleton Colleges recommend some honors or Advanced Placement courses, and some other colleges recommend computer science and fine arts courses. The colleges use such standards to screen applicants and to estimate potential students' "fit" within their curricula.

Some colleges specify the courses that should be taken within subject areas. For example, the Institute of Technology's science standard includes physics, chemistry, and biology. Its mathematics standard consists of a four-year sequence including algebra, geometry, higher algebra, and trigonometry.

5 For example, a district may transport students, or students may drive to another district for part of the school day.

TABLE 6.3

STATE, NATION, AND COLLEGE STANDARDS FOR HIGH SCHOOL CURRICULUM

	Number of Years								
	English	Social Studies	Math	Science	Foreign Language	Art	Music	Computer Science	Honors or Advanced Placement Courses
State Board of Education Curriculum Requirements	5	4	4	4	2	2	2	--	--
College Entrance Standards									
University of Minnesota (1991)									
College of Liberal Arts	4	2	3	3	3	--	--		--
Institute of Technology	4	--	4	4	2	--	--		--
University of Wisconsin (1991)	4	3	3	2	2	--	--		--
Minnesota State University System	4	3	3	3	2	-----2-----		.5	--
Macalester College	4	3	3	3	3	--	--	--	Yes
Carleton College	3	2	3	1	2	--	--	--	Yes
Hamline University	4	3	3	3	2-3	--	--	--	--
National Standards									
North Central Association[a]	4	4	4	4	2	1	1	--	--
Nation at Risk New Basics[b]	4	3	3	3	2	--	--	.5	--
James Madison High School[c]	4	3	3	3	2	.5	.5	--	--

Sources: Minnesota Department of Education, college admission offices, North Central Association, and U.S. Department of Education.

[a]North Central Association of Colleges and Schools, Policies and Standards for the Accreditation of Secondary Schools (Boulder, CO: Commission on Schools, 1987), 8, 16.

[b]National Commission on Excellence in Education, A Nation at Risk (Washington: U.S. Department of Education, April 1983), 24, 29.

[c]U.S. Department of Education, James Madison High School (Washington: 1987).

Of course, there are exceptions, depending on individual students' circumstances. If prospective students lack preparatory courses, they still have a chance to be admitted but may be at a disadvantage. For example, under the College of Liberal Arts standards for 1991, students who do not meet the three-year foreign language standard would be required to take make-up classes without receiving college credit.

Comparison of State and College Entrance Standards

College entrance standards exceed state curriculum standards in a few areas.

Table 6.3 also shows that current state board curriculum standards exceed college entrance standards for English and social studies. Further, the board's standards exceed most of the colleges' standards for mathematics and science. The University of Minnesota's Institute of Technology is more demanding because it requires several specific science and mathematics courses. Other standards that go beyond the state standards include three years of a single foreign language (University of Minnesota College of Liberal Arts and Macalester College), some honors or Advanced Placement courses (Macalester and Carleton Colleges), and a half-year of computer science (Minnesota State University System).[6]

National Standards

Compared with the North Central Association (NCA) accreditation standards, the state's curriculum requirements are equal or higher in the core subject areas. State and NCA requirements are the same for mathematics, science, social studies, and foreign language. State requirements exceed accreditation requirements by one year for English, music, and art.

In *A Nation at Risk*, the National Commission on Excellence in Education recommended a minimum curriculum that all high school graduates should take.[7] The commission did not intend to recommend a curriculum that high schools should offer. So, we view the "new basics" as a minimum standard.

Not surprisingly, Minnesota state requirements exceed the minimum curriculum recommended in *A Nation at Risk* for most subjects, including English, social studies, mathematics, and science. However, one standard from *A Nation at Risk* does not appear in state standards: that is, a half year of computer science.

The U.S. Department of Education later refined the "new basics" standards by recommending specific courses in the James Madison High School model curriculum. The recommended curriculum is more specific than Minnesota's current state standards. For each subject, the model curriculum specifies which

6 The state board does require school districts to provide an information technology program, but this is much more general than the State University System's computer science standard. Information technology programs may include one or more of a variety of subjects, including computers, telecommunications, cable television, film, and satellite communications.

7 National Commission on Excellence in Education, *A Nation at Risk*, 24, 29.

courses would produce the minimum required credits. For example, the model curriculum for English includes one year of courses each in American, British, and world literature. The James Madison science curriculum specifies three years from the following course list: astronomy/geology, biology, chemistry, and physics (or principles of technology).

New State Standards Recommended by State Board Study Committee

Recently, a state board study committee recommended new curriculum standards for Minnesota school districts. These new standards would raise curriculum requirements substantially. Currently, high schools must offer the equivalent of at least four one-year courses in mathematics. Under the new standard, high schools would offer the equivalent of at least seven one-year mathematics courses. In addition, high schools would offer at least three years of a single foreign language instead of two years. The fine arts requirement would increase by half of one year over the current four years. District requirements to provide English, social studies, and science courses would be unchanged.

Further, the recommended state standards identify some specific courses that districts would offer. For example, the new science curriculum requirement would stipulate one-year courses in physical science, biology, chemistry, and physics. The recommended mathematics requirement would include a five-year sequence beginning with algebra. As a result, the high school curricula under the recommended standards would equal or exceed all of our selected college entrance standards for science, mathematics, and foreign languages (except for honors or Advanced Placement classes). State standards would continue to exceed college entrance standards for English and social studies.

COMPLIANCE WITH CURRICULUM STANDARDS

To estimate how many districts do not meet the various high school curriculum standards outlined above, we examined data from the following sources:

- The Minnesota Department of Education's curriculum monitoring project.

- Licensing reports, filed annually by districts with the education department. These list courses taught by each teacher. Limitations are that data (1) include only courses taught on-site by licensed teachers and (2) inexplicably omit some courses.

- Interactive television (ITV) course lists obtained from ITV coordinators around the state.

- State Department of Education reports on courses offered under mid-day travel agreements.

- Superintendent survey data, including number of courses taught on site, curriculum ratings for different subject areas, and methods districts used to provide a list of specific courses in 1987-88 (see Appendix C). In some cases, we also used curriculum information in registration materials and class schedules sent by superintendents along with completed questionnaires.

- Direct personal or telephone contact with about 100 district officials to clarify curricula.

Through the curriculum monitoring project, public school principals annually report how many hours of courses they offer by subject area. The department notifies schools when reported curricula do not meet state standards and asks principals to submit corrective action plans.

We are concerned about the accuracy of state curriculum monitoring data.

We are concerned about the general accuracy of the state's curriculum monitoring data for several reasons. First, local school officials who we interviewed often mentioned that the reporting forms are confusing. Second, the department does not verify reports except when they indicate failure to meet state standards. In those cases, the department asks the school for a corrective action plan, error correction, or updated information. The fact that several schools corrected their data suggests that there may be additional errors.

Another problem is that the department's curriculum monitoring project stopped monitoring districts that met the standard during 1986-87. Instead, the department only asked districts that appeared to be out of compliance in 1986-87 to report their curriculum hours for 1987-88. Thus, we have less data for current compliance than we did for 1986-87.

Finally, the state's monitoring system does not identify which courses are actually provided nor how courses are delivered. As a result, we relied on the other data sources to determine whether districts meet various college entrance standards and the state foreign language requirement. We also used the other data sources to identify how districts deliver specific courses in mathematics, science, and foreign language. Nevertheless, the curriculum monitoring data are helpful in examining school district compliance with state curriculum standards.[8]

8 A more complete data system is being developed for future monitoring purposes.

Compliance with State Curriculum Standards

Our review of data for the 1986-87 school year indicates that most school districts complied with the high school curriculum requirements for academic subjects. As Table 6.4 shows, we found:

- **While all Minnesota high school districts met the state curriculum requirements for mathematics, science, and social studies, eight school districts did not meet the state's foreign language requirement, and seven did not meet the state's English/ communication skills requirement.**

A few districts did not meet formal state curriculum requirements.

	Districts Failing Standard		Students in Districts Failing Standard	
Standard	Number	Percent	Number	Percent
English	7	2%	1,914	1%
Social Studies	0	0	0	0
Mathematics	0	0	0	0
Science	0	0	0	0
Foreign Language	8	2	2,009	1
Total High School Districts 1986-87	(410)		(228,133)	

Table 6.4: Compliance with State Curriculum Requirements, 1986-87

All eight districts that did not meet the foreign language requirement offered one year of a foreign language in 1986-87. We learned that four of these districts added a second year in 1987-88, and one district added a second year in 1988-89.

Three years after the state's curriculum requirements took effect, three districts still fail the foreign language requirement. Two of the three districts that still do not meet the state standard added a second language, but offer only one year of each language.

The seven districts which failed the state's English requirement in 1986-87 met the state's requirement by 1988-89. One district met the requirement by pairing with another district during 1987-88. We found that five districts added a course during the 1987-88 school year, and one district added a course in 1988-89.

These results suggest that compliance with state standards is improving. However, we emphasize that trends cannot be accurately determined since the Department of Education stopped monitoring districts that reported meeting the standards during 1986-87. We found several districts that did not comply with English or foreign language requirements even though they reported that they met the standard during the previous year. For example, we found two districts that went out of compliance with the foreign language require-

ment because they lost their foreign language teacher and did not quickly find a replacement. Also, none of the seven districts which did not meet the communication standard in 1986-87 failed the standard during the previous year. If the department had used the current policy during 1986-87, it would not have detected such non-compliant districts.

Provision of Courses to Meet College Entrance Standards

We examined whether districts provided the courses which students would need to meet college entrance standards. Table 6.5 summarizes the results, which show:

- **All Minnesota high school districts provide courses so that students could meet college entrance standards for English and social studies but not necessarily for science, mathematics, and foreign language.**

Some districts did not provide courses allowing students to meet college entrance requirements.

	Districts Not Meeting Standard		Students in Districts Not Meeting Standard	
Standard	Number	Percent	Number	Percent
Four years English	0	0%	0	0%
Three years social studies	0	0	0	0
4-Year mathematics sequence	7	1.7	484	0.2
Biology, chemistry, physics	3	0.8	451	0.2
Three years foreign language	191	48.5	34,675	15.3
Honors or Advanced Placement	204	51.8	42,701	18.8
Total High School Districts 1987-88	(394)		(226,316)	

Table 6.5: Provision of Courses to Meet College Entrance Standards, 1986-87 or 1987-88

We found that three high school districts did not meet the science standard of the University of Minnesota's Institute of Technology (IT). Seven districts did not meet the IT mathematics standard.

The IT science standard requires high school students to take physics, chemistry, and biology or another life science. All high school districts provided biology and chemistry at least once during the past two school years (1986-87 and 1987-88), and all but three districts offered physics during this period.

The IT mathematics standard includes a four-year mathematics sequence covering algebra, geometry, higher algebra, and trigonometry. Seven districts did not meet this standard because they provided only a three-year sequence.

We found a very different pattern of results for two college entrance standards that exceed current state requirements. The two standards are: (1) the three-year foreign language standard which is currently used by the University of Minnesota College of Liberal Arts and Macalester College and (2) honors or Advanced Placement (AP) courses recommended for entrance to Macalester and Carleton Colleges. According to our survey data, in 1987-88:

- **About half of Minnesota's high school districts (enrolling about 23 percent of high school students) did not provide courses recommended for admission to selective private colleges and to the University of Minnesota College of Liberal Arts in 1991.**

During the 1987-88 school year, 49 percent of high school districts did not meet the three-year foreign language standard and 52 percent of high school districts did not provide either honors or AP courses. During the 1987-88 school year, 15 percent of high school students attended schools that did not provide three years of a foreign language, and 19 percent attended schools without honors or AP courses.

Curriculum Ratings by Superintendents

The results above suggest that foreign language is the weakest academic subject area in Minnesota high schools. In general, superintendents who responded to our survey agreed. As Table 6.6 shows, superintendents who rated their district's curriculum strong or very strong ranged from a high of 79 percent for mathematics to a low of 39 percent for fine arts. The 51 percent rating for foreign language was lower than mathematics, English, and science. A similar percentage rated social studies as strong or very strong--only 53 percent.

Range	Subject	Percent Who Say It's Strong or Very Strong
1	Mathematics	79
2	English	71
3	Science	70
4	Computer education	63
5	Social Studies	53
6	Foreign Language	51
7	Electives	46
8	Fine Arts	39

Source: Superintendent Survey.

Table 6.6: Superintendents' Ratings of High School Curricula by Subject Area

How Districts Meet Academic Standards

As we discussed earlier, state standards are permissive and allow school districts to meet the minimum curriculum requirements in several ways, including interactive television, mid-day travel to other schools, high school correspondence courses, and alternate-year scheduling. We looked at the methods districts used to meet the state foreign language requirement and the Institute of Technology's standards for mathematics and science.

Table 6.7 shows how districts met the state's foreign language requirement during 1986-87. We found:

- **Two years of a foreign language was taught on site in 84 percent of Minnesota's high school districts, which serve about 97 percent of the state's high school students.**

A few districts use extraordinary means to provide foreign languages.

	High School Districts		High School Students	
	Number	Percent	Number	Percent
Failed requirement	8	2.0%	2,009	0.9%
Met requirement with:				
On-site staff	345	84.1	220,294	96.6
Interactive television	11	2.7	1,510	0.7
Travel to other districts	36	8.8	3,504	1.5
Summer language program	4	1.0	359	0.2
Correspondence course	4	1.0	294	0.1
First and second year combined class	2	0.5	163	0.1
Total High School Districts 1986-87	410		228,133	

Table 6.7: District Compliance with the State Foreign Language Requirement, 1986-87

Fourteen percent met the two-year standard through some alternative arrangement, primarily travel to another school district or interactive television. During the 1986-87 school year, 9 percent of Minnesota's school districts met the two-year foreign language requirement by sending interested students to another school district, and 3 percent met the requirement through interactive television. Less commonly used alternatives were summer foreign language programs (1 percent) and correspondence courses (1 percent). In addition, during 1986-87, we learned that at least two districts offered the first and second years of a foreign language simultaneously to students in one classroom.[9]

9 Other districts may teach multiple levels of foreign language in the same manner. We learned about these two instances through interviews with school officials.

The use of correspondence courses and summer programs, and combining the first and second years of some courses raise questions about instructional quality and accessibility. If such alternatives were not allowed to meet minimum state requirements, at least 18 districts (instead of 8) would have failed the state's foreign language requirement during the 1986-87 school year.

Table 6.8 shows how districts provided biology, chemistry, and physics courses during the past two school years. We found:

- **While 97 percent of school districts provided biology classes on-site during both years, fewer did so for chemistry (71 percent) and physics (65 percent).**

Most of the remaining districts provide physics and chemistry in alternate years to increase class size. Twenty-seven percent scheduled physics in alternate years, and 26 percent provided chemistry in this way.

Many districts provide chemistry and physics every other year.

	High School Districts		High School Students	
	Number	Percent	Number	Percent
Physics, Chemistry, and Biology Provide All Three Both Years on Site	244	62.0%	205,130	90.6%
Physics				
Both Years on Site	257	65.4	209,300	92.1
Alternate Years	108	27.5	14,712	6.5
Interactive Television	4	1.0	469	0.2
Travel to Another District	21	5.3	2,315	1.0
Neither Year	3	0.8	451	0.2
Chemistry				
Both Years on Site	281	71.3	212,588	93.5
Alternate Years	103	26.1	14,094	6.2
Interactive Television	1	0.3	77	<0.1
Travel to Another District	9	2.3	568	0.2
Biology Both Years on Site	382	97.0	225,365	99.1
Total High School Districts 1987-88	(394)		(226,316)	

Table 6.8: District Science Programs Compared with Institute of Technology Entrance Standard, 1986-87 and 1987-88

Approximately seven percent of high school districts did not provide physics with their own staff and three percent did not provide their own chemistry teacher. We found that most of these districts sent students to a nearby district. Also, a few districts provided physics or chemistry classes through interactive television.

Our study showed that districts used alternative delivery methods less often for mathematics than science. As Table 6.9 shows:

- **83 percent of school districts provided the full four-year mathematics sequence on-site during the 1986-87 school year.**

	High School Districts		High School Students	
	Number	Percent	Number	Percent
Did Not Have Four-Year Program	7	1.7%	601	0.3%
Meet Standard With:				
Four Year Program Taught Yearly On Site	340	82.9	221,579	97.1
Alternate-Year Scheduling	36	8.8	3,324	1.5
Interactive Television	4	1.0	582	0.3
Travel to Another District	18	4.4	1,590	0.7
Combined Class	3	0.7	249	0.1
Other	2	0.5	209	0.1
Total High School Districts 1986-87	410	100%	228,133	100%

Table 6.9: District Mathematics Programs Compared with Institute of Technology Entrance Standard, 1986-87 and 1987-88

Nine percent gave part of the sequence on an alternate-year schedule. We learned that some districts alternate geometry and higher algebra; others alternate fourth-year mathematics with either geometry or higher algebra. Four percent sent students to another district to take one or more of the higher mathematics courses, and one percent used interactive television. A few districts enrolled students at the third- and fourth-year levels in one mathematics class.

CURRICULUM DIFFERENCES AMONG SCHOOL DISTRICTS

We have seen that Minnesota high school districts vary in their provision of courses as well as methods to meet curriculum standards. In this section, we look at the overall variation in academic curriculum.

One measure of curriculum variation is the number of courses taught on site daily in the core academic subject areas--English, social studies, mathematics, and science. We consider this measure a first step in measuring curriculum variation. The number of academic courses does not reflect the content of the courses nor the quality of instruction. Nevertheless, more courses can mean additional opportunities for students to develop academic skills, pursue specialized interests, and choose courses which match their ability level.

Figure 6.2 and Table 6.10 illustrate how much variation there is in number of core academic courses taught throughout the state during the 1987-88 school year. We found:

- **There is wide variation in the number of core academic courses taught on a typical day in Minnesota's high schools. While 22 percent of Minnesota's students attended high schools that provided fewer than 30 academic courses, 35 percent attended schools that provided 60 or more core academic courses on a typical day.**

Students in some schools have a wide variety of courses to choose from while students in other schools have much less.

Number of Core Academic Courses[a]	High School Districts	High School Students
9-19	26%	5%
20-29	41	17
30-39	15	13
40-59	13	30
60-85	5	35
Total High School Districts, 1987-88	394	226,316

Source: Superintendent Survey

[a]Includes English, social studies, mathematics, and science courses provided daily.

Table 6.10: Variation in Number of Core Academic Courses Taught on Site, 1987-88

The number of English, social studies, mathematics, and science courses taught on site ranged from 9 to 85 during the 1987-88 school year. While 67 percent of Minnesota's high school districts provided fewer than 30 academic courses, only 22 percent of the state's high school students attended school in these districts. Conversely, only 5 percent of Minnesota's high school districts

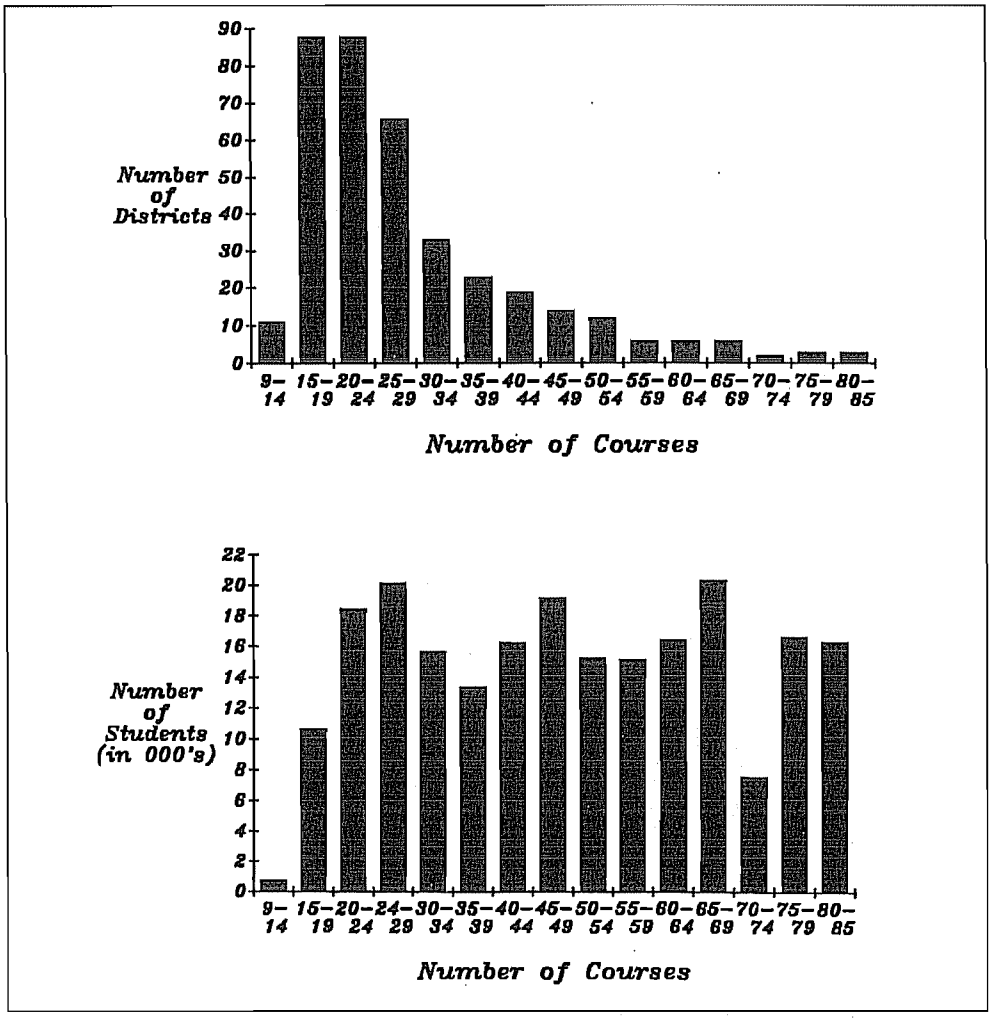

Figure 6.2: Variation in Number of Core Academic Courses Districts Provide on Site Daily, 1987-88 (Source: Superintendent Survey.)

provided 60 or more academic courses, but these districts served 35 percent of Minnesota's high school students.

There is also considerable variation in the number of foreign languages taught on site within Minnesota high schools (see Figure 6.3). We found that during 1986-87:

- **While 24 percent of Minnesota students attended high schools that provided no more than one foreign language, 55 percent attended schools that provided three or more foreign languages.**

The number of foreign languages taught on site ranged from none to seven. As with core academic courses, most districts are at the low end of the distribution, but these districts serve a relatively small share of the state's students. Even though most districts provide only one foreign language on site, most students attend school in districts where they can choose among three or more languages. During the 1986-87 school year, no more than one foreign

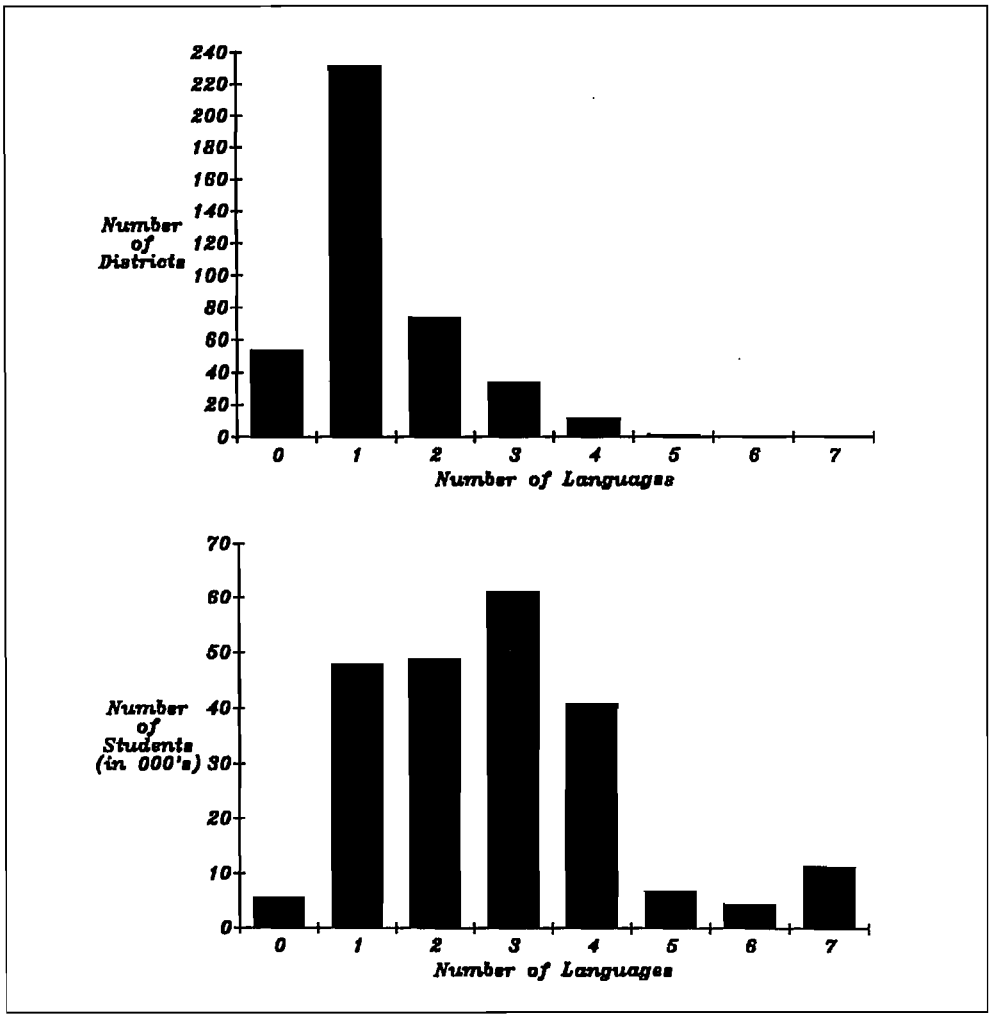

Figure 6.3: Variation in Number of Foreign Languages Taught on Site, 1986-87

Some students can choose from among seven foreign languages on site while others have none.

language was taught in 70 percent of the state's school districts, but only 24 percent of Minnesota's high school students attended school in these districts.

A final measure of curriculum variation we developed is a composite of curriculum measures for English, social studies, mathematics, science, and foreign language. First, we classified districts according to whether they met the state's requirements and the Institute of Technology's entrance standards for mathematics and science. Then we subdivided districts that exceeded standards as described in Figure 6.4. For example, districts that exceed standards would at least provide a four-year mathematics sequence, biology, chemistry, and physics every year on site, and provide three or more years of a single foreign language. Finally, to reach our highest category of curriculum development, a district also would provide two foreign languages, computer programming, and an advanced course in biology, chemistry, or physics. We found:

- **Twenty districts did not meet one or more of the state's requirements for English, social studies, or foreign language or the Institute of Technology entrance standard for science or mathematics.**

- **28 percent of high school districts exceeded standards in all five academic subjects, including 10 percent that met high standards.**

Category	Description
Below One or More Standards	Do not meet one or more of the state's curriculum requirements for English, social studies, foreign language, or the Institute of Technology's entrance standards for mathematics or science.
Meets Standards	Meet all of the above standards.
Exceeds Standards	Provides four-year mathematics sequence, physics, chemistry, biology on site every year. Provide three years of a single foreign language, social studies courses from at least five categories, and English courses from at least seven categories.[a]
Reaches High Standards	Exceeds standards as above, and provides advanced science course, two foreign languages, computer science, general math, social studies courses from at least six categories, and English courses from at least ten categories.[a]

[a]Course categories as defined by the Department of Education's teacher licensing data system.

Figure 6.4: Summary Categories for High School Academic Curricular Levels of Development

While the twenty districts that did not meet the basic standards represent five percent of the state's high school districts, they serve less than two percent of the state's high school students. The districts that exceeded standards served 71 percent of the state's public high school students.

EXPLANATIONS FOR CURRICULUM VARIATION

But why is there so much variation in curricular offerings available to Minnesota high school students? We examined several factors that might help explain why some districts offer their students greater breadth and depth of academic courses while others struggle to provide the minimum. (See Figure 6.5.)

Factor	Description	Data Source
Financial Resources		
a. Operating Expenditures	All expenditures for elementary and secondary education during the 1986-87 school year except capital and debt service expenditures.	Minnesota Department of Education
b. Referendum Levy Dollars	Dollars levied by local school district, as approved by district voters in a referendum (based on levies payable during 1986). Does not include levies for capital projects.	Minnesota Department of Education
c. Assessed Value	Assessed value of property in school district, adjusted for sales ratios.	Minnesota Department of Education
Student Enrollment	Number of high school students (grades 9-12), based on average daily membership served by district during the 1986-87 school year.	Minnesota Department of Education
Adult Residents' College Education	Percentage of district residents 25 years and older who completed four years of college.	1980 Census
Students' College Plans	Estimated percentage of high school seniors who plan to attend a four-year college or university.	Superintendent Survey
Geographic Region	Minnesota has 11 economic development regions, mapped by Figure 6.10.	State Planning Agency
Minority Enrollment	Percentage of students enrolled in 1986-87 who are Hispanic or a member of a racial minority group.	Minnesota Department of Education

Figure 6.5: Factors Which Might Explain High School Curriculum Variations

One possible factor is that districts have unequal amounts of financial resources which can be devoted to curriculum. Districts finance their operating expenses primarily through state aid and local property tax revenue under the school aid formula and through the referendum levy, if any. District revenue per student from the school aid formula varies somewhat among districts due to adjustment factors designed to equalize educational programs. In contrast, referendum levies are not equalized and vary according to the discretion of local school officials and voters.

Critics of the education financing system contend that there are wide disparities in funding from referendum levies that lead to unequal educational opportunities. However, supporters of the current system argue that these differences are due to local choice--districts that wish to raise their own taxes to improve their schools should be allowed to do so. Critics counter that financing education through referendum levies places a much greater burden on property-poor districts than wealthy districts.[10] They argue that the result is either inequitable educational programs or unfair tax disparities.

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10 For example, see Minnesota Rural Education Association, *Funding Equity and Access to Program Equity for Rural Education* (Fergus Falls, 1988).

Financial variables we examined include total operating expenditures, referendum levy dollars, and the assessed value of taxable property in the school district.[11]

A second factor that may explain curricular variation is the size of a district's enrollment. Several previous studies found that larger student enrollment leads to broader high school curricula.[12] Larger districts can offer more courses because they have more students to fill specialized courses and can more easily afford curriculum enhancements due to economies of scale.[13]

A third factor that may explain why high school curricula vary across the state is the education level of adult residents. Districts with higher percentages of college graduates may provide broader academic programs because college graduates place greater emphasis on academic education and may be more willing to support referendum levies. College graduates also tend to have higher incomes and thus may be better able to afford referendum levies than non-graduates.

There may be many reasons why curriculum varies so dramatically.

Another possible factor behind curriculum variation is the college plans of high school students. In districts with higher percentages of students who expect to complete four years of college, greater student demand may make it easier for administrators to fill more advanced academic courses.

Geographic region may also help explain curriculum variation because of economic and cultural differences among the state's regions. Finally, districts with higher percentages of minority enrollment may be less likely to have broad education programs. Equal opportunity for minorities has been a longstanding national concern. One aspect of equal opportunity involves high school curricula.

Patterns of Curriculum Variation

In our analysis, we examined the relationship between each district's high school curriculum and each of the above factors. Of course, many of the factors are inter-related, so we also used statistical techniques to analyze simultaneous effects.

Curriculum variables we developed include the number of English, social studies, mathematics, and science courses taught on site daily, the extent to

11 For each of the financial variables, we made comparisons among districts based on dollars per student. We did not use weighted pupil units because past research concludes that these are inappropriate in policy analysis. See Vernon L. Hendrix and Charles H. Sederberg, "Distortion and Disclosure in Educational Unit Costs: A Case Study", paper presented at the annual conference of the American Educational Research Association (Washington, 1987).

12 Minnesota Department of Education, *A Comparison of Current Minnesota Graduation Standards and Program Offerings with the Proposed Rule* (July 1988); Minnesota Department of Education, *Organization Alternatives for Glenwood, Starbuck, and Villard* (March 1988); Bruce Barker, "Curricular Offerings in Small and Large High Schools: How Broad is the Disparity?", *Research in Rural Education*, 3: (1985), 35-38; and Illinois State Board of Education, *School District Organization in Illinois* (Springfield, May 1985).

13 As we showed in Chapter 4, the smallest districts support more staff and have the highest operating expenses.

which state curriculum requirements and various college entrance standards have been met, and districts' dependence on alternative delivery methods to meet these standards.

We found:

- **Larger district enrollment is the strongest explanation for broader academic curricula, but larger referendum levies and higher percentages of adult college graduates are also important.**

Enrollment, referendum levies, and adult college graduates are important even after considering other variables. In addition, we found:

- **Higher property wealth helps explain broader academic high school curricula because property-rich districts have significantly higher referendum levies than property-poor districts.**

Conversely, we found that the following factors were less important in explaining why some districts have broader curricula: operating expenditures not financed through the referendum levy, percent of students who plan to complete four years of college, and minority enrollment.

A broader academic curriculum tends to result from higher enrollments, higher referendum levies, and more college graduates in the population.

Variation by District Enrollment

To analyze variation by district enrollment, we grouped high school districts according to the number of sections they could assemble per grade, as we discussed in Chapter 4.[14] One section equals 26 students. Thus a half-section district may have as many as 13 students per grade or up to 52 high school students in total. A two-section district has 26 to 52 students per grade or 104 to 208 students in grades 9 through 12. Such a classification system reflects differences in total enrollment as well as educators' practical needs in scheduling and staffing classes. In the following discussion, we use "very small" to mean one section or less, "small" to mean two sections or less, and "large" to mean seven sections or more.

State Standards

Table 6.11 shows how compliance with state standards varies with district enrollment. We found:

- **Nearly all districts which failed to meet state curriculum requirements in 1986-87 had four class sections or less.**

In 1986-87, fourteen districts did not comply with one or more of the state curriculum requirements for academic subjects. We found that non-compliance

14 We categorized district enrollment in a way similar to that used in the Minnesota Department of Education report, *Financing State Board of Education Minimum Program Requirements at an Adequate and Equitable Level* (February, 1987), but reduced the definition of a class section from 30 to 26 students at the authors' suggestion. Of course, actual class sizes vary by course and subject.

TABLE 6.11

DISTRICTS NOT MEETING CURRICULUM STANDARDS BY CLASS SECTIONS

Number of Class Sections	Number of High School Districts 1987-88	Current State Standards		Institute of Technology Standard		Honors/ Advanced Placement	Recommended State Standards[a]	
		2-Year Foreign Language	English	Math	Science		3-Year Foreign Language	7-Year Math[b]
1/2	7	0%	0%	0%	0%	100%	71%	90%
1	62	0	4	7	0	72	66	
2	114	3	1	2	3	77	80	88
3	58	5	0	0	0	53	55	83
4	34	0	6	0	0	47	44	52[c]
5-6	37	0	0	0	0	32	14	
7-10	30	3	3	0	0	28	7	18[d]
Over 10	52	0	0	0	0	2	0	
STATEWIDE	394	2%	2%	2%	1%	52%	49%	62%

Note: There are 26 students per section.

[a]The State Board of Education is currently considering these recommendations made by its study committee.
[b]Source: Minnesota Department of Education.
[c]Includes districts with 4 or 5 sections.
[d]Includes districts with 6 sections or more.

was quite evenly distributed among districts with one to four sections. Although one non-compliant district has seven sections per grade, it includes six small high schools.

College Entrance Standards

Table 6.11 shows:

- **Small school districts are much less likely to provide courses to meet college entrance standards than large districts.**

Seven districts did not meet the Institute of Technology's mathematics standard, and three districts did not meet its science standard. All ten of these districts had two sections or less.

During the 1987-88 school year, 75 percent of small districts (two sections or less) did not meet the three-year foreign language standard, compared with 2 percent of large districts (seven sections or more). Similarly, 76 percent of small districts did not have honors or Advanced Placement courses, while 12 percent of large districts did not provide such courses.

Small districts tend to provide the fewest academic opportunities.

Number of Academic Courses

Figure 6.6 and Table 6.12 show how the average number of core academic courses taught on site daily rises with district enrollment.[15]

- **For all four core subject areas (English, mathematics, science, and social studies), the number of courses rises steadily with enrollment.**

Number of Class Sections	Number of High School Districts 1987-88	English	Social Studies	Mathematics	Science	Core Academic Total
1/2	7	4	4	4	3	15
1	62	5	4	5	4	18
2	114	6	5	6	5	21
3	58	7	6	7	5	26
4	34	8	7	8	6	29
5-6	37	10	7	9	7	34
7-10	30	12	9	10	7	38
Over 10	52	19	12	15	11	56
Statewide	394	9	7	8	6	29

Note: There are 26 students per section. Subject averages may not add to total due to rounding.

Source: Superintendent Survey.

Table 6.12: Average Number of Academic Courses Taught on Site Daily by Class Section, 1987-88

15 If the same course is taught several times, our system counts it only once.

In every academic subject, curriculum richness goes up with district size.

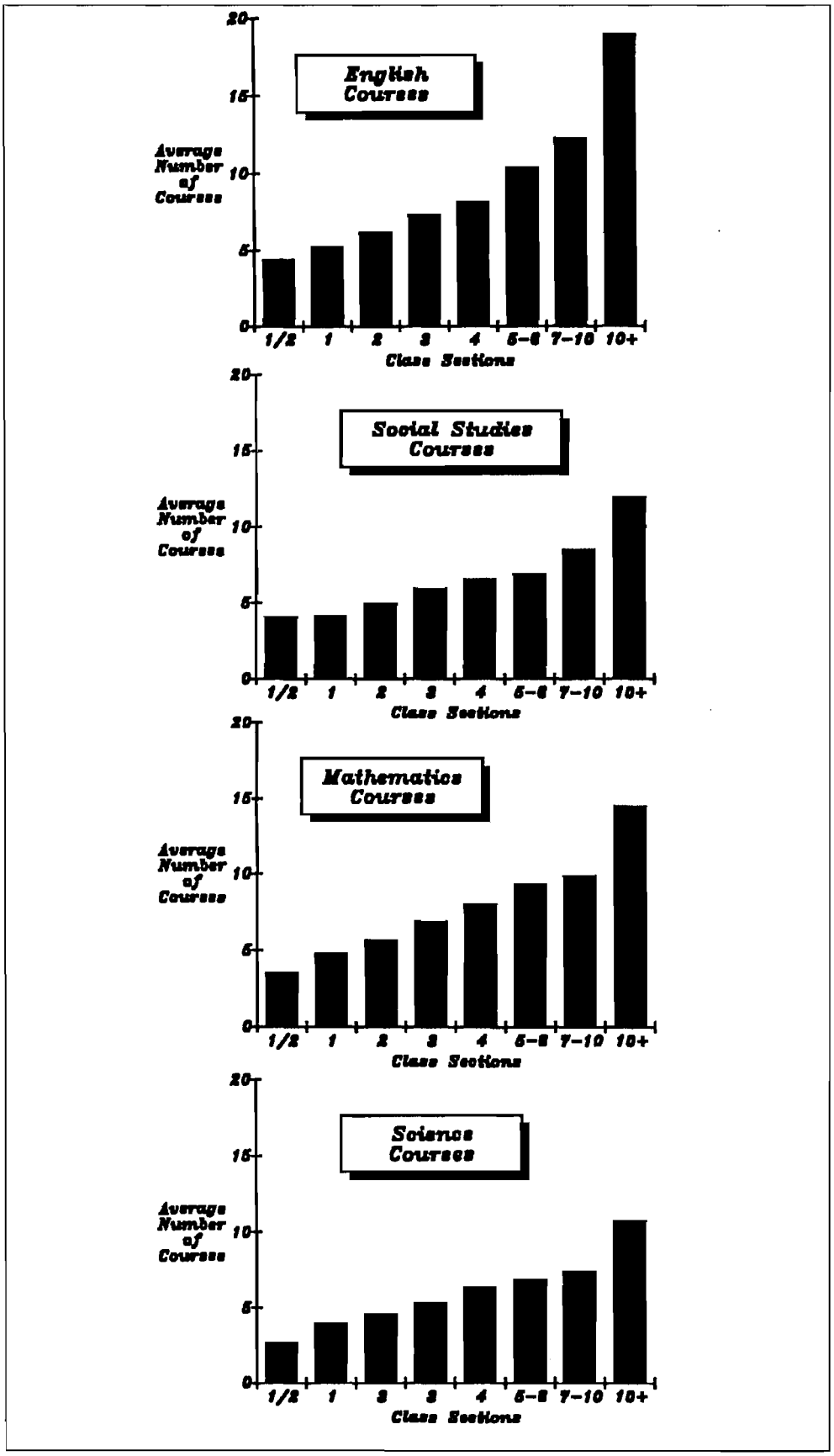

Figure 6.6: Variation in Number of Core Academic Courses Taught on Site by Class Sections, 1987-88 (Source: Superintendent Survey.)

As district enrollment increases, the average daily number of courses taught on site ranges from 4 to 19 for English, from 4 to 13 for social studies, from 3 to 15 for mathematics, and from 3 to 12 for science. Overall, the 51 largest districts (more than ten sections per grade) provided about 59 core academic courses, or three times as many as superintendents reported in the state's 65 very small districts (one section or less).

Foreign Languages

Figure 6.7 illustrates how foreign language programs vary with district size. We found:

- **Small districts are less likely to have foreign language teachers on site and are more likely to rely upon alternatives such as mid-day travel to another district, interactive television, summer programs, or high school correspondence courses.**

In every subject, small districts are more likely to rely on extraordinary methods for providing courses.

Only three percent of small districts (two sections or less) provided a second foreign language compared with 98 percent of large districts (seven sections or more).

Mathematics and Science

Figure 6.8 summarizes how district mathematics and science programs vary by district enrollment. These data indicate:

- **Small districts are much more likely to use alternate-year scheduling, mid-day travel arrangements, or interactive television to provide physics, chemistry, and advanced mathematics courses.**

Most of the very small districts rely on alternative scheduling methods to provide chemistry, physics, and the four-year mathematics sequence. In contrast, all medium and large districts taught the entire four-year mathematics sequence during the 1986-87 school year with their own staff. All large districts also taught chemistry and physics during both of the past two school years (1986-87 and 1987-88).

Specific Courses

Table 6.13 and Figure 6.9 show how many districts of different sizes provided selected courses, including both on-site and off-site classes. We see that some courses were provided in almost all Minnesota high schools, regardless of student enrollment. These include American government and English or world literature. However, compared with small districts, large districts were more likely to offer courses in world history, economics, sociology, advanced composition, remedial reading, public speaking, calculus, and second-year biology. For example, 64 percent of small districts provided economics during the 1987-88 school year, compared with 95 percent for large districts.

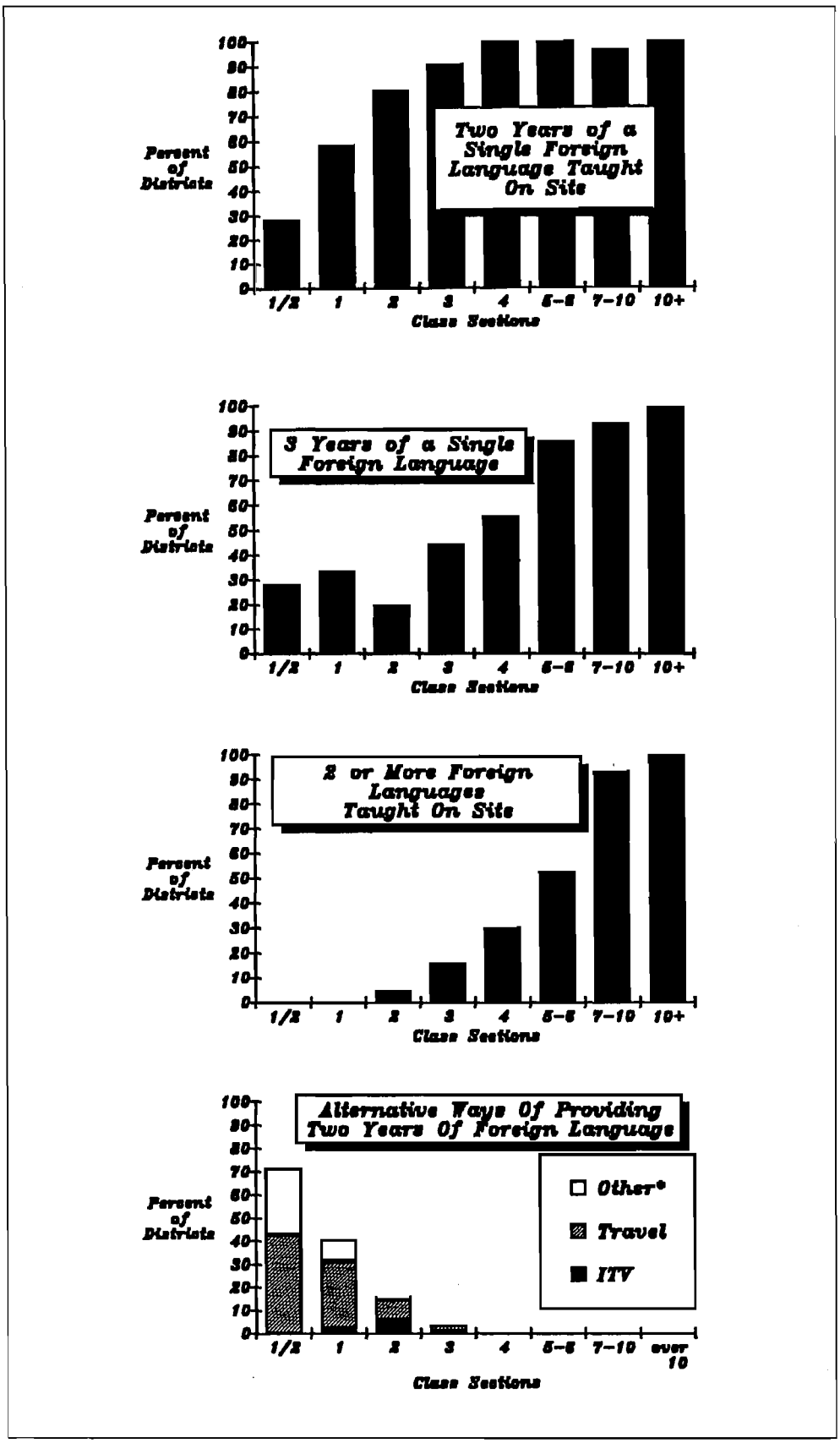

Figure 6.7: Variation in Foreign Language Programs by Class Sections
(*Correspondence course, summer program, or combined 1st and 2nd levels within same class.)

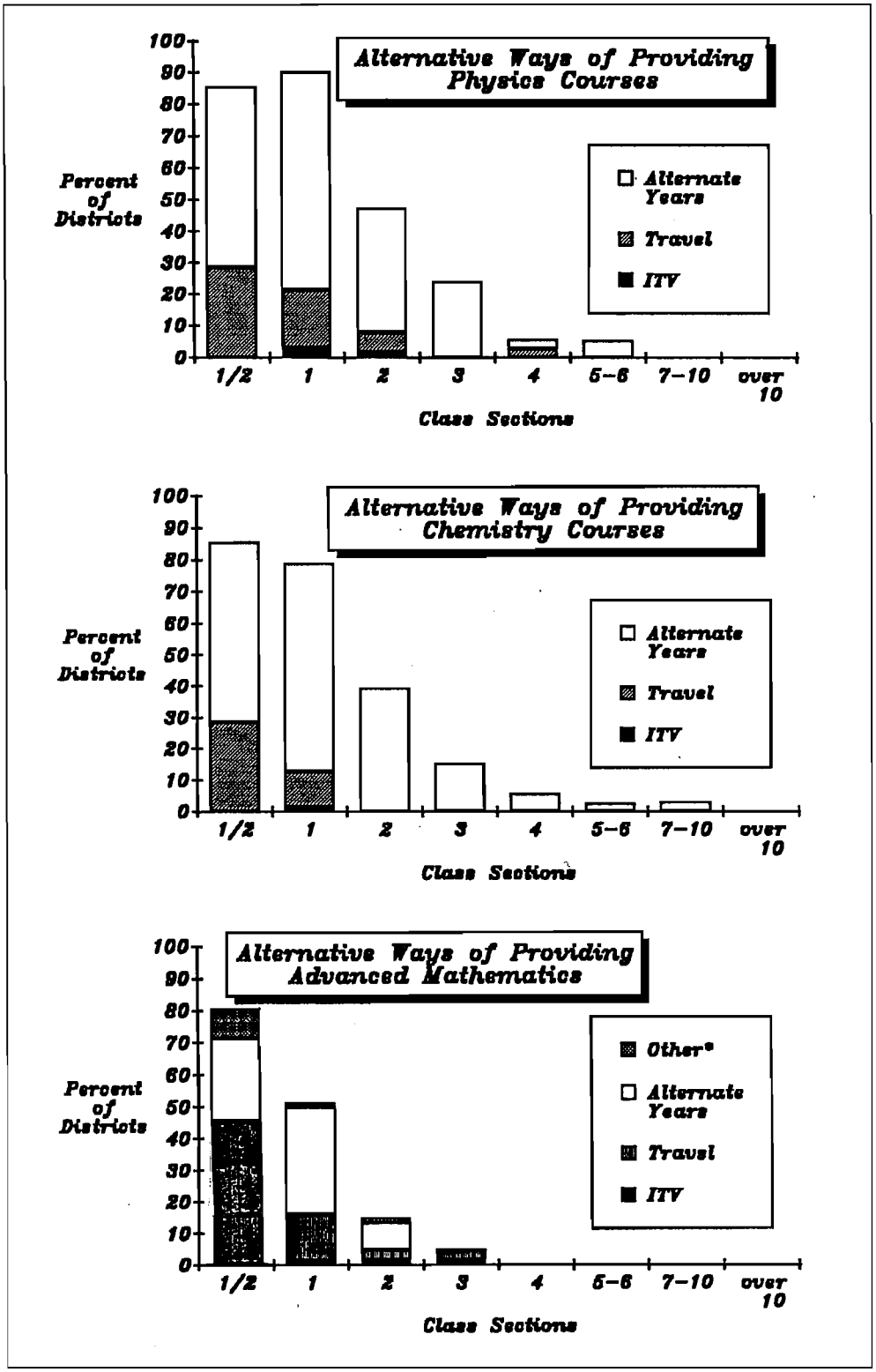

Figure 6.8: Variation in Instructional Method for Physics, Chemistry, and Mathematics by Class Sections (*Combined 3rd and 4th year in same class or combination of alternate years, travel, or ITV.)

In virtually every subject, district size makes a difference.

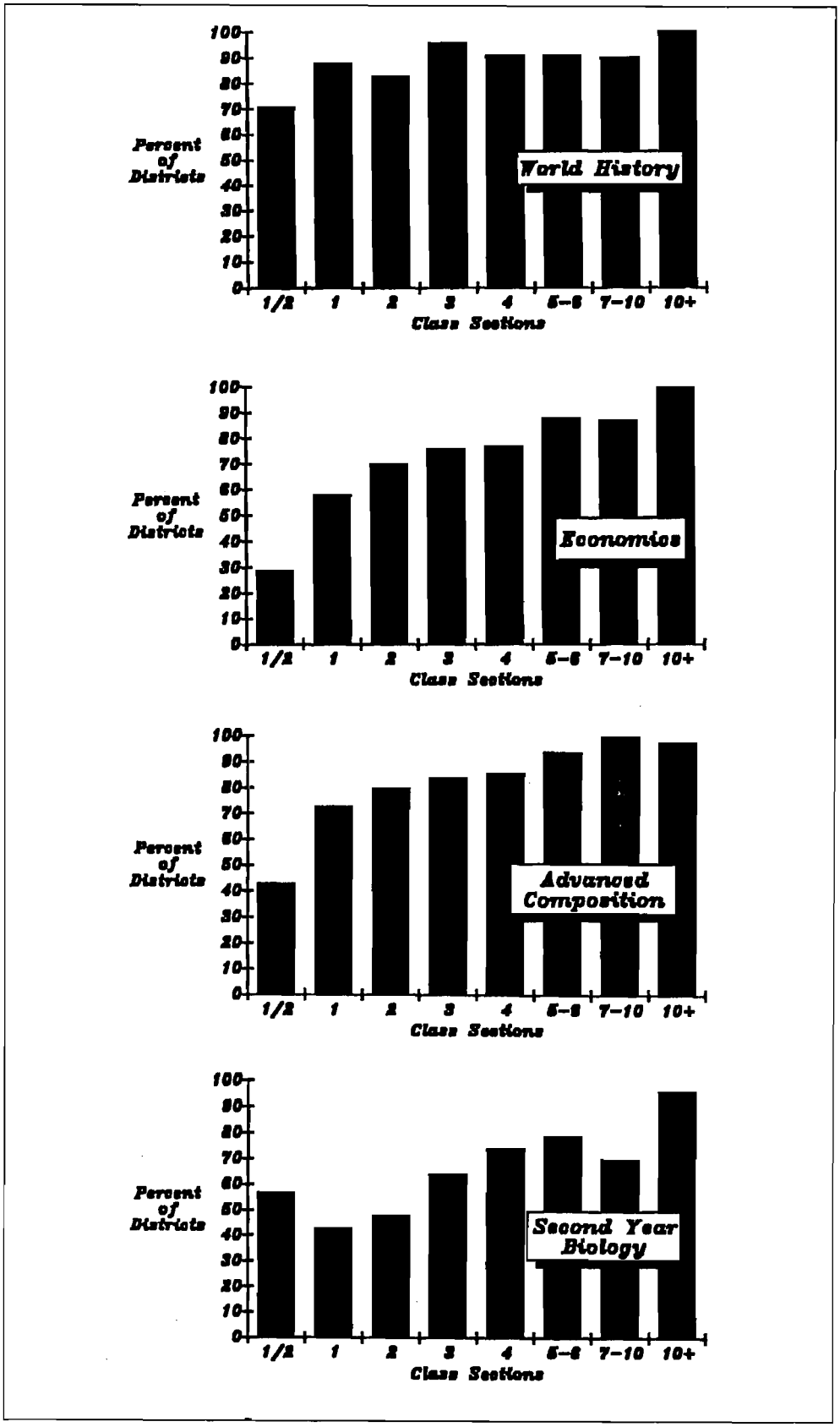

Figure 6.9: Provision of Selected Courses by Class Sections, 1987-88
(Source: Superintendent Survey.)

	Number of Class Sections								
	1/2	1	2	3	4	5-6	7-10	Over 10	Total
Number of High School Districts	(7)	(62)	(114)	(58)	(34)	(37)	(30)	(52)	(394)
SOCIAL STUDIES									
American Government	100%	98%	99%	96%	97%	100%	100%	100%	99%
World History	71	88	83	96	91	91	90	100	90
Economics	29	58	70	76	77	88	87	100	76
Sociology	29	57	72	76	63	79	90	96	74
ENGLISH									
English or World Literature	86	100	97	98	97	97	100	100	98
Advanced Composition	43	73	80	84	86	94	100	98	85
Remedial Reading	29	60	64	67	66	85	83	92	71
Public Speaking	14	53	78	82	94	97	97	96	81
MATHEMATICS AND SCIENCE									
Computer Programming	100	97	97	96	94	100	100	100	98
Calculus	0	27	39	45	71	65	83	94	54
Second-Year Biology	57	43	48	64	74	79	70	96	63
OTHER									
Art or Music History	57	82	71	67	71	68	63	84	73

Note: There are 26 students per section.

Source: Superintendent Survey.

Table 6.13: Availability of Selected Courses by Class Sections, Provided through On-Site or Off-Site Methods, 1987-88

Curriculum Ratings By Superintendents

We summarized superintendents' curriculum ratings by adding the number of subjects that they rated strong or very strong and the number rated weak or very weak. As illustrated in Table 6.14:

- **Superintendents of large districts rated their curricula more highly than superintendents of small districts.**

Superintendents of districts with more than 10 class sections rated an average of 6.2 out of 8 subjects as strong or very strong. In districts with one section or less, superintendents noted an average of only 3.6 curriculum strengths. Similarly, the average number of weak ratings ranged from 0.2 for very large districts to 0.7 for very small districts. These results are consistent with our findings reported above.

Projected Change in District Enrollment

Over the next five years, the Department of Education projects that 36 percent of Minnesota's high school districts face enrollment declines exceeding five percent. While progressively smaller enrollments may mean increased attention and other benefits for individual students, the evidence summarized in this chapter indicates that smaller Minnesota districts already have greater difficulty providing instructional programs to students.

Sections	Number of High School Districts 1987-88	Average Number of Subjects Rated: Strong or Very Strong	Weak or Very Weak
1/2	7	3.3	1.3
1	62	3.6	0.7
2	114	4.4	0.6
3	58	4.6	0.6
4	34	4.7	0.4
5-6	37	5.4	0.3
7-10	30	5.4	0.6
Over 10	52	6.2	0.2
State Total	394	4.7	0.5

Source: Superintendent Survey.

Table 6.14: Superintendent Curriculum Ratings by Class Sections, 1987-88

As shown in Table 6.15, Minnesota school districts have been variously affected by enrollment declines over the past five years. In the next five years, enrollment declines are projected mainly in two regions: the northeast and southwest/west central development areas. Meantime, enrollment (and revenues) are expected to increase by 10 percent in the Twin Cities and 8 percent in Minnesota's central area.

Development Region	Actual 1982-83 to 1986-87	Projected 1986-87 to 1991-92
Northwest #1 and #2	-0.4	0.4
Northeast #3	-7.1	-11.2
West Central #4	-1.2	0.2
North Central #5	0.1	2.5
Southwest and West Central #6 and #8	-3.2	-1.6
Central #7	3.4	8.3
South Central #9	-1.4	1.3
Southeast #10	-0.5	1.6
Metropolitan #11	0.8	10.3
Statewide	-0.4	4.9

Source: Minnesota Department of Education.

Table 6.15: Actual and Projected Percentage Change in Average Daily Membership, 1982-1992

We looked at the Department of Education's projected enrollments for districts with already-limited curriculum choices. As shown in Table 6.16:

- **Districts with fewer core academic courses and less developed foreign language programs are more likely to face enrollment declines than other districts in the state.**

Districts with the weakest curricula tend to have declining enrollments.

	Number of High School Districts 1987-88	Percent of Districts Whose Enrollment is Projected to: Decline More Than 5 Percent	Change by Less than 5 Percent	Grow More Than 5 Percent
Districts Without 3-Year Foreign Language Program	227	41%	44%	15%
Districts Providing Fewer than 20 Academic Courses[a]	103	47	40	12
State Total	394	36	40	24

[a]Includes English, social studies, mathematics, and science courses taught on site.

Table 6.16: Projected Enrollment Changes for School Districts by Various Curriculum Categories, 1986-87 to 1991-92

We found that enrollments are projected to decline by more than five percent in 47 percent of districts which provided fewer than 20 courses in mathematics, science, English, and social studies, compared with the statewide figure of 36 percent. Similarly, 41 percent of districts which did not offer three years of a foreign language face enrollment declines of more than five percent.

These results indicate that many districts with narrow curriculum programs today will face greater difficulties in the future as their enrollment declines. It would be even harder to expand their curricula to meet state standards if the State Board of Education adopts higher standards as its study committee recently recommended.

Variation by Districts' Financial Resources

After controlling for the effects of district enrollment and percentage of college graduates, we noted that operating expenditures were positively related to broader curricula. However, when we brought referendum levies into the equation, referendum levies but not operating expenditures were significantly related to high school curricula.

Referendum levies thus explain the positive relationship between operating expenditures and curriculum. In other words, regular district funding under the school aid formula is actually not related to curriculum. This result is not surprising because the school aid formula is equalized.

One reason that higher referendum levies may be related to broader curricula is that the levies enable districts to afford more academic programs. Another possible reason is that higher referendum levies reflect strong community support for education, which causes district administrators to place more emphasis on academic courses.

Districts that pass referendum levies have broader curriculum opportunities for students.

As we mentioned in Chapter 4, districts are increasingly passing referendum levies. Is it a matter of local choice, or is it because some districts have more property wealth than other districts? Since our data do not include all the factors which may influence local tax and education decisions, it is difficult to conclusively determine the causes of these decisions. Nevertheless, we found that districts with higher assessed property values per student, higher percentages of college graduates, and lower enrollments had higher referendum levies. Thus our data support the argument that:

- **The property wealth of a district is one of several factors that influence the resources it can raise through referendum levies, which in turn affects curricula.**[16]

Property values do not fully explain the differences in referendum levies. Some districts with high property values have not passed referendum levies, while other districts with low property values have passed such levies. Referendum levies are also matters of local choice, perhaps reflecting stronger preferences for education or in the case of very small districts, the need to raise additional funds to provide the basics of education.

Variation by Residents' Education

Another factor that helps explain variation in curricula is education backgrounds of district residents. Table 6.17 shows that districts with a relatively high percentage of college graduates tend to provide a richer academic curriculum. In the 1987-88 school year, districts in which over ten percent of adults were college graduates averaged 41 courses in English, social studies, mathematics, and science, compared with 21 courses for districts in which less than seven percent of adults were college graduates. The higher the percentage of adult college graduates, the more likely districts were to provide three years of a foreign language, second-year biology, economics, and world history, among other courses.

In part, these differences are due to the fact that college graduates tend to live in urban centers, which have larger high schools than rural areas. Yet, we compared districts of the same size and still found that districts with higher education levels provided more academic courses and were more likely to have a three-year foreign language program.

16 In fact, after controlling for the effects of district enrollment and percentage of college graduates, we found that higher assessed value per student was significantly related to broader curriculum.

TABLE 6.17

CURRICULUM VARIATION BY RESIDENTS' EDUCATION BACKGROUND

Percentage of District Residents with Four Years of College	Number of High School Districts 1987-88	Average Number of Core Academic Courses	Have 3 Years of a Foreign Language	Have Honors/Advanced Placement Course(s)	Use Alternatives to Regular Classroom Instruction to Meet: 2-Year Foreign Language Standard	Institute Of Technology Math Standard	Institute Of Technology Science Standard
Less Than 7%	108	21	28%	34%	24%	30%	63%
7%-10%	172	26	44	35	14	14	36
Over 10%	114	41	85	79	4	3	15
STATEWIDE	394	29	51%	48%	14%	15%	37%

Geographic Variation

Table 6.18 summarizes how high school programs vary among geographic regions of the state (mapped in Figure 6.10). As can be seen:

- **Districts in the Twin Cities metropolitan region have substantially broader curricula than do Minnesota's other ten regions.**

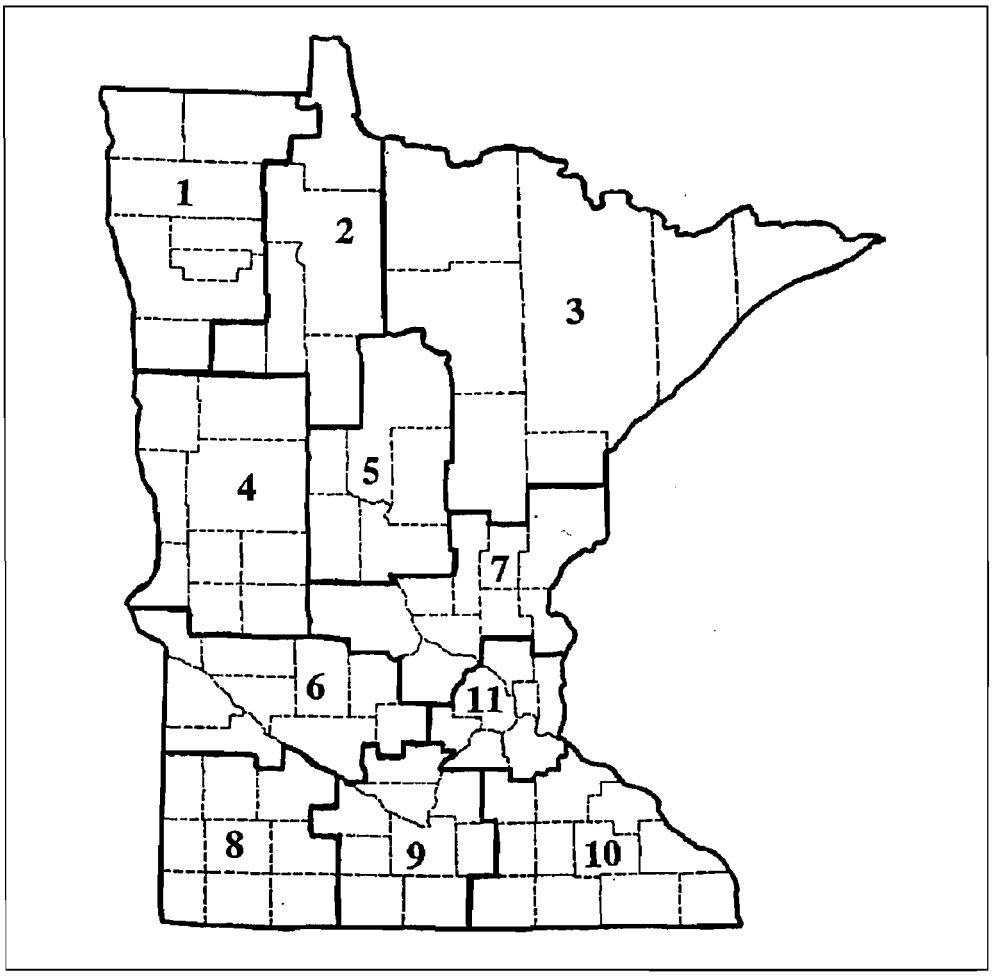

Figure 6.10: Minnesota's Geographic Regions

Twin Cities metro districts provide an average of 51 core academic courses; outstate districts provide only between 20 and 33 such courses.

For example, consider the total number of high school courses typically taught on site daily in core academic subjects (English, social studies, mathematics, and science). In 1987-88, districts in the Twin Cities metropolitan region provided an average of 51 such courses. Among the other ten regions, the average ranged from 20 to a maximum of 33. Furthermore, about 90 percent of the school districts in the Twin Cities metropolitan area provided three years of a foreign language during the 1987-88 school year, compared with 48 percent of outstate districts.

TABLE 6.18

CURRICULUM VARIATION BY DEVELOPMENT REGION

Region	Number of High School Districts 1987-88	Average Number of Core Academic Courses	Provide 3 Years of a Foreign Language	Have Honors/Advanced Placement Course(s)	Use Alternatives to Regular Classroom Instruction To Meet: 2-Year Foreign Language Standard	Inst. of Technology Math Standard	Inst. of Technology Science Standard
Northwest #1	35	20	34%	33%	29%	31%	60%
Upper North Central #2	14	26	64	42	21	29	57
Northeast #3	32	29	56	43	3	9	38
Upper West Central #4	39	24	33	39	18	21	46
North Central #5	26	25	57	35	19	27	42
West Central #6	35	25	51	39	19	8	49
Central #7	40	33	65	61	5	12	18
Southwest #8	34	22	32	26	21	21	41
South Central #9	39	27	38	36	11	18	45
Southeast #10	52	28	46	49	15	11	35
OUTSTATE SUBTOTAL	346	26	47	41	15	17	41
Metropolitan #11	48	52	87	94	2	0	6
STATEWIDE	394	29	51%	48%	14%	15%	37%

We found that students in two regions consistently have fewer curriculum choices: region 1 (northwest Minnesota) and region 8 (southwest Minnesota). For example, these two regions had the lowest average total number of core academic courses (20 and 22 respectively versus the statewide average of 30). Also, school districts in these two regions together with districts in region 4 were the least likely to provide three years of a foreign language.

These results are not surprising in light of the strong relationship between student enrollment and curriculum. Of course, many of the large districts are in the Twin Cities metropolitan area. In the 1986-87 school year, 79 percent of metropolitan school districts had seven or more sections per grade, compared with only 12 percent among outstate districts.

Similarly, regions which have narrower curricula tend to have higher concentrations of small districts. Regions 1 and 8 have the highest concentration of small districts (two sections or less). Regions 6 and 4 have the third and fourth highest percentage of small districts respectively.

Variation by Minority Enrollment

Most school districts in Minnesota have less than two percent minority enrollment. Nineteen districts have more than ten percent minority enrollment, including six districts with more than 33 percent minority enrollment. The six districts with the highest minority enrollments include Minneapolis, St. Paul, and four districts in north central Minnesota with large American Indian populations.

Minneapolis and St. Paul easily surpass all curriculum standards because of their size. However, during the past two years, one of the four northern districts with high minority enrollments did not meet the two-year foreign language standard and one did not provide physics. The latter district added a physics course for the 1988-89 school year, but the former district still does not meet the foreign language standard. All of the other districts with more than ten percent minority enrollment met state curriculum requirements and provided physics, chemistry, biology, and a four-year math sequence.

COURSES TAKEN BY HIGH SCHOOL STUDENTS

So far, we have discussed state curriculum requirements and the actual curricula adopted by Minnesota high schools. But what courses do students actually take? How many take the "new basics" recommended in *A Nation at*

Risk? In this section, we examine transcript data to find out what courses were taken by recent graduates in Minnesota and in other states.[17]

We found:

- **During grades 10 through 12, Minnesota high school students from the Class of 1986 took 65 percent of their credits in the academic subjects of English, social studies, mathematics, science, and foreign language, practically the same percentage as for the nation's high school students from the Class of 1987 (64 percent).**

Most students take more mathematics and science courses than the state requires.

During grades 10 through 12, Minnesota students on the average completed 3.1 years of English courses, 2.9 years of social studies courses, 2.1 years of mathematics courses, 1.7 years of science courses, and 0.7 years of foreign language courses. Non-academic subjects taken by high school students were vocational education (3.3 years), health and physical education (1.3 years), and art and music (1.1 years).

These averages exceed the state's minimum graduation requirements by over two years for mathematics, nearly two years for science, and nearly one year for social studies.

In addition, we found:

- **Minnesota high school students from the Class of 1986 completed more academic course work than students from the Class of 1983.**

The total number of academic course units taken during grades 10 through 12 rose from 9.3 to 10.4, an increase of 12 percent. The average number of foreign language course units increased over the three-year period by 68 percent. More mathematics and science course units were also completed (19 and 17 percent increases, respectively).

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17 Transcript data for Minnesota students come from the Minnesota Secondary School Follow-Up System. The Class of 1986 survey for Minnesota high school students included 20,930 students from 150 high schools. While not a random sample of Minnesota schools, the sample is reasonably representative in terms of geographic area and enrollment. The data identify only the broad subject areas (e.g., English, mathematics, science) taken by high school students during grades 10 through 12. The national transcript data for the Class of 1987 were based on a representative sample of 305 high schools.

However, there is still room for improvement, based on the "new basics" standard (four years of English, three years each of social studies, mathematics, and science, and two years of a foreign language). We analyzed how many students completed the "new basics" in Minnesota and in the nation.[18] We found:

Less than one-fourth of students complete the "new basics."

- **The percentage of high school students who have completed the "new basics" has doubled since the early 1980s in Minnesota and in the nation, but the percentages remain small.**

Approximately 16 percent of Minnesota's high school students from the Class of 1986 completed the "new basics", compared with 7 percent for the Class of 1983. Nationally, high school graduates completing the "new basics" have increased from 9 percent in 1982 to 22 percent in 1987.[19]

While these data suggest that a smaller percentage of Minnesota high school students complete the "new basics" than do students from other states, several differences between the Minnesota data and the national data make comparisons difficult. Minnesota's data cover grades 10 through 12, include students from the Class of 1986, include non-graduates and special education students, and exclude private schools. In contrast, the national data cover grades 9 through 12, include students from the Class of 1987, exclude non-graduates and special education students, and include private schools.

In Chapter 3, we showed that Minnesota's graduation requirements are lower than most other states for mathematics and science. Minnesota requires high school graduates to take only one year of mathematics and one year of science during grades 9 through 12, but 43 states require at least two years of both mathematics and science. This raises two questions. First, how many local school districts require graduates to take at least two years of mathematics and science during grades 9 through 12? Second, how many high school graduates actually take two or more years of mathematics and science?

The Minnesota Department of Education surveyed school districts during the spring of 1988 to determine their graduation requirements. The department found that:

- **Most Minnesota high school districts require two years each of mathematics and science for graduation.**

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18 We excluded computer science because Minnesota's transcript data do not have such a category. Further, since Minnesota's transcript data include only grades 10 through 12, we made some assumptions about ninth grade courses. Most districts require ninth-grade students to take English, social studies, mathematics, and science, so we assumed that all ninth-grade students took these courses. However, foreign language is usually an elective during ninth grade, and it is often not available until tenth grade in small schools. So we assumed that half of the students who took at least one but less than two years of a foreign language during grades 10 through 12 met the two-year standard by taking foreign language during ninth grade.

19 Our estimate for the Class of 1986 could be as low as 12 percent or as high as 19 percent, depending on what percentage of students actually took foreign language during ninth grade. Similarly, our estimate for the Class of 1983 could range from 5 to 9 percent.

The department's data indicate that about 79 percent of Minnesota high school districts require at least two years of mathematics during grades 9 through 12, and 82 percent require at least two years of science.[20]

Within districts that do not require two years of mathematics and science, students may of course choose to complete at least two years. However, we found:

About 12 to 17 percent of Minnesota students take less than two years each of mathematics and science.

- **Twelve percent of students in Minnesota's Class of 1986 completed less than two years of mathematics during grades 9 through 12, and 17 percent completed less than two years of science.**

These data indicate how many students would need to take additional mathematics and science courses to graduate if the state raised its high school graduation requirements to two years of mathematics and science. If the state raised graduation requirements to three years, about 39 percent of high school students would need to complete additional mathematics course work, and 53 percent would need to complete additional science courses.

SUMMARY

In this chapter, we focused on the extent to which districts meet state curriculum requirements and provide high school courses recommended by area colleges. We also examined variation in high school curricula because of concerns about equity in public high school education.

Overall, we found that a large majority of districts meet the state's curriculum requirements and provide the courses recommended by area colleges in the core academic areas. However, the state's requirements are easy to meet. When we compared curricula against more demanding standards, results were different. That is, many districts do not provide the full range of academic courses recommended by selective private colleges or the University of Minnesota College of Liberal Arts.

We found that about 96 percent of Minnesota high school districts met state curriculum requirements for academic subjects during 1986-87. Similarly, about 98 percent provided basic courses students would need to meet the entrance standards of selected area colleges for English, social studies, mathematics, and science. Three districts did not provide physics and seven districts did not provide a four-year mathematics sequence. Students in these districts would be at a disadvantage if they wanted to pursue technical careers, including engineering, science, and mathematics.

Some districts relied on alternative delivery methods to meet curriculum standards, particularly the mathematics and science standards of the University of Minnesota Institute of Technology. In fact, most of the state's 100 smallest districts do not provide physics or chemistry on site every year, and only half provide a four-year math sequence every year on site.

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20 We treated the one-year requirement for grade 10 through 12 high schools as equivalent to two years for grade 9 through 12 high schools.

Only half of Minnesota's districts met the three-year foreign language standard adopted by the University of Minnesota College of Liberal Arts for 1991 and currently used by Macalester College. In addition, only half of Minnesota's districts provided honors or Advanced Placement courses recommended for high school students by two of Minnesota's selective private colleges. The result is that about 23 percent of Minnesota's high school students may be at a competitive disadvantage if they wished to attend Carleton, Macalester, or the College of Liberal Arts on the University of Minnesota Twin Cities campus.

We found that curriculum variations in Minnesota are large and systematic, mainly associated with district enrollment. Large districts generally provide three times as many academic courses as small districts, are more likely to meet state standards, and more often provide college-recommended courses. Also, we found that higher referendum levies and higher percentages of adult college graduates are significantly related to a broader high school curriculum.

In the next chapter, we look to see whether the type of high school curricula which districts provide has additional implications for test outcomes, college performance, and students' self-identified academic needs. Also, we review the academic performance standards which some districts have established. Finally, in Chapter 8, we offer recommendations for legislative consideration.

EDUCATION OUTCOMES

Chapter 7

In earlier chapters, we showed that school districts are free to choose their curricula and define the level of achievement which students are expected to attain. The state requires that districts identify and offer remedial help to students with academic weaknesses, but it does not establish general levels of performance which students must achieve for promotion or graduation. Recently, the Legislature has directed the Minnesota Department of Education to define learner outcomes which eventually must be covered by curricula, but for now, standards for student performance are locally determined.

Since each of Minnesota's many school districts exercises separate responsibility for developing performance criteria, selecting tests, and determining whether students have achieved mastery over subject material, it is impossible for us to evaluate academic achievement in an ideal manner. There are no statewide, uniform data which would enable us to compare results for each district. Nevertheless, we found a considerable amount of relevant information, and it is our view that the public and policy makers can appropriately deal with data limitations. Particularly when such an important statewide concern as education is being evaluated, we believe it is wise to consider even limited appropriate information (albeit with extra caution).

In this chapter, we document some of the policies which local districts have developed on academic performance. Also, we present several measures of education outcomes which would be expected to vary with the number, type, and level of courses which are available to Minnesota high school students. We ask:

- **What level of achievement do Minnesota's high school districts require for high school graduation?**
- **Do students feel that their academic needs are better met when districts provide more courses and levels of instruction?**
- **What is the relationship between curriculum variations and students' test scores?**
- **What is the significance of curriculum variations for Minnesota high school graduates' post-secondary education?**

DISTRICT POLICIES ON ACADEMIC PERFORMANCE

The practical effect of districts' freedom to determine performance standards is that the state lacks a uniform, standardized test whose results can readily and reliably be used to determine how educational outcomes vary within the state. In fact, we learned:

- **Districts use more than 80 different standardized tests to assess their curricula and measure students' academic achievement, skills, and aptitudes.**[1]

Thus, we asked superintendents of Minnesota high school districts to describe the policies which govern the academic performance of Minnesota high school graduates. Our survey results show:

- **At most, one-third of Minnesota's high school districts have policies which establish minimum standards for graduates' reading and mathematics skills.**

Two-thirds of all districts have no minimum standards for graduates' reading and math skills.

Statewide, we found that 67 percent of the high school districts have no general policy on graduates' minimum reading abilities. Seventeen percent of the districts have adopted policies to ensure that graduates develop reading skills at least characteristic of junior-high or elementary school students in grades 5 through 8. Six percent have policies which set the general level of expectation within high school grades 9 through 12, and 10 percent maintain other policies which do not translate into grade-level equivalents.

A similar pattern of results describes districts' policies on the minimum level of mathematics skill which is expected of Minnesota high school graduates. Overall, 68 percent of the superintendents said they operate without any district-wide policy on this matter. Twelve percent indicated that their district-wide general standard is to expect ciphering abilities at least at the 6th to 8th grade level. In 7 percent of the districts, we found policies which set minimum mathematics expectations at the high school level, and in 13 percent we found other policies which do not specify grade-level equivalents.

As Table 7.1 illustrates:

- **In the few districts with policies specifying minimum grade-equivalent skills expected for graduation, standards usually require seniors only to read and cipher at the elementary or junior high school level.**[2]

In addition to grade-level equivalents, we asked superintendents to describe all other district-wide, established policies they have on the academic level at

1 Minnesota Department of Education, *A Report on the Biennial Evaluation of School District Testing Programs* (February 1988).

2 Our questionnaire and superintendents' overall responses are included in Appendix C.

Reading Policy Grade-Equivalent (90 of 392 Districts)	Percent
5	3%
6	21
7	13
8	35
9	14
10	9
11	2
12	1
Mathematics Policy Grade-Equivalent (75 of 392 Districts)	**Percent**
6	11%
7	6
8	43
9	21
10	13
11	3
12	1

Source: Superintendent Survey.

NOTE: Percentages do not total 100 due to rounding.

Table 7.1: Minimum Academic Performance Expected for Graduation

Time magazine requires 10th to 12th grade literacy.

which they generally expect their graduates to perform. Most (61 percent) indicated they have no additional policies on graduates' academic abilities. Seventeen percent of the superintendents replied that their districts require students to achieve a certain score on a standardized test before graduation, and two percent predicted that academic performance standards will be adopted in their district as a condition for graduation in the future. Twenty-one percent simply repeated the number of credits students must earn for graduation or mentioned miscellaneous requirements which students can satisfy without reaching defined levels of academic achievement.

We are concerned that districts' low (or missing) standards for graduation may cause problems later for students and their employers. Ample evidence suggests that elementary and junior high school mathematics and reading achievement levels are insufficient for American adults' optimal functioning as citizens and workers. For example, the J.C. Penney Company catalog is written at the 8th grade level while *Time* magazine requires 10th to 12th grade literacy.[3] Also, the newspaper industry's national standard calls for front-page news stories to be written at the 11th grade reading level.

3 Edward B. Fry, "The Varied Uses of Readability Measurement Today," *Journal of Reading* (January 1987): 343.

With an eighth grade education, the National Assessment of Educational Progress shows that most young American adults have mathematics skills sufficient to figure the correct total on a bank deposit form.[4] However, less than ten percent of adults with an eighth-grade education can determine how much change they should receive from $3.00 after ordering two separately priced luncheon menu items.

STUDENTS' PERCEIVED ACADEMIC NEEDS

To evaluate the academic needs which are important to Minnesota high school students, we obtained summary data from a survey administered through the Higher Education Coordinating Board's Post-High School Planning Program. The majority of Minnesota juniors annually take a standardized test for this program and complete a questionnaire indicating whether they would like further assistance with their skills in reading, writing, mathematics, and studying.[5]

Most districts allow juniors to participate in the statewide program, but the rate of participation ranges from a few students in some districts to all juniors in others. For our evaluation, we examined the responses of students only from districts where at least half the juniors completed the survey and test (153 districts or 37 percent of Minnesota's 410 high school districts which were operating during the 1986-87 school year).[6]

We found a strong relationship between the students' standardized mathematics test score and their self-professed needs for help with that subject. That is, juniors' average score on the mathematics test was lower when they professed greater desire for help. A similar but weaker negative relationship also was apparent between districts' average total test score and the proportion of juniors who wished for help in reading, writing, and mathematics (a combined index).

Results of our subsequent analysis of data from selected districts indicate that most juniors feel their academic needs are met. Overall, an average of only 20 percent said they would like help with study skills. Thirteen percent ex-

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4 National Assessment of Educational Progress, *Literacy: Profiles of America's Young Adults* (Princeton, N.J.: Educational Testing Service, 1986).

5 Among other items, the survey asks juniors: "Mark below any areas in which you might want assistance or information as you continue your education. Improving my mathematical skills? Improving my reading skills? ...my study skills? ...my writing skills?"

6 Only a fraction of juniors participated in the two Twin Cities districts, so the sample is deficient in this respect but otherwise resembles high school districts statewide (as shown in Appendix D). In addition, juniors in the 153 districts show nearly identical levels of academic needs as the Higher Education Coordinating Board reports for all districts and all juniors who participated statewide in 1986-87. Results are within one percentage point of figures published in the Higher Education Coordinating Board's recent report, *Summary of Responses to the Plans and Background Survey*, 21.

pressed a desire for mathematics assistance. Just five percent wished for help with reading and eight percent, with writing. However, students expressed a great range of academic needs, from zero to 75 percent in some districts.

We also found that:

- **Minnesota high school students in districts whose programs fall short of curriculum standards are more likely to say they need academic help.**[7]

Table 7.2 strongly suggests that districts which provide less than the standard four-year sequence of high school courses have a disproportionate number of students who feel they have unmet mathematics needs. Very few districts are in this category (and fewer still in our sample of districts where juniors completed the questionnaire), but the difference is large. Likewise, we found that juniors are more likely to indicate a desire for combined assistance with reading, writing, and mathematics when high school academic programs are substandard.

Students in districts with weak programs say they need academic help.

	Percent Who Would Like Help With:	
MATHEMATICS SEQUENCE	Mathematics[a]	
Only Three Years (n = 3)	43	
Alternating Fourth Year (n = 27)	13	
Full Four Years (n = 75)	14	
More Than Four Full Years (n = 48)	14	
ENGLISH/COMMUNICATION COURSE TYPES	Reading	Writing
Maximum of 4 (n = 40)	7	10
5-6 (n = 43)	5	8
7-9 (n = 27)	6	8
10 or more (n = 43)	6	7
OVERALL ACADEMIC PROGRAM	Reading, Writing, and Mathematics Combined[a]	Study Skills
Below One or More Standards (n = 5)	20	28
Meets Standards(n = 111)	9	20
Exceeds Standards (n = 19)	8	24
Reaches High Standards (n = 12)	10	21

aStatistically significant ($p < .05$).

Table 7.2: Juniors' Perceived Academic Needs in Light of District Curriculum

7 We combined the Higher Education Coordinating Board's summary survey data with descriptive information we compiled for each Minnesota high school district and its educational programs.

Other results in Table 7.2 follow the same pattern. If districts fail to meet overall program standards, juniors more often say they would like help with study skills. When districts provide fewer types of English-related courses, juniors are slightly more likely to express an interest in help with reading and writing.

We also checked for possible differences in self-reported academic needs associated with districts' financial resources, minority enrollment, geography, and other factors. We found that high school students in districts with medium enrollment are slightly more satisfied than their peers and that:

- **High school juniors in the northern development regions (1, 2, 3, and 5) more often indicate that they would like assistance with the "3 Rs". (See Figure 7.1.)**

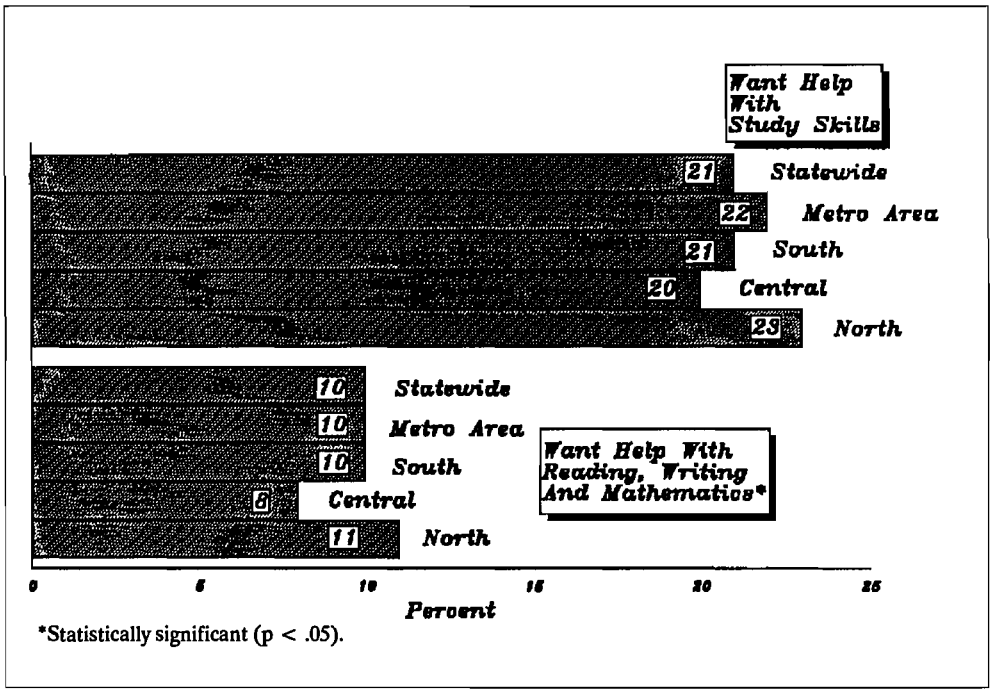

Figure 7.1: Juniors' Perceived Academic Needs by Geographic Region, 1986-87 (Source: Higher Education Coordinating Board.)

TEST SCORES

As we mentioned earlier in this chapter, Minnesota's school districts employ more than 80 different standardized academic tests. However, the state Department of Education shows that only two such tests are given to secondary students by at least half of all districts.[8] These are (1) the Minnesota Department of Education's Assessment Program (MEAP) "piggyback" tests and (2) the Preliminary Scholastic Aptitude Test (PSAT) which is part of the Higher Education Coordinating Board's Post-High School Planning Program.

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8 Minnesota Department of Education, *Biennial Evaluation*, 3.

We examined the results of these tests to see how much variation exists among school districts, and we explored the reasons for variations. In particular, we wanted to see whether higher test scores are associated with richer, more varied academic curricula.

For both tests, we picked samples of Minnesota school districts, ensuring that we included only those districts where a majority of students participated. Also, we ensured that the samples reflect most Minnesota school districts.[9]

MEAP "Piggyback" Test Results

There is no uniform, statewide test in Minnesota; districts use more than 80 different tests.

Many districts give the Minnesota Department of Education's assessment tests to students in grades 4, 8, and 11. If the MEAP tests are used, state law requires that districts later publish the results in community reports.[10] However, we found the test information published in so many formats that systematic numerical analysis based on community reports is impossible.

For our evaluation, we used electronic copies of the "objectives" reports which school administrators regularly receive from the Minnesota Department of Education after giving the piggyback tests. These reports show the percentage of correct answers for each of 16 to 34 learning objectives which are measured by 122 to 200 different test questions depending on the subject and secondary grade level.

We chose to limit our analysis of test scores to districts where at least 70 percent of all eighth and eleventh grade students took the examinations during one of three recent school years. Further, we restricted our evaluation of MEAP piggyback test scores to four core subjects: (1) reading, (2) social studies, (3) mathematics, and (4) science. In a few districts, we saw that the same assessment tests were given more than once during the 1984-85, 1985-86, or 1986-87 school years and in such cases used only the most recent results.[11]

Of course, school districts administer the MEAP piggyback tests for their own reasons--primarily to improve curricula at the local level. By extension, however, we feel it is reasonable to apply the test data in a statewide curriculum

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9 Only a minority of Minneapolis and St. Paul students participate, but otherwise test data were drawn from similar types of school districts as actually exist. Appendix D shows the parallels between Minnesota districts and those included in our MEAP and PSAT samples. In addition, the samples yield results within four points of the statewide figures routinely derived and reported by the Minnesota Department of Education and Higher Education Coordinating Board.

10 *Minn. Stat.* §126.666.

11 Because we examined results of four different tests for students in two grades, test data are for eight groups of Minnesota school districts. The characteristics of each test group are shown in Appendix D. The average group includes 116 districts, but the sample size varies from a low of 94 to a high of 150. For each of the eight groups, we summarized MEAP test results by calculating districts' overall percentage of correct answers across the many test items which the Department of Education has developed. We used a similar method of aggregation as in the Department of Education's previously cited reports including *Statewide Educational Assessment in Science*.

evaluation. It would be preferable to evaluate uniform statewide test results from all districts, but this cannot be done because there is no uniform statewide test in Minnesota.

From our limited MEAP data, it is apparent that scores do vary considerably among districts. Districts commonly score five points above or below the statewide average, but there are some extreme variations. Out of 100 possible percentage points, the range of scores (highest minus lowest) was 24 points on the average. Depending on the grade level and subject, we found that scores in some districts are 14 to 49 points above or below others.

However, we explored the relationship between eleventh-grade MEAP results and curricula and found that test scores do not vary according to districts' number and type of high school courses.[12] The inherent nature of MEAP piggyback tests--that is, to establish how well students perform against the criterion of mastering basic subject material--may explain the lack of a correlation. In other words, the assessment tests determine how many students have acquired similar types of knowledge and do not distinguish among students with various levels of knowledge. Second, diverse courses and advanced classes would take students beyond the basics covered in MEAP tests. For example, the type of knowledge students gain through multi-year foreign language programs probably would not be reflected. Third, it is possible that Minnesota students acquire similar basic knowledge before reaching high schools where curricula vary greatly.

Eighth graders may score lower in social studies, math, and science when minoritiy enrollment is higher.

We also found no relationship between test results and several other variables including total enrollment, geographic location, referendum levy amounts, percentage of adult college graduates, and other potentially important factors. However, we did find that test performance was related to minority enrollment:

- **The greater the proportion of enrollees from ethnic minority and nonwhite racial groups, the lower were districts' scores in eighth grade social studies, mathematics, and science. (See Figure 7.2.)**

The percentage of correct answers on the three MEAP piggyback tests declined systematically as minority enrollment increased. Interestingly, there was no relationship between minority enrollment and reading scores.

Table 7.3 shows that the difference is small but systematic. Overall, the differences in social studies, mathematics, and science scores range from one to seven percentage points between districts where minority enrollment is in the lowest versus the highest categories.

Because we received group test scores, it is impossible to say whether students in districts with higher minority enrollment scored lower in general or whether the difference stems from disparities in scores between white and

12 Because we have curriculum data only for high school grades 9 through 12, we could not investigate the possible relationship between education programs and 8th grade assessment test scores.

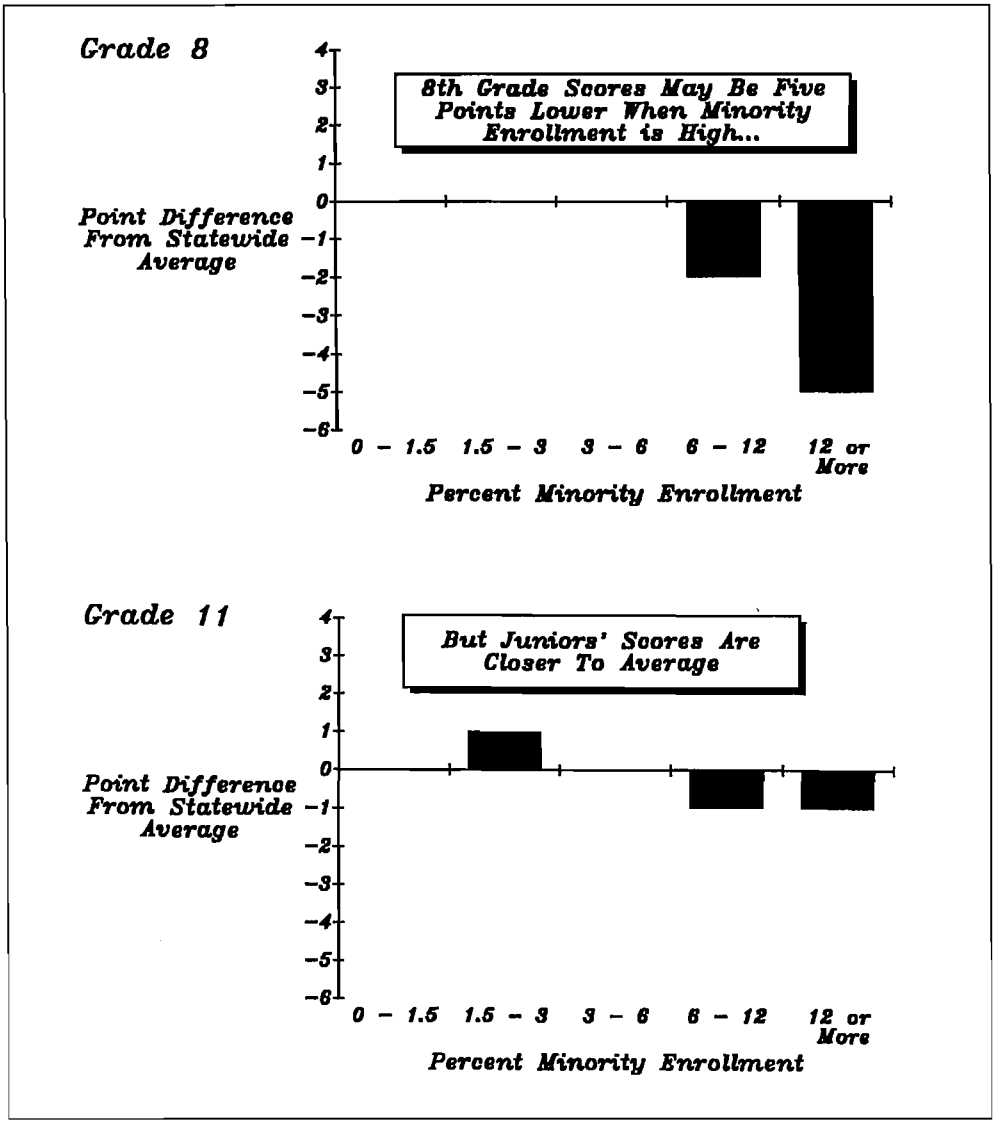

Figure 7.2: Social Studies, Mathematics, and Science Assessment Test Variations by District Percentage of Minority Enrollment, Grades 8 and 11

nonwhite students. The latter explanation seems more likely, however. Detailed reports of test score differences in the Minneapolis school district shows gaps between white and nonwhite student performance.[13] Also, national studies indicate large test score differences between white and nonwhite students who take standardized college admission tests.[14]

Table 7.3 also indicates that MEAP test scores are substantially lower at the eighth- but not the eleventh-grade level. Since the same pattern of diminished performance is evident but weaker, results may appear better be-

13 Minneapolis School District, *Profiles of Performance* (Minneapolis, 1987), 31.

14 American College Testing Program, "1988 ACT Scores Increase Slightly," 1; College Board, "National SAT Scores Show Little Change," 3.

	Mathematics[a]	Science	Social Studies[a]
GRADE 8			
0-1.5%	70	60	59
1.5-3	71	60	58
3-6	70	59	59
6-12	68	59	56
12[b]	63	57	53
Statewide	**70**	**60**	**58**
GRADE 11			
0-1.5%	69	57	64
1.5-3	69	58	66
3-6	69	57	64
6-12	67	57	63
12[b]	66	56	63
Statewide	**69**	**57**	**64**

[a]Statistically significant at Grade 8 ($p < .05$).
[b]Based on five or fewer districts.

Table 7.3: Percent Correct Answers on Assessment Tests by Minority Enrollment

Nonwhite students are more likely later to drop out of high school.

cause nonwhite students drop out of high school disproportionately. As shown in Table 7.4, attrition is about five times greater among black and American Indian students than it is among whites and Asians. Minnesota's Hispanic students drop out at the rate of seven percent annually, and the trend is increasing.[15]

PSAT Results

Over the past ten years, the percentage of Minnesota juniors who take the Preliminary Scholastic Aptitude Test has increased from about one-third to just over half of all public school juniors statewide. The test functions as the number one college admission test in Minnesota. Unlike the MEAP test, the PSAT reveals which students have more or less advanced verbal and mathematical reasoning abilities. It is a nationally normed test which is also used for counseling and identifying outstanding students who might qualify for special scholarships.[16]

PSAT participation has increased steadily since the 1970s when the test was adopted as a key component of the Higher Education Coordinating Board's Post-High School Planning Program. The board contracted for the test through the College Board (which subcontracts with the nationally respected Educational Testing Service of Princeton, New Jersey). In addition, the Educational Testing Service produces the widely recognized SAT which is also

15 Minnesota Department of Education, *Information on Minnesota School Dropouts, 1986-87* (April 1988).

16 Minnesota Higher Education Coordinating Board, *Putting Together Your Future*, 1987.

	American Indian	Asian	Hispanic	Black	White	All Groups Total
1980-81	10.8	1.6	5.0	11.4	2.4	2.6
1981-82	10.9	4.0	5.8	12.0	2.2	2.5
1982-83	10.8	2.9	5.0	9.6	1.8	2.1
1983-84	9.2	2.0	4.9	9.7	1.9	2.2
1984-85	10.1	1.9	5.8	10.6	2.2	2.5
1985-86	10.8	2.6	6.6	9.3	2.3	2.6
1986-87	9.4	2.7	6.9	10.6	2.5	2.9
Average	10.3	2.5	5.7	10.4	2.2	

Source: Minnesota Department of Education.

Table 7.4: Annual Dropout Percentage Rate by Race/Ethnicity, 1980-1987

attracting increased participation among Minnesota high school seniors, as shown in Appendix A.

The PSAT, like the MEAP test, is useful for education planning but is not specifically designed to evaluate school districts. It gauges student preparation for college work and correlates with later student performance in college. Using aggregated PSAT scores to draw inferences about groups of students or about the districts in which they attend high school must be done with caution.

As we discussed in Chapter 2, aggregated college admission tests are sensitive to students' participation rate. Generally, the higher the percentage of participants, the lower the scores, and vice versa.[17] To minimize this potential problem, we evaluated PSAT scores only for districts where half or more of all juniors took the test during the 1986-87 school year. In addition, we restricted our analysis to test data from students who indicated that they were willing to release their scores to the Higher Education Coordinating Board which supplied aggregate figures for our study.

Our sample included 173 districts or 42 percent of all Minnesota high school districts operating in 1986-87. The districts cover all regions of the state except the Twin Cities proper (as shown in Appendix D) and parallel the statewide statistics on financial resources, minority enrollment, total enrollment, and adult college graduates, among other factors. In all, the scores aggregated into this sample are based on responses from a total of 11,585 Minnesota juniors or 38 percent of all PSAT test takers in eleventh grade public school classes during 1986-87.[18]

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17 Powell and Steelman, "Variations in State SAT Performance," 398.

18 As an additional precaution, we checked for any remaining sensitivity between the PSAT scores and participation rates in our sample of 173 districts. Although a majority of juniors took the test in each district, the participation rate does range from 50 to 100 percent. However, our selection strategy was successful because there is no strong relationship between PSAT scores and the percentage of participants in our sample.

We did find considerable variations among districts in their average PSAT scores. In most cases, scores were no more than four points from the statewide subtest averages which are in the 40s. However, the range of scores (highest minus lowest) on the verbal subtest was 15 points and on the mathematics subtest, 18 points.

Based on other research, it is logical to expect that some of the variation would be due to the more advanced curricula which are available in certain districts. Recent studies by the College Board and American College Testing Program indicate that each completed high school course or year of relevant academic study generally results in higher scores.[19] Further, the College Board states that PSAT scores (divided roughly by 10) provide a good estimate of what a student's SAT scores would have been.[20]

We have no specific information to indicate that PSAT-takers took advantage of their districts' more advanced courses, but we did find:

Many factors contribute to PSAT scores, but enrollment size and academic programs make the largest differences.

- **PSAT scores were higher among students enrolled in districts that have advanced academic programs than among students enrolled in districts whose programs are below or barely meet curriculum standards. (See Figure 7.3.)**

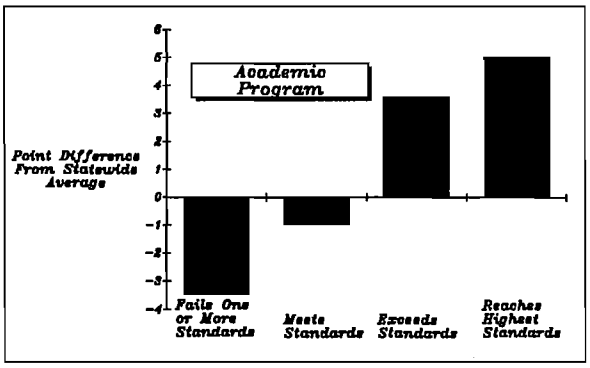

Figure 7.3: Composite PSAT Score Variation by Level of High School Curriculum Development

We also found that:

- **PSAT scores were higher in districts with larger enrollments than in districts with relatively few students. (See Figure 7.4.)**

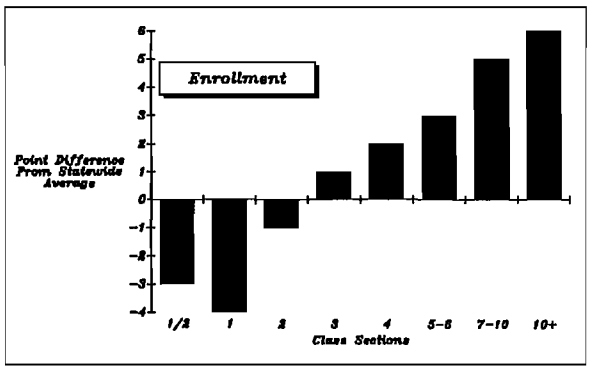

Figure 7.4:Composite PSAT Score Variation by Class Sections

A similar pattern of results also has been reported by the Illinois State Board of Education. Using the ACT college admis-

19 College Board, "National SAT Scores Show Little Change"; Joan Laing, Harold B. Engen, James Maxey, *Relationships Between ACT Test Scores and High School Courses* (Iowa City: American College Testing Program, 1987), 6.

20 College Board, *PSAT/NMSQT Summary Report-Minnesota, 1987* (New York, 1988).

sion test, the board found that scores were highest when high schools had at least 494 students. Scores were lowest on all four ACT subtests (English, social studies, mathematics, and natural science) when schools had fewer than 215 high school students.[21]

As shown in Figures 7.5 through 7.8, several other factors also are significantly related to PSAT score differences among Minnesota school districts, but none mark score differences so large as enrollment and academic curricula. We conclude that no one factor is sufficent to explain PSAT variations. That is:

- **PSAT scores are simultaneously affected by interrelated differences in the distribution and characteristics of Minnesota residents and school districts around the state.**

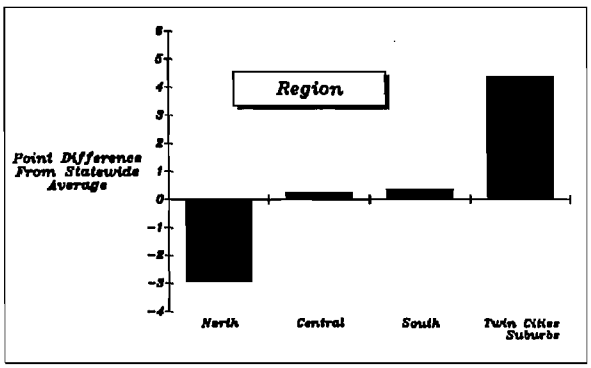

Figure 7.5: Composite PSAT Score Variation by Geographic Region

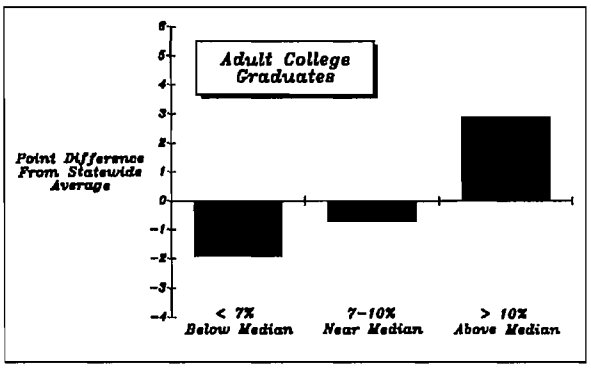

Figure 7.6: Composite PSAT Score Variation by District Percentage of Adult College Graduates

As we showed in Chapter 6, curricula are largely a function of enrollment, which happens to be greater in the Twin Cities metropolitan area where college graduates are most common. Thus, Figures 7.5 and 7.6 show that PSAT scores are higher in the suburban Twin Cities area compared with other regions.

Districts' geographic location and percentage of adult college graduates are certainly important, but these may be viewed as environmental conditions which help or hinder students' performance and support various curricula. Similarly, the negative relationship between staffing and PSAT scores (Figure 7.7) is only indirectly important because staff

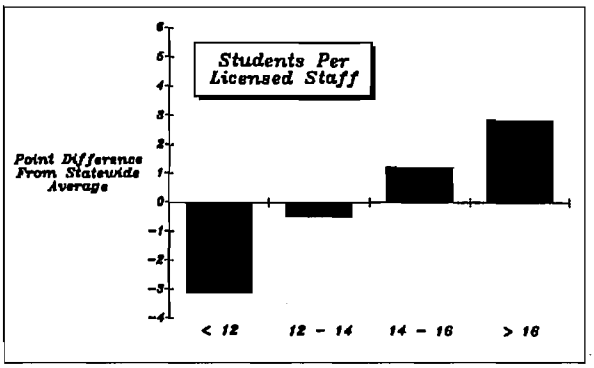

Figure 7.7: Composite PSAT Score Variation by Ratio of High School Students to Licensed Professional Staff

21 Illinois State Board of Education, *Performance Profiles: Illinois Schools Report to the Public* (Springfield, 1987), 15.

are in abundance where enrollments are smallest (and declining, as shown in Figure 7.8).

We observed that total PSAT scores are weakly explained by any few items which were included in our study. In addition to district-level variations, the individual test takers' personal characteristics and instructional history undoubtedly play important roles.

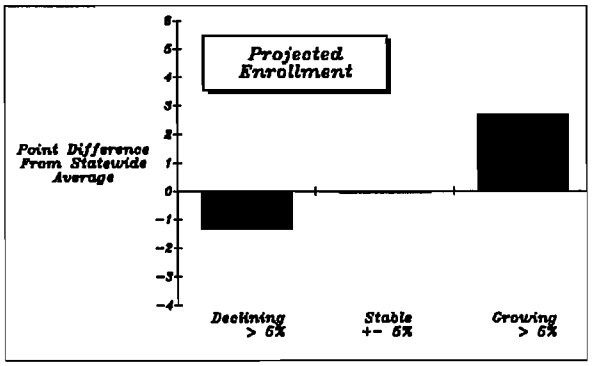

Figure 7.8: Composite PSAT Score Variation by Projected District Enrollment, 1987-1992

COLLEGE PERFORMANCE

Finally, we evaluated the performance of some Minnesota high school students after they enrolled in college. We asked whether students whose districts had richer curricula did better than average.

Districts routinely receive profiles of their former students' performance as college freshmen.

School district officials routinely receive reports from many universities which let them know generally how their graduates fare as freshman. The reports vary by university but typically indicate the grade-point average (GPA) earned by the former high school students during their first fall term.[22] Some educators suggest that these reports should be used more actively in evaluating high school curricula.[23] Already, we found that the Minneapolis School District publicly reports the college freshman grade-point averages which were earned by graduates of its various high schools.[24]

We examined freshman grades and students' high school class rankings for profiled Minnesota public school students who enrolled at the state universities at Mankato and Moorhead, the University of Minnesota-Twin Cities campus, and the University of Wisconsin at Madison. Also, we reviewed special reports by administrators at the University of North Dakota and South Dakota State University. In all, we obtained and analyzed district-level information reflecting the initial college performance of 5,410 former Minnesota public school students.

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22 To protect individuals who might otherwise be identifiable, freshmen profiles are usually issued only when three or more former students have enrolled at any one college.

23 Commission for Educational Quality, *A Progress Report and Recommendations on Educational Improvements in the SREB States* (Atlanta: Southern Regional Education Board, 1987).

24 Minneapolis School District, *Profiles of Performance*, 165-178.

College Enrollment

In Fall 1986, freshmen at Mankato State University came from at least 141 Minnesota school districts, and at the University of Minnesota-Twin Cities, from more than 121 districts. From Moorhead State University, we learned that at least 82 districts sent three or more freshmen who began in Fall 1987.[25] As shown in Appendix D, freshmen from profiled districts came to the University of Minnesota often from the Twin Cities area but also from a fairly even mix of districts in the state's other major geographic areas. In contrast, profiled freshmen at the two state universities came predominantly from the surrounding geographic areas in outstate Minnesota.

Our analysis of freshmen profiles from the University of Minnesota-Twin Cities suggests that:

- **Most freshmen came from Minnesota districts where the high school curriculum met or exceeded high academic standards.**

Statewide, we found that 71 percent of high school students attend districts where the curriculum reaches or exceeds high standards. Among public school enrollees profiled by the University of Minnesota-Twin Cities, 91 percent came from districts of this type. In contrast, Table 7.5 shows that only 57 to 71 percent of the profiled freshmen at Moorhead and Mankato State Universities graduated from such districts.

Came From Districts Where Curriculum ...	Moorhead State University	Mankato State University	University of Minnesota-Twin Cities	University of Wisconsin-Madison
Below One or More Standards	2%	2%	< 1%	0%
Meets Standards	41	27	9	3
Exceeds Standards	20	27	26	22
Reaches High Standards	37	44	65	75
Total Enrollees	698	1,453	3,259	1,498
Districts Represented	82	141	121	38

Table 7.5: Curriculum Standards of Districts Whose Graduates Were Profiled by Four Universities

25 Additional districts which sent one or two enrollees would be ineligible to receive freshman profile reports. For example, 130 districts sent one or two freshmen to the Twin Cities campus of the University of Minnesota in Fall 1987.

The same table further indicates that 97 percent of Minnesota's profiled freshmen at the University of Wisconsin-Madison came from districts where the curriculum reached or exceeded high standards.

Students' high school coursework of course is a major factor in applying and being accepted at one university over another. School districts provide courses at least partly in response to student demand, as we showed in Chapter 6. In addition, many other reasons lead applicants to the University of Minnesota-Twin Cities and University of Wisconsin-Madison which offer selected programs and choose among applicants. So to a certain extent, our finding may represent a self-fulfilling prophecy.

In addition, our analysis of freshmen profiles suggests that high school curricula have little apparent impact after enrollment. At the four universities in our study, results indicate:

- **Freshman grade-point averages are strongly and independently related to students' high school ranking.**

High school class ranking is strongly related to college grades.

We analyzed the college grade-point averages earned by freshmen from districts with various high school curricula but found no systematic relationship. In fact, GPAs were higher for profiled students at Mankato State University and the University of Minnesota-Twin Cities whose districts fell below or just met curriculum standards--not when higher standards were fulfilled. The enrollees in such instances ranked rather low in their high schools and likewise earned rather low college grades.

We also compared college grade-point averages among students from the state's major geographic regions. Results show:

- **College enrollees from school districts in various Minnesota regions earn quite similar grade-point averages when their high school performance is comparable.**

At each of the three Minnesota universities, Table 7.6 shows that students who scored in the 61st to 70th percentiles of their high school class earned lower GPAs than did freshmen who ranked in the next higher decile. Further, profiled freshmen who attended high school in various regions of the state tended to earn similar college GPAs as their fellow students who were similarly ranked.[26]

In general, outstate students who were profiled by the University of Minnesota-Twin Cities ranked nearer the top of their high school classes and earned higher GPAs as college freshmen than did Twin Cities area enrollees. Likewise, central Minnesota students ranked higher in high school and earned a better overall GPA than other profiled students who enrolled at Mankato State University. However, Table 7.6 illustrates exceptions to this pattern as at (1) Moorhead State University where northern Minnesota students had superior high school rankings but earned lower GPAs than other new freshmen and (2) the University of Minnesota-Twin Cities where profiled enrollees from

26 GPAs are generally higher at Mankato State University because failing students receive "no credit" rather than "F" grades.

	Enrollees	High School Percentile Ranking	College Performance Fall 1986/87 Grade-Point Average: Total	Ranked in 61st-70th Percentile	Ranked in 71st-80th Percentile
UNIVERSITY OF MINNESOTA-TWIN CITIES					
North	140	83	2.68	2.38	2.66
Central	197	74	2.50	2.42	2.54
South	249	77	2.65	2.48	2.61
Twin Cities Suburbs	2,178	72	2.50	2.46	2.51
Twin Cities Proper	495	71	2.38	2.36	2.39
TOTAL	3,259	75	2.57	2.44	2.55
MANKATO STATE UNIVERSITY					
North	12	48	2.31	--	--
Central	125	69	2.84	2.73	2.99
South	692	61	2.70	2.74	2.94
Twin Cities Suburbs	587	58	2.63	2.75	2.81
Twin Cities Proper	37	60	2.43	2.72	--
TOTAL	1,453	61	2.69	2.74	2.94
MOORHEAD STATE UNIVERSITY					
North	127	71	2.31	1.90	2.31
Central	336	71	2.49	2.45	2.52
South	34	64	2.54	2.50	2.91
Twin Cities Suburbs	201	64	2.80	2.86	2.82
Twin Cities Proper	--	--	--	--	--
TOTAL	698	70	2.47	2.37	2.50

Source: University administrators.

Note: Based on freshmen from districts with at least three enrollees.

Table 7.6: Freshman Grade-Point Averages Earned by Profiled Graduates of Minnesota School Districts, by Region and High School Rank

Minneapolis and St. Paul earned lower average grades even when they ranked in similar high school class deciles as freshmen from other parts of the state.

College Performance in Neighboring States

The University of Wisconsin-Madison provided freshmen profile reports for all Minnesota school districts from which five or more students enrolled over a five-year period, 1983-87. These records indicate that only 38 Minnesota school districts sent an average of one student annually despite a tuition reciprocity agreement between the two states.

Among the 1,498 Minnesota public school students who were profiled by the University of Wisconsin-Madison, our analysis of district-level data showed similar results as above. That is:

- **Minnesota enrollees ranked slightly higher in their public high school classes and earned GPAs slightly above average compared with all freshmen at Wisconsin.**

Overall, 65 percent of Minnesota's profiled freshmen ranked in the top quartile of their high school class compared with 62 percent of all 26,540 new freshmen who enrolled at Madison during the five years 1983-87. Correspondingly, the Minnesota students earned a freshman GPA of 2.83 compared with the class average of 2.75.

Minnesota freshmen do about as well as residents who enroll in neighboring states' universities.

By region, we found that only 16 profiled freshmen came from northern Minnesota, but they did particularly well. Seventy-five percent were in the top quartile of their high school classes, and the small group earned an even higher GPA of 3.16. Of the seven southern Minnesota districts which sent at least five freshmen to Madison between 1983 and 1987, those students earned a GPA of 2.81--slightly above the class average although just 61 percent ranked in the top quartile of their high school classes.

Putting this information together with special reports sent to us from major universities in North and South Dakota, we also found:

- **Minnesota enrollees at surrounding states' major public universities are likely to perform about as well as new resident freshmen.**

The University of North Dakota could not provide information on high school ranking. However, a university evaluator calculated freshman grade-point averages and told our office that Minnesota's total of 536 public and private school graduates earned GPAs which were only slightly lower than achieved by North Dakota's 943 freshmen during the 1987-88 school year.[27] The North Dakota students had average grades of 2.76 and 2.81 in fall and spring respectively. The Minnesota students' average GPA was 2.75 in the fall and 2.73 in the spring. A third group of 200 students from combined other states earned lower GPAs of 2.63 and 2.61.

From South Dakota State University, we learned that about 1,000 former Minnesota high school students have enrolled as freshmen annually over the past few years. The director of admissions was unable to compare grade-point averages of Iowa, South Dakota, and Minnesota students but updated an earlier report which shows that freshmen's composite ACT test scores have improved. Incoming Minnesota and Iowa freshmen now have identical scores of 22.0 compared with South Dakotans' 21.5. However, we learned also that the Minnesota students' English ACT score has remained slightly below that of new freshmen from Iowa and South Dakota each year since 1982.[28]

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27 Dean Schieve, Office of the Vice President for Student Affairs, University of North Dakota, Grand Forks, computer report dated September 8, 1988.

28 Dean Hofland, *Student Data Report* (Brookings: South Dakota State University, October 29, 1985, updated August 1988).

SUMMARY

Because Minnesota has no statewide standards, requirements, or tests of student performance, we analyzed relevant information which is gathered for other purposes at the discretion of school districts and post-secondary schools. Although this evaluation strategy is appropriate in our opinion, it is not ideal, and results can only be called suggestive. Separate studies based on uniform, complete data clearly would be required to make definitive statements about the potential outcome problems which surfaced.

The results of our analysis of education outcomes nevertheless bear consideration, for they are consistent with logic and other known facts. Most important, we found that curriculum variations can have a measurable impact on students' immediate and future lives. We saw that Minnesota students express a greater need for academic help when their high school curricula fall below standards. Where districts only just meet standards, results suggest that students later are less likely to be enrolled at leading public universities. An obvious reason for the enrollment difference may be that college admission test scores appear to be lower in districts where the curriculum is narrower. Another consideration is that applicants from such districts may be less academically attractive than others whose transcripts indicate that they have completed advanced high school courses. In the future, as we showed in Chapter 6, the University of Minnesota and University of Wisconsin will formalize their expectation that successful applicants should complete more academically rigorous high school courses.

Apart from the question of curriculum variations, we observed that districts generally lack policies which might otherwise ensure comparable levels of academic performance among Minnesota high school graduates. Also, where minority enrollment is higher, academic performance is significantly weaker in eighth grade mathematics, science, and social studies. Possibly, this contributes to nonwhites' greater proclivity later to drop out of high school.[29]

Many Minnesota school districts undoubtedly face unusual problems in bringing education programs to students and ensuring high levels of academic performance. However, the principle and imperative behind Minnesota public education is to be uniform, general, thorough, and efficient. In Chapter 8, we suggest steps that the state might take in light of this obligation and our findings of some disparities.

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29 In Chapter 2, we also showed that nonwhite Minnesota seniors are less satisfied than whites with their high school program choices.

IMPROVING HIGH SCHOOL EDUCATION

Chapter 8

Our evaluation of public high school curricula and delivery methods focused on (1) documenting the number, type, and level of courses which districts provide to students in grades 9 through 12, (2) identifying systems and schedules for instruction, and (3) comparing Minnesota public high school courses against a variety of state requirements and college entrance guidelines. In the absence of statewide consensus on goals, we developed criteria by which to evaluate public education, reviewed performance indicators, and applied some simple measures of outcomes.

In this chapter, we summarize our key findings, outline policy options, and recommend actions which we believe will help to improve education and correct some statewide problems which have developed.

EVALUATION ISSUES

We acknowledge that our approach has numerous limitations. Education--or human learning--is a broad, complex endeavor which sustains the constant attention of professionals throughout the country. However, educators rarely produce the type of descriptive, statewide information which is well suited to policy making.

Because of the shortage of policy-relevant information about education in Minnesota, we developed simple criteria and direct methods by which to describe and evaluate some (but by no means all) aspects of public education. Even then, we avoided many questions which are important to citizens and policy makers. The practical necessity of conducting a statewide study required that we focus on common aspects of public school education which can be measured with the least ambiguity.

For example, we examined the number of high school academic courses but did not examine course content or quality. We do recognize that course material may be taught more or less effectively and in ways which are more or less sensitive to students' cultural heritage, gender, and personal development. Future statewide studies, we hope, will tackle such questions of education quality and effectiveness which go beyond the modest scope of our study.

Many other questions about education involve conflicting values and opinions--questions which empirical data cannot address directly. In our view, nonetheless, it is possible and useful to evaluate elemental differences in

education. As shown by the preceding chapters, the results can alert citizens and policy makers to potential discrepancies between the goal of uniform, general education and the practical reality of delivering courses in a large state where the population is unevenly dispersed.

Our study also is limited by its emphasis on curricular questions. We explored the general relationship between district revenues and curriculum but not in sufficient detail to make financing recommendations. As we found in a separate study earlier this year, the state's accounting system categorizes district spending so broadly that curriculum costs cannot be retrieved.[1] For example, the system puts extra-curricular athletic program costs together with textbook expenses under the category of "regular instruction."

Study Questions

The evaluation criteria which we adopted reflect five aspects of high quality public education which have gained general acceptance in the United States. These include (1) individualized student-teacher interaction, (2) adequate, focused instructional time at school, (3) academic classes in the four core subjects of English, social studies, mathematics, and science, (4) preparation for further education, and (5) equal educational opportunities for all students.

We focused especially on the state's role in education. According to the Minnesota Constitution, the Legislature is ultimately responsible to see that adequate instruction is systematically available statewide. Thus, among other questions, we asked how well the Legislature's constitutional obligation is being met: "to establish a general and uniform system of public schools" and to "secure a thorough and efficient system of public schools throughout the state."[2]

Three major questions were addressed:

- **How well are Minnesota high school students performing academically?**

Minnesota's excellent national reputation is somewhat overstated and out of date.

- **What academic standards have been set for high school education in Minnesota? How do they compare with standards in other states? Are Minnesota's standards adequate to prepare students for higher education?**

- **How much do high school curricula vary in Minnesota? Do the variations have practical significance for students?**

1 Office of the Legislative Auditor, *Trends in Education Expenditures* (March 1988).

2 *Minn. Constitution*, Article XIII, Section 1.

Overview

Minnesota has earned an excellent national reputation for public education. Among the fifty states, it ranks high for its college admission test scores, graduation rate, and generous funding, among other positive accomplishments. In addition, Minnesota policy makers have attracted favorable national attention for several innovative measures which allow students and parents increased choice of public schools.

However, we found that Minnesota's reputation is somewhat overstated and out of date. It results partly from favorable socioeconomic conditions which affect standard education indicators (most notably, college admission test scores). In any event, Minnesota's education indicators are less favorable than they were in the past. Results on all three of the state's college admission tests (ACT, SAT, and PSAT) are continuing to decline while scores nationally are increasing. Additional indicators which we developed show that (1) dissatisfaction has grown among students and the public at large, (2) smaller proportions of high school graduates come from accredited Minnesota public schools, (3) secondary social studies test results have grown worse, and (4) results on the national Advanced Placement (AP) tests now are only average. Statewide, only 27 percent of Minnesota's public high schools are officially accredited.

Who is responsible for addressing the situation? Although the Legislature bears the legal burden for a system of statewide public education, it has delegated responsibility to hundreds of local school districts. Many of these districts have insufficient enrollment to support a broad high school curriculum, and they rely instead on courses from other sites to meet the state's curriculum requirements.

Some districts rely heavily on off-site methods of instruction.

We raised a number of questions about some districts' heavy reliance on off-site methods of instruction such as interactive television, correspondence courses, and mid-day busing. Although instruction undoubtedly can be accomplished by these methods, each puts barriers between students and teachers. In addition, the heavy use of off-site instruction means that some students must contend with inconveniences and limitations which do not occur in parts of the state where enrollment happens to be greater.

In our evaluation, we show that the state pays the lion's share of district expenses (some 60 percent) but does little to ensure that education programs and outcomes are adequate. In fact, the Minnesota Department of Education's Office of Monitoring and Compliance has no full-time staff who check to see whether high school curricula meet state requirements.

One of the reasons why so little time is spent monitoring regular education is that the state's current standards can be met quite easily. We learned that local districts are free to decide which courses fit into the state's required subject areas. District administrators are allowed to count correspondence classes and interactive television courses as their own (even though universities and other districts provide the teachers who grade students' performance). In some cases, high school students are bused elsewhere for several periods daily, yet their home district legitimately counts the classes as though they had never left.

Even so, we found that a few districts do not comply with the State Board of Education's curriculum requirements which were to be effective during the 1985-86 school year. Further, about one-fourth of Minnesota's public high school students attend districts where the curriculum lacks honors, advanced, or third-year foreign language classes which are recommended for admission to selective private colleges.

By comparison with other states, our evaluation revealed that Minnesota's education standards are loose and incomplete. In Chapters 4 through 6, we described the disparate manner in which school districts have responded. Many have established programs and requirements which exceed state requirements, but others have not. Further, in Chapter 7, we presented evidence which suggests that students have unmet academic needs when the curriculum is sub-standard.

The size of districts' enrollment is most important in explaining curriculum variations.

We examined several possible explanations for curriculum variations and found that the size of districts' enrollment is most important. In other words, the more students, the richer and more varied the academic curriculum. Two other key factors are (1) the percentage of adult college graduates and (2) referendum levies which are an unequal source of district revenue. As these three factors increase, academic curricula become more diverse and achieve greater depth.

In our opinion, Minnesota's systematic pattern of curriculum variations is large and has such important consequences that we conclude:

- **Some Minnesota public high school students have unequal access to education.**

School districts with fewer enrollees generally provide fewer, less advanced courses and are more likely to fall below one or more curriculum standards. But because Minnesota's population is concentrated in the Twin Cities area, most (71 percent) of all public high school students do have ready access to curricula which meet or exceed high standards. Another 27 percent of the state's high school students attend districts where the curriculum meets minimum standards. This leaves 2 percent or about 4,000 high school students who attend Minnesota school districts with seriously limited curricula.

Although only a small fraction of Minnesota students in grades 9 through 12 are affected by curriculum deficiencies, we believe the rarity of deficient programming begs important questions of fairness and quality. In addition, equity questions are posed by (1) districts' uneven reliance on television technology, mid-day busing, alternate-year scheduling, and high school correspondence programs and (2) limited access to courses which go beyond the minimum.

For districts where high school students are few, we understand that heroic means may now be the only way to deliver a curriculum of any breadth. Yet, notwithstanding these special efforts, our results show that smaller districts provide fewer academic courses (by any method) and cost substantially more to operate. The practical effect for students is that some cannot enroll in high school courses which are routinely available to their peers. For example, we found that more than a third of the state's smallest school districts had no stu-

dents enrolled in economics, calculus, sociology, remedial reading, and public speaking courses.

POLICY OPTIONS

The state needs to ensure that high school programs are sound and generally accessible.

We believe the state is required by the Constitution to see that high school programs are sound and generally accessible to Minnesota students. Further, it is our opinion that the current situation is inconsistent with the state's positive reputation and obvious interest in quality education for all students.

To improve education in Minnesota, we explored a range of policy options which are presented below.

First, the state could continue its existing policies. Past legislation might yield program improvements, and the State Board of Education might adopt its study committee's recommendations which would enhance curricula and raise standards for graduation. The state could continue to encourage local diversity and leave program access to vary.

This strategy would preserve Minnesota's tradition of independent local districts and would avoid additional regulation. However, the Legislature would bear a heavy burden to show how it is upholding the Constitution and ensuring equity in light of the weaker programs, extreme variations, and systematic variations which we have documented.

A second approach is for the state to target additional financial aid to districts where curricula are deficient. More money could be allocated for inter-district cooperation, instructional technology, and mid-day transportation. Support could be increased for development of regional education districts and high schools which would encompass districts where programs now need improvement.

This essentially would continue the state's unique, positive approach to education reform but would step-up participation by school districts. Already, we found that progressively fewer districts attempt to provide a four-year high school curriculum, and only 20 districts were below one or more curriculum standards. So it is reasonable to expect that the state could eliminate the unacceptable programs at little increased cost. Further, since recent legislation is increasing enrollment choices, the state's current approach would increase access to Minnesota's better public high school programs.

Despite such positive possibilities, in our opinion, a continuation of current reform efforts is inadequate. Cost-effectiveness is doubtful, and inferior methods of education would be further encouraged. We showed that half-section districts (those with fewest enrollees and weak curricula) already spend $1,000 more for annual operating expenses per student than districts with more class sections and stronger programs. Also, we found that a spate of alternative delivery methods have been adopted by districts, yet deficiencies remain while student-teacher interaction has diminished.

Third, the state could strengthen existing systems for curriculum monitoring and review. It could encourage all districts to conduct regular, voluntary program audits and be accredited through the North Central Association. It could expand the Department of Education's integrated data base computer system to monitor programs as well as outcomes on a current basis and quickly identify problems. Also, the Department of Education could assign a complement of full-time staff to monitor regular education and follow up with district administrators.

Such an approach would build on plans and systems which already are in place. Voluntary local improvement efforts would continue but probably move faster if the state provided timely information, showed greater concern, and helped set the pace. Superintendents in our survey indicated that the State Board of Education's requirements have a real impact on the number and type of courses their districts provide. Through expanded monitoring, improvements would likely follow.

There are many possible paths to reform.

A major disadvantage of this approach is that the state's current standards are weak and incomplete. They lack clear criteria which would enable staff to audit programs consistently. Districts could continue to rightly interpret state requirements in numerous ways, to decide which of their courses represent the state's subject requirements, and which courses they will provide. Further, state standards fail to specify that graduates must attain some level of knowledge, and we found that few districts have established their own policies to fill the gap.

Fourth, the state could develop and enforce higher standards for programs and outcomes. It could define certain types of courses which all districts would provide. The state could specify a standard level of academic achievement for students to meet as a condition for graduation. This would promote the goal of general, uniform, thorough, and efficient education which the constitution demands. However, districts could continue to offer some courses of their choice.

Through this approach, the state could clarify expectations and resolve current ambiguities about the acceptable methods and goals of public education in Minnesota. The standards would make it possible to hold districts accountable to the state as well as localities. Other advantages would be that students could exercise their open enrollment option more effectively, and inter-district cooperation would become more efficient. Some local diversity could be preserved while the state's interests and obligations were met. Further, citizens and business leaders would gain the assurance that education programs and performance are consistent and equitable throughout Minnesota.

Implementation of effective new standards implies that the state's monitoring systems would be improved as suggested above. Districts would be required to provide additional information to the state, but since some reports are scheduled for elimination under the Department of Education's integrated data base system, no net increase would result. However, the state's higher standards might jeopardize Minnesota's graduation rate. In addition, some courses might be discontinued in favor of English, social studies, mathematics, science, foreign language, and computer science--the "new basics" presented by *A Nation at Risk.*

Fifth, the state could establish a strong system of control over local districts. As some other states have done, Minnesota could develop procedures to take over when district programs and outcomes are unacceptable. The Department of Education could provide guidance and support but insist that deficiencies be corrected within a limited time period. If necessary, the state could remove local administrators, install a new school board, and see to it that state standards were met.

Such procedures would resolve current threats to student well-being which are occasioned by program deficiencies and lack of standards for academic performance. Although the approach seems severe, it would underscore the state's critical role in education. A system of state control further would institute clear paths of recourse which now are missing. Yet the system would provide districts with reasonable assistance and opportunity to make improvements.

In light of Minnesota's positive reputation and sincere commitment to public education, this option might be politically and socially unacceptable. It might discourage local community members and educators statewide because, essentially, it challenges local and professional autonomy. Further, a system of strong state control would be inconsistent with the state's approach to education reform which is to reward voluntary change.

RECOMMENDATIONS

In our opinion, the Legislature should consider mid-range policy options which would focus its activities in three areas: (1) goal-setting, (2) monitoring, and (3) informing the public about the types of programs and outcomes which are available to Minnesota high school students. We recommend legislation which would:

- **Establish more ambitious, uniform state standards and goals for academic curricula and outcomes in Minnesota.**

- **Provide for systems and staff who would monitor compliance with the new standards on a timely basis.**

- **Specify standard information which would be compiled and reported in a statewide comparative listing of high school district populations, programs, and outcomes.**

Minnesota's education policies and standards need revising.

We believe that Minnesota's education policies and standards are overdue for revision and that these three actions would resolve many of the current problems which our evaluation disclosed. In fact, we believe that the absence of clear and consistent state-level goals, monitoring, and information has fostered serious inequities in high school education today.

In our view, it is most important that the state's new standards and goals clearly define the type of courses and level of academic achievement which should

characterize Minnesota high school graduates. Already, educators and policy makers are crafting a vision of higher-level curricula and outcome goals for Minnesota, and we think this effort would be enriched by attention to academic achievement in the primary areas of reading and mathematics. As we discussed in Chapter 1, reading and mathematics skills are two critical elements of education which are necessary to other, more advanced aspects of instruction, employment, and creative expression. Yet, in Chapter 7, we showed that few districts have policies to ensure that graduates attain appropriate skills in reading and mathematics. Most of those with policies set standards very low--at the elementary or junior high school level.

Because there is no consensus about education goals and objectives in Minnesota today, we understand that it would take considerable time to develop and implement a comprehensive set of standards for high school education. However, it might be possible for discussants soon to agree upon the level of reading and mathematics abilities which should be attained by future high school graduates. Similarly, it might be possible for discussants promptly to (1) put limits on districts' reliance upon off-site methods of course delivery and (2) specify the courses which meet core academic subject requirements.

By facilitating the development of these and other simple standards, the Legislature would more nearly meet its constitutional obligation to ensure an adequate system of public education. In our view, it would be in all citizens' interest for the state to carry out such a plan which would strive to bring critical education programs and academic skills to children throughout the state. Although it might cause some temporary local disruption, state-level standards would have the additional long-range benefit of enhancing future generations' ability to maintain employment and act as informed citizens in a democratic government. Also, the establishment of statewide standards for programs and achievement would contribute to Minnesota's reputation for outstanding education while improving the climate for business and economic development.

By encouraging districts to adhere to state as well as local standards, we believe that programs and outcomes would improve. Superintendents in our survey indicated that state standards already are the most important factor in explaining their number and type of high school courses. However, we found that the current curriculum monitoring system is confusing and inaccurate--suggesting that education programs are a low priority at the state level.

By directing the development of more effective systems for monitoring programs and outcomes, the Legislature would foster more informed exchange of information between districts and the state. Both entities now lack a clear understanding of what is occurring and what should change. If stronger state standards were established, these would give rise to systems which could pinpoint discrepancies. The identification of discrepancies in turn would permit state monitors to bring technical and managerial resources to the aid of local districts.

Curriculum monitoring is too relaxed.

In our view, the state's current approach to curriculum monitoring is too relaxed. We showed in Chapter 6 that some districts do not comply with minimal program standards which were to have been effective during the 1985-86 school year. Thus, some Minnesota students already have suffered program deficiencies and disadvantages.

We believe that haste should be made to identify and correct current and future program deficiencies. At a minimum, districts should provide required academic programs within one year. Because academic courses account only for about half of districts' total curriculum, there seems to be ample room to adjust schedules and staffing if necessary within this time frame.

An effective information system not only would provide timely, useful information for monitoring, but it could also be used to generate the public report which we recommend. Our view is that state and local leaders could would be in a stronger position to hold districts accountable for program improvements if comparative information were readily available. This would supplement (not replace) other reports by the Department of Education and the more detailed community reports which districts now publish.

We think that the Minnesota Department of Education should produce a wall chart similar to the federal government's annual poster. Along with each district's name in alphabetic order, several education indicators and population characteristics could be displayed for easy inspection. Although it would be preferable to include more indicators, the current number of districts makes this impossible within a limited space. Those indicators we suggest at a minimum are:

- **percent of eleventh grade students who scored in the top and bottom quartiles on a nationally normed test of verbal and mathematics achievement during the previous school year,**

- **percent of eleventh grade students whose daily fall schedule included concurrent classes in English, social studies, mathematics, science, and a foreign language,**

- **percent of all high school students (grades 9 through 12) enrolled in one or more honors or Advanced Placement classes during the fall term,**

- **high school accreditation status (none, accredited with warnings, accredited without warnings),**

- **average daily amount of time high school students spent in fall academic classes (English, social studies, mathematics, science, and foreign language), and**

- **the total number of different high school academic classes which were taught on site daily during the fall term.**

District population characteristics would include (1) the total number of high school students and (2) the percentage of minority enrollees.

Minnesota's wall chart would provide quick comparative information in the same way as the federal wall chart now allows policy makers and citizens to see at a glance how education systems differ among states. Further, such a

wall chart would be easily reproducable in newspapers, brochures, and magazines. We recommend the chart be distributed to all Minnesota citizens through leading newspapers and should be mailed in reduced size annually to the parents of children who attend public schools.

We recognize some reluctance to make direct comparisons among Minnesota school districts, but we believe this is partly because the state heretofore has encouraged each to pursue unique objectives. After statewide education goals and standards have been adopted, in our view, there will be no reason to avoid comparisons.

Moreover, we believe that the phasing-in of open enrollment necessitates just this type of information. Minnesota's unique approach to education reform assumes that students and parents together will make informed choices among school districts. For this assumption to become a reality, comparable information must be widely shared and readily available.

Open enrollment necessitates more comparable information about districts.

By encouraging choice of public schools and openly acknowledging program differences, we believe students and parents will be better served, program deficiencies corrected sooner, and the state's commitment to public education clearly demonstrated. Families would be empowered to choose the schools which meet their goals from the full range of possible sites--not based on hearsay and promotional materials. Moreover, we believe the state's monitoring effort would be more effective when deficiencies, if any, were completely clear to local leaders.

State Responsibility

We believe that state-level action is needed to improve academic curricula and outcomes in Minnesota. First, school districts are created by and dependent on state government. On average, the state provides most of districts' revenue. Local districts exist only at the state's discretion. They may be called "independent," and they do serve local communities, but the Legislature bears most of the financial burden and has legal responsibility.

Second, Minnesota's school districts already function loosely as interdependent parts of a statewide educational system. Each contributes to the state's larger goals--as well as to the well-being of local communities. By establishing statewide standards, the system's overall success rate probably would improve.

A third consideration is that school districts' former direct relationship to communities already has been sundered by technological advances, recent legislation which gives choices to students and parents, and hundreds of inter-district agreements to provide athletics, low-incidence courses, and education support services. We saw that districts now are so intertwined that accountability is sometimes unclear. Also, some parents are disenfranchised by informal agreements between districts to trade education programs and enrollees.

Finally, we believe that the state's innovative measures to increase choice of enrollment sites carry imminent risks. Some districts will lose part of their enrollment base, and we are concerned for the remaining students. Without statewide standards, programs could be suddenly and dramatically reduced. In

effect, we suggest that the state weave a compensatory "safety net" for students who choose (or are compelled) to remain. Also, we believe that the development of statewide standards will help to prevent potential negative consequences of encouraging districts to compete for enrollees. Most can be expected to take the approach of improving their academic curriculum in order to keep or increase their enrollment base, but an equally plausible strategy is for districts to require only minimal academic classes and attract students by making graduation relatively easy.

Other Recommendations

Although we believe that statewide goal-setting, monitoring, and information disclosure are the best and most needed measures to help resolve problems in high school education, the Legislature might also consider the following recommendations which would address more specific situations.

First, after the Department of Education has upgraded its systems for monitoring and publicizing districts' compliance with statewide standards, we suggest:

- **The Legislature should direct the department to develop procedures to annually certify the adequacy and type of programs which are available in each district which serves students in grades 9 through 12.**

The state should certify school districts.

This measure would ensure that the Legislature, through its Department of Education, has carefully reviewed and documented the adequacy of Minnesota's various programs of high school instruction. In our view, it is undesirable and impractical to suggest that precisely equivalent programs will become equally available in every district. Rather, we believe that the Legislature can discharge its constitutional responsibility by ensuring that educationally sound programs are available statewide and acknowledging variations. Also, a certification system would have the practical benefit of further facilitating open enrollment and public involvement in education policy.

We suggest that a multi-tiered certification system be developed which would flag important differences in the level, source, and future opportunities associated with districts' various high school curricula. For example, the recognized terms "AA", "A", and "B" could be used to indicate variations in curriculum depth and teacher access as follows:

- **"AA" districts would routinely provide advanced and honors courses which meet selective private colleges' entrance standards. The curriculum would far exceed minimum requirements, and such districts would hire and rely on classroom teachers almost exclusively for instruction.**

- **"A" districts would meet minimum requirements without relying on alternative delivery systems. Programs would be sufficient to meet University of Minnesota-Twin Cities admissions standards for the College of Liberal Arts and Institute of Technology.**

- **"B" districts would use alternative delivery systems to meet minimum programming standards. To meet the College of Liberal Arts and Institute of Technology's curriculum recommendations, students would be required to take courses through interactive television, travel during the day to other districts, or enroll in post-secondary schools while in high school.**

Under the suggested certification system, other districts could operate high school programs with special permission of the State Board of Education. Separate certification could be provided for districts with only elementary or junior high school programs.

As a future goal, we suggest that Minnesota school districts should voluntarily become accredited and meet national standards such as those used by the North Central Association. As part of the accrediting process, districts would host full-scale peer reviews at least every four years. The peer reviewers would spend at least three days visiting accredited districts and would cover important elements of education besides the curriculum--for example, the physical plant, library, computer class facilities, learner outcomes, and staff development.

Districts with fewer than 100 high school students should be encouraged to reorganize.

Second, we recommend:

- **The Legislature should encourage gradual reorganization which would place at least 100 high school students (grades 9 through 12) in each district.**

We found that about 75 of the state's high school districts now have fewer than 27 students per grade (that is, half or one class section). Districts of this small size are costly to operate yet give students restricted choice of courses, reduced opportunity for student-teacher interaction, and few of the advanced courses which selective colleges recommend.

The Legislative Commission on Public Education already has established an Educational Organization Task Force which is considering future reorganization of school districts. Our findings suggest that the current organization of school districts does require change. With so many districts which have scant enrollment, it will be difficult for the state to ensure adequate high school curricula for all students. So, as the task force pursues its work, we suggest that enrollment and curriculum be considered as two critical elements for districts' healthy existence. In the meantime, we encourage the state's smallest districts to discontinue bare-bones or partial high school programs in favor of formal agreements with neighboring districts where curricula are richer.

Third, we suggest:

- **The Legislature should direct the State Board of Education to (1) select a national test of high school students' reading and mathematics achievement, (2) require that the test be administered annually to all 11th grade students in Minnesota school districts, and (3) establish minimum scores which students must achieve to graduate.**

We need a statewide uniform student test at least to ensure minimum reading and math skills and to check on district performance.

There are two reasons for this recommendation. First, as we showed in Chapter 7, local districts rarely ensure that graduates are in fact qualified to graduate. At a minimum, we believe students should demonstrate 11th grade reading and mathematics skills before receiving a diploma. Second, the test would provide useful aggregate information which could be shared by state and local leaders. Potential performance problems would be evidenced by the comparative test data which could be used easily by students, parents, educators, and policy makers.

In our evaluation, we gathered and analyzed test data from reasonably representative but limited sub-samples of Minnesota school districts. We found some evidence of potentially serious problems but, because of data limitations, concluded that further study is needed. Results were merely suggestive but troubling. Quite possibly, minority and other students have basic academic needs which require attention. We strongly encourage uniform testing to establish whether this is a true problem and, if so, to monitor the effectiveness of corrective actions.

Statewide test data in the areas of reading and mathematics also would improve the comparability of information on the Minnesota wall chart which was previously suggested. In time, actual test scores could replace the percentages who score in the top and bottom quartiles (which we suggested as initial indicators because they could be calculated for any national test which districts might use). Further, if standard test data revealed systematic differences in students' basic performance, the Department of Education could develop procedures to intervene in the same manner as it would enforce the state's new curriculum standards.

Although there is a risk that test data could be misinterpreted, we believe that Minnesotans are particularly well prepared to apply the results in a positive, responsible manner. As we showed in Chapter 3, 20 states already have implemented uniform statewide student testing programs, and Minnesota's education standards will remain weak if basic performance information remains out of reach.

Second, we believe that aggregate test results would further empower community members to improve education at the local level. We pointed out that districts already must publish test information in community reports, but many different tests are in use (making comparisons difficult). Our recommendation would reduce the large number of tests in current use and enable direct statewide and national comparisons in two broad areas of achievement which most would agree are essential--reading and mathematics. Of course, districts would continue their own programs of diagnostic and other testing, depending on individual needs.

As one possible alternative (or addition) to mandatory, uniform testing of reading and mathematics skills among Minnesota high school juniors, the Legislature could develop an incentive program which would (1) encourage districts voluntarily to use a single national test of basic academic skills and (2) reward districts for unusual improvements in their students' reading and mathematics achievement between 8th and 11th grade. The State Board of Education could recommend the test and performance criteria, but it would be districts' choice to participate. Incentive payments would be based on measurable improvements only on the selected test. We have learned that a similar performance incentive program already is working successfully in

South Carolina which is one of the few states to meet the President's test score challenge (to recover half the college admission test score losses which have been incurred since the 1960s). Also, we showed that a few other states now use achievement test results as the basis for targeted aid and state intervention if necessary.

Other Suggestions

During our evaluation, we found several additional aspects of education which could be improved as the state develops higher standards for curricula and outcomes. We believe changes in these areas would be generally consistent with the higher standards described above:

- **a longer instructional year,**
- **more time on academic courses, and**
- **more credits and academic courses for graduation.**

The Legislature should consider requiring a longer school year and district homework policies.

We showed in Chapter 4 that previous legislation had the effect of reducing Minnesota's required instructional year by five days (from 175 to 170). We found that many districts choose to operate more than 170 days per year, but some do not. Also, we found that Minnesota is one of only eight states which now requires fewer than 175 annual days of instruction annually. In contrast, *A Nation at Risk* strongly suggested that states should consider an instructional year of 200 to 220 days as well as a longer school day.

Because of variations among districts, the instructional year actually averages 173 days, so funding would be needed only for an additional seven annual instructional days. Based on the Department of Education's previous estimates, this would cost roughly $98 million or 3 percent of the state's total education spending for the 1986-87 school year. The department valued each day of school in Minnesota at about $14 million during the 1985-86 school year.[3]

Rather than a longer school day, we suggest that school districts develop and maintain high school homework policies and that the Department of Education ensure that the policies are implemented. As we discussed in Chapter 5, only eight percent of districts have established a policy on homework. This comes five years after the Department of Education studied the possibility of extending the school day but instead recommended that districts make voluntary efforts to improve the quantity and quality of instructional time. We found, further, that Minnesota's current percentage of districts with homework policies is far below national and regional levels of 32 to 47 percent.

In our opinion, action is now needed to increase the amount of time high school students devote to academic studies. District policies permit 90 percent of Minnesota students to spend five or fewer hours in class during the six-hour school day which the state already requires. By completing one hour of

3 Minnesota Department of Education, *Report on Extending the School Year*, 23.

homework each week night, the total amount of time most students spend with instructional materials would in fact be six hours. Moreover, the establishment of homework policies would have (1) the material effect of extending the school day without additional cost to the state or local communities and (2) the likely effect of enhancing students' academic achievement.

Finally, we suggest that the Legislature direct the State Board of Education to raise graduation requirements so that students in the future would complete at least two additional academic credits for high school graduation and devote the majority of their studies to the core academic subjects of English, social studies, mathematics, and science.

Graduation requirements should be raised.

Eighteen states have adopted policies which require high school students to take more than the 20 credits now needed for graduation in Minnesota. Of these 20 credits, students here must take the equivalent of four years of English, three years of social studies, only one year of mathematics, and only one year of science. The remaining instructional time--55 percent of the total 20 credits--can be spent on electives, physical education, and health. Correspondingly, we found that Minnesota high school curricula reflect the same pattern: less than half of all courses are in the four core academic areas.

Similar findings prompted the National Commission on Educational Excellence to recommend that state and local high school graduation requirements should be increased and refocused. We recognize that the State Board of Education now is considering a proposal which would bring Minnesota closer to this goal. However, the current proposal in our view is too modest. It would retain the current 20-credit requirement and increase mathematics and science requirements to two years each.

To be more consistent with Minnesota's national reputation as an education leader, we suggest considerably stronger measures such as those which other states (and some Minnesota school districts) already have adopted. For example, we encourage the state board to consider increasing the number of required credits from 20 to 22. Second, we believe that three years each of mathematics and science would be more appropriate than two. These were the amounts recommended by *A Nation at Risk* and already in effect for high school graduates this spring in Florida, Louisiana, and Pennsylvania.

In addition, we suggest that the state board seriously consider requiring students to complete four years of social studies for high school graduation. Only New York and Hawaii now have such a requirement, but our evaluation suggests that high school curricula are particular weak in this regard which, ironically, is the one suggested by the Minnesota Constitution as justification for the state's system of public education.[4]

Our social studies suggestion is based on three findings: (1) superintendents rate the strength of social studies curricula far below the other three core academic subjects, (2) secondary social studies test results have deterioriated markedly, and (3) Minnesota's greatest loss of points on the ACT has occurred in this subject. As we discussed in Chapter 7, research shows that the most direct route to improved performance on college admission tests is for students to complete more courses in relevant areas.

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4 "The stability of a republican form of government depending mainly on the intelligence of the people...", *Minn. Constitution*, Article XIII, Section 1.

Combined with the state's existing requirement of four years of English, the increased amounts of social studies, mathematics, and science which we suggest would mean that Minnesota high school students would complete 64 percent of their studies in the four core academic areas (that is, 14 of 22 total credits). In our view, this would leave an adequate eight credits in which to study other subjects yet focus high school curricula and students' attention more appropriately.

As we explained in Chapter 1, academic instruction is central to gainful employment, life satisfaction, and further education. Also, the changes in graduation requirements which we suggest would improve the overall efficiency of the state's education system. As this evaluation showed, most districts provide more than the necessary number of academic courses yet allow students to spend considerable time each day in other classes and non-instructional activities.

SUMMARY

Our suggestions would encourage considerable changes in some Minnesota communities. However, we are more concerned about the inequities which already have been borne by some Minnesota students--albeit the minority.

By the state's more careful review of the academic curricula and outcomes which school districts facilitate, our opinion is that the children of Minnesota ultimately would be better served. We also believe that some changes in education policy would make the state's innovative choice programs more effective and ultimately benefit the entire state.

The magnitude of our recommendations reflects our concern to find what we believe are considerable statewide problems and serious inequities for some students. We feel that strong state actions are the appropriate primary response, but do not mean to neglect the important role also of local districts. Together with the Legislature, Department of Education, State Board of Education, and Governor, we encourage educators to help establish stronger standards for high school education in Minnesota.

STATE AND NATIONAL COLLEGE ADMISSION TEST TRENDS

Appendix A

School Year	English	Math	Social Studies	Natural Science	Composite	Test Takers
MINNESOTA						
1966-67	20.1	20.9	22.0	22.4	21.5	32,038
1967-68	19.8	21.1	21.8	22.4	21.4	32,881
1968-69	20.0	21.7	22.0	22.8	21.8	34,729
1969-70	19.7	22.1	21.7	23.0	21.7	34,004
1970-71	19.4	21.3	21.0	22.7	21.2	33,108
1971-72	19.4	21.5	21.1	23.1	21.4	30,816
1972-73	19.5	21.5	20.7	23.3	21.4	29,523
1973-74	19.4	21.2	20.8	23.4	21.3	25,463
1974-75	18.8	20.4	19.7	23.3	20.7	15,119
1975-76	18.6	19.9	19.1	22.9	20.2	13,382
1976-77	18.7	19.8	19.4	23.1	20.4	14,543
1977-78	18.9	20.1	19.1	23.2	20.5	17,895
1978-79	18.9	20.1	19.3	23.2	20.5	20,315
1979-80	18.8	19.8	19.2	23.1	20.3	19,562
1980-81	18.6	19.8	19.3	23.0	20.3	18,938
1981-82	18.6	19.6	19.4	22.7	20.2	17,905
1982-83	18.6	19.5	19.3	23.0	20.2	17,839
1983-84	18.8	19.7	19.1	22.8	20.2	18,134
1984-85	18.8	19.5	18.8	23.1	20.2	17,635
1985-86	19.0	19.4	19.3	23.0	20.3	17,615
1986-87	18.9	19.4	19.0	22.9	20.2	20,119
1987-88	18.9	18.8	18.6	22.8	19.9	25,648
NATIONAL (10 percent sample)						
1969-70	18.5	20.0	19.7	20.8	19.9	---
1972-73	18.1	19.1	18.3	20.8	19.2	737,440
1973-74	17.9	18.3	18.1	20.8	18.9	739,950
1974-75	17.7	17.6	17.4	21.1	18.6	714,430
1975-76	17.5	17.5	17.0	20.8	18.3	691,660
1976-77	17.7	17.4	17.3	20.9	18.4	743,560
1977-78	17.9	17.5	17.1	20.9	18.5	769,770
1978-79	17.9	17.5	17.2	21.1	18.6	780,210
1979-80	17.9	17.4	17.2	21.1	18.5	822,200
1980-81	17.8	17.3	17.2	21.0	18.5	835,760
1981-82	17.9	17.2	17.3	20.8	18.4	804,520
1982-83	17.8	16.9	17.1	20.9	18.3	835,300
1983-84	18.1	17.3	17.3	21.0	18.5	849,560
1984-85	18.1	17.2	17.4	21.2	18.6	738,836
1985-86	18.5	17.3	17.6	21.4	18.8	729,606
1986-87	18.4	17.2	17.5	21.4	18.7	777,444
1987-88	18.5	17.2	17.4	21.4	18.8	842,322

Source: American College Testing Program, *Trend Tables for ACT-Tested Students.*

Table 1: American College Test Score Averages (ACT), 1966-88, Minnesota and National

	Verbal	Math	Total	Test Takers
MINNESOTA				
1971-72	509	547	1,056	6,307
1972-73	506	552	1,058	4,878
1973-74	512	556	1,068	4,257
1974-75	506	552	1,058	3,770
1975-76	504	557	1,061	4,103
1976-77	500	556	1,056	4,243
1977-78	497	550	1,047	4,671
1978-79	497	549	1,046	4,370
1979-80	491	544	1,035	4,814
1980-81	486	539	1,025	5,074
1981-82	485	543	1,028	4,983
1982-83	482	538	1,020	5,631
1983-84	481	539	1,020	6,623
1984-85	481	537	1,018	7,304
1985-86	482	540	1,022	7,764
1986-87	472	531	1,003	10,162
1987-88	470	531	1,001	9,911
NATIONAL				
1971-72	453	484	937	---
1972-73	445	481	926	---
1973-74	444	480	924	---
1974-75	434	472	906	---
1975-76	431	472	903	---
1976-77	429	470	899	887,267[a]
1977-78	429	468	897	989,307
1978-79	427	467	894	991,765
1979-80	424	466	890	991,514
1980-81	424	466	890	994,333
1981-82	426	467	893	988,680
1982-83	425	468	893	963,209
1983-84	426	471	897	964,739
1984-85	431	475	906	977,365
1985-86	431	475	906	1,000,748
1986-87	430	476	906	1,080,426
1987-88	428	476	904	1,134,364

Source: College Board.

[a]Estimate.

Table 2: Scholastic Aptitude Test Score (SAT) Averages, 1971-88, Minnesota and National

	Verbal	Math	Total	Test Takers
MINNESOTA				
1973-74	43.1	48.0	91.1	24,834
1974-75	42.7	48.5	91.2	24,623
1975-76	42.0	48.0	90.0	26,280
1976-77	41.0	46.8	87.8	27,859
1977-78	40.3	46.3	86.6	27,926
1978-79	40.9	46.9	87.8	28,189
1979-80	40.9	47.5	88.4	28,090
1980-81	41.2	47.3	88.5	28,216
1981-82	41.9	46.9	88.8	28,351
1982-83	41.9	46.8	88.7	26,962
1983-84	41.2	46.4	87.6	29,598
1984-85	41.0	46.0	87.0	29,775
1985-86	41.1	46.7	87.8	30,916
1986-87	41.3	46.5	87.8	32,721
1987-88	40.1	46.5	86.6	30,636
NATIONAL				
1973-74	41.8	45.5	87.3	---
1974-75	41.6	45.9	87.5	---
1975-76	41.0	45.5	86.5	---
1976-77	40.5	45.0	85.5	---
1977-78	39.9	44.2	84.1	1,137,017
1978-79	40.6	44.8	85.4	1,120,931
1979-80	40.3	45.3	85.6	1,115,819
1980-81	40.6	45.2	85.8	1,122,997
1981-82	41.5	45.1	86.6	1,103,759
1982-83	41.1	44.7	85.8	1,078,511
1983-84	40.9	44.7	85.6	1,136,955
1984-85	41.0	44.2	85.2	1,139,617
1985-86	40.9	45.0	85.9	1,161,791
1986-87	40.9	45.0	85.9	1,227,884
1987-88	40.4	45.0	85.4	1,201,827

Source: College Board.

Table 3: Preliminary Scholastic Aptitude Test Score (PSAT) Averages, 1973-88

	PSAT			SAT		ACT		Total High School
	Number	Percent	Total Juniors	Number	Percent	Number	Percent	Graduates
1966-67						32,038	52	61,415
1967-68						32,881	53	61,964
1968-69						34,729	53	65,858
1969-70						34,004	51	66,492
1970-71						33,108	50	66,560
1971-72				6,307	9	30,816	45	68,205
1972-73				4,878	7	29,523	43	68,220
1973-74	24,834	36	68,846	4,257	6	25,463	37	68,400
1974-75	24,623	33	74,443	3,770	5	15,119	21	70,768
1975-76	26,280	33	80,584	4,103	6	13,382	19	70,603
1976-77	27,859	35	79,392	4,243	6	14,543	20	72,283
1977-78	27,926	34	81,571	4,671	6	17,895	25	72,660
1978-79	28,189	36	78,334	4,370	6	20,315	28	71,339
1979-80	28,090	37	76,491	4,814	7	19,562	28	70,358
1980-81	28,216	41	68,802	5,074	7	18,938	28	68,443
1981-82	28,351	44	64,422	4,983	8	17,905	27	66,429
1982-83	26,962	41	65,415	5,631	9	17,839	28	63,113
1983-84	29,598	47	62,449	6,623	11	18,134	30	59,593
1984-85	29,775	48	61,691	7,304	13	17,635	31	57,530
1985-86	30,916	49	63,201	7,764	14	17,615	31	56,149
1986-87	32,721	51	63,867	10,162	18	20,119	35	57,757
1987-88	30,636	51	61,147	9,911	17	25,648	44	58,354[a]

Source: College Board, American College Testing Program, Minnesota Department of Education, Minnesota Higher Education Coordinating Board.

[a]Estimated.

Table 4: Minnesota College Admission Test Participation, 1966-88

DISTRICTS WHICH DO NOT PROVIDE FOUR FULL YEARS OF HIGH SCHOOL

Appendix B

Non-Operating Districts
- Franconia
- Prinsburg

Elementary Grades Only
- Alvarado
- Amboy-Good Thunder
- Barrett
- Beardsley
- Bird Island
- Biwabik
- Brewster
- Bricelyn
- Buffalo Lake
- Clarissa
- Clinton
- Danube
- East Chain
- Echo
- Fairfax
- Franklin
- Freeborn
- Garden City
- Gibbon
- Hendrum
- Kensington
- Lynd
- Magnolia
- Mazeppa
- Mentor
- Morton
- Motley
- Nett Lake
- Pine Point
- Russell
- Ruthton
- Sacred Heart
- Sanborn
- Sioux Valley
- Trimont
- Welcome
- Winnebago
- Winsted

Through Grade 9
- Askov
- Erskine
- Gilbert
- Grove City
- Heron Lake-Okebena

Grades 10 through 12
- Atwater
- Eveleth
- Lakefield
- McIntosh
- Sandstone

Districts Which Do Not Provide Four Full Years of High School, 1988-89

SUPERINTENDENT SURVEY

Appendix C

POPULATION

We sent surveys to superintendents in all Minnesota school districts that provided any portion of grades 9 through 12 during the 1987-88 school year. This involved 404 school districts.

We mailed the survey along with a cover letter explaining our purpose on April 20, 1988. About two weeks later we sent a follow-up letter and another survey to superintendents who had not yet responded. By June 27, 1988, we had received 392 usable responses, for a response rate of 97 percent.

Table 1 shows descriptive information for: (a) all school districts; (b) districts serving any portion of grades 9 through 12 during the 1986-87 school year; and (c) survey respondents. As the table shows, there are no major differences between survey respondents and the rest of the population. Therefore, it was not necessary to weight survey responses.

CODING

We found it necessary to adjust survey responses for two questions. First, we asked superintendents to specify the minimum number of credits needed to graduate from grades 9 through 12. Many superintendents, however, specified credits for grades 10 through 12. We adjusted these responses to reflect the number of credits needed in grade 9. In cases where this information was not apparent in registration materials or the student handbook, we simply added five credits to their response. (That is, the difference between the state's requirement for high schools with 9 through 12 programs and those with 10 through 12 programs.) In addition, we calculated credits on a one-year basis because many superintendents reported graduation credits in terms of semesters or quarters.

Second, we asked superintendents to specify the typical number of different high school courses (not sections) taught for credit on site daily in their district for English, mathematics, science, social studies, and the total across all areas of study. Some superintendents listed courses only for grades 10 through 12. We adjusted these to include those typically offered in the ninth grade. When this information was not apparent in course schedules or

	All Districts (n=436)	All High School Districts (n=410)	Superintendent Survey (n=392)
REGION			
North (1,2,3,5)	26%	26%	27%
Central (4,6,7)	30	29	29
South (8,9,10)	33	33	32
Twin Cities Suburbs	11	11	12
Twin Cities Proper	<1	<1	<1
CLASS SECTIONS			
1/2	6	2	2
1	17	18	16
2	29	30	29
3	13	14	15
4	8	8	9
5-6	8	9	9
7-10	7	7	8
>10	12	13	13
REFERENDUM LEVY			
Present	50	52	47
Absent	50	48	53
ADULTS WITH FOUR OR MORE YEARS OF COLLEGE			
<7%	29	28	27
7-10%	45	44	45
>10%	27	28	29
NONWHITE STUDENT ENROLLMENT			
0-2%	60	60	59
2-5%	25	25	27
5-100%	15	15	14
PROJECTED ENROLLMENT CHANGE 1986-1991			
<-5%	37	36	36
+ of -5%	39	40	40
>5%	24	24	24
INSTRUCTIONAL EXPENDITURES PER STUDENT			
$0-$1,800	32	30	31
$1,800-$2,050	40	42	42
>$2,050	28	29	28
PERCENT OF TOTAL OPERATING EXPENDITURES FOR REGULAR INSTRUCTION			
<45%	18	18	17
45-55%	61	62	61
>55%	22	21	22

Note: Percentages do not total 100 due to rounding.

Table 1: Profile of Minnesota School Districts Represented in Superintendent Survey

registration materials, we simply added one each to superintendents' English, science, and social studies figures, and two to their math figures if general math and algebra I were not offered for grades 10 through 12. To their total number of courses we added approximately seven (that is the number of courses usually provided only to ninth graders).

In addition, we found that some superintendents simply listed all courses shown in their registration materials, regardless of whether they were actually being taught that semester or quarter. In these instances, unless registration materials or course schedules indicated otherwise, we assumed that semester or quarter courses were offered only once during the year. Thus, each year course was counted as one, each semester course one-half, and each quarter course one-third.

A few items were confusing to superintendents, and we did not analyze the responses. These are noted on the following questionnaire.

EDUCATIONAL OPPORTUNITIES QUESTIONNAIRE
APRIL 1988

RESULTS

Responses Received April 20-June 27, 1988

From 392 of 404 Minnesota school districts with high school programs during the 1987-88 school year.

Please indicate first and last days of school for high school students in 1987-88:

Start ___/___/87 (MM DD) **End** ___/___/88 (MM DD)

General Instructions: Superintendents should complete one questionnaire per district regardless of the number of buildings where grades 9, 10, 11, and/or 12 are taught. Please answer only on behalf of your OWN district so that we can distinguish between courses provided on- and off-site.

1. **Checklist:** Please send the following documents along with your completed questionnaire by April 29, using the enclosed postage-paid mailing envelope.

   ____ 1986-87 and 1987-88 Course Listings or Registration Guides

   ____ 1986-87 and 1987-88 Registration Form

   ____ Student/Parent Handbook

   ____ 1986-87 PER Report and Printed Information Describing Any Special High School Programs

2. **Planned Changes: Are you making definite major changes which will increase or decrease the number or type of high school courses in 1988-89? Circle: 1. Increase 2. Decrease 3. No Change**

	1. Increase		2. Decrease		3. No Change		No Response	
	#	%	#	%	#	%	#	%
	134	34%	25	6%	200	51%	33	8%

If so, what type?

See detail, page 7.

3. **Follow-Up:** If questions arise in your absence, who can we contact for clarification (possibly during the summer)?

   Name, Position: _____

   Telephone: _____

4. **Superintendent Sign-off:**

   I certify that the data reported are complete and accurate to the best of my knowledge and belief.

   Signature: _____ Date: _____

Thank you for your participation.

OFFICE OF THE LEGISLATIVE AUDITOR
PROGRAM EVALUATION DIVISION
Veterans Service Building
St. Paul, Minnesota 55155
612/296-4708

NOTE: Percentages may not total 100 due to rounding.

I. First, please indicate how your district scheduled high school credit-bearing courses (grades 9-12) during 1987-88.

1. Daily Schedule

A. Instructional class periods scheduled per day: #_____

See detail, page 7.

B. Length of class periods excluding passing time: _____min.

Mean: 51 Median: 50 Min: 42 Max: 90

C. Maximum for-credit classes students MAY take daily: #_____

See detail, page 7.

D. Minimum for-credit classes students MUST take daily: #_____

See detail, page 7.

E. Length of student's school day excluding lunch:____hrs.,____min.

Mean: 377 Median: 375 Min: 360 Max: 420

F. Total additional time students are allowed to use district's instructional facilities daily: ____hrs.,____min.

(Omitted due to poor response)

2. Yearly Schedule

A. Total student contact days excluding parent conference days and teacher workshops: #_____

Mean: 173 Median: 174 Min: 140 Max: 180

B. Total teacher contract days: #_____

Mean: 181 Median: 181 Min: 145 Max: 194

C. Class hours needed to earn one credit: #_____

See detail, page 8.

D. Minimum credits needed to graduate: #_____

See detail, page 8.

E. Maximum correspondence credits which can be counted toward graduation: #_____

See detail, page 8.

NOTE: Mean = average, Median = 50th percentile, Min = minimum, Max = maximum

II. Next, we need some information about this spring's graduates and the high school (9-12) courses taught in your district during 1987-88.

1. Estimated total number of seniors graduating this spring: #_____
   Mean: 141 Median: 60 Min: 6 Max: 2,404
2. Estimated number of graduating seniors who plan to go to:
   A. 4-year college or university #_____
      Mean: 65 Median: 25 Min: 2 Max: 1,394
   B. 2-year college #_____
      Mean: 18 Median: 7 Min: 0 Max: 600
   C. Vocational school #_____
      Mean: 22 Median: 12 Min: 0 Max: 400
3. Graduating seniors who took either the ACT or SAT: #_____
   Mean: 69 Median: 25 Min: 0 Max: 1,300
4. Typical number of different SUBJECT preparations per high school teacher: #_____
   Mean: 3 Median: 3 Min: 0 Max: 6
5. Total number of advanced placement (AP) COURSES taught on-site in 1987-88: #_____
   Mean: 6 Median: 0 Min: 0 Max: 10
6. Typical number of different high school COURSES (not sections) taught for credit on-site daily in your district:
   A. English-related #_____
      Mean: 9 Median: 7 Min: 3 Max: 37
   B. Math #_____
      Mean: 8 Median: 7 Min: 1 Max: 31
   C. Science #_____
      Mean: 6 Median: 5 Min: 0 Max: 18
   D. Social studies #_____
      Mean: 7 Median: 5 Min: 2 Max: 22
   E. Total, all areas #_____
      Mean: 65 Median: 54 Min: 15 Max: 258

NOTE: Responses above are only for 380 districts with four full years of high school.

III. For these particular courses, please indicate whether your district has (or had) at least one 9-12th grader enrolled for high school credit in 1987-88. If so, check the box or boxes which tell where and how students took such courses.

FOR OFFICE USE ONLY

	Check if no high school enrollees in 87-88		YES By this method... 1. Students Stay At Own School: a. Class-Room Teachers		1. Students Stay At Own School: b. Tele-vised Courses		2. Students Sent Off-Site To: a. Another District		2. Students Sent Off-Site To: b. Post Sec. School		3. Credit By Other Means: Write In		No Response	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1. Computer Programming	10	3	378	96	0	0	8	2	14	4	3	1	1	<1
2. Calculus	181	46	184	47	5	1	9	2	32	8	6	2	1	<1
3. Trigonometry	34	9	334	85	7	2	12	3	10	3	6	2	1	<1
4. Geometry	8	2	379	97	0	0	4	1	5	1	3	1	1	<1
5. English or World Literature	8	2	383	98	2	1	5	1	34	9	3	1	1	<1
6. Advanced Comp. or Creative Writing	62	16	317	81	4	1	8	2	32	8	2	1	1	<1
7. Remedial or Corrective Reading	116	30	273	70	0	0	2	1	3	1	1	<1	1	<1
8. Art or Music History	107	27	272	69	0	0	10	3	23	6	2	1	1	<1
9. American Government	6	2	384	98	1	<1	2	1	27	7	1	<1	1	<1
10. Public Speaking	77	20	308	79	0	0	5	1	19	5	0	0	1	<1
11. Third-year Latin or foreign language	180	46	183	47	17	4	13	3	15	4	8	2	1	<1
12. Second-year biology	143	37	234	60	2	1	8	2	12	3	0	0	1	<1
13. Physics	42	11	326	83	5	1	18	5	12	3	0	0	1	<1
14. Chemistry	29	7	351	90	1	<1	12	3	12	3	0	0	1	<1
15. Economics	96	25	290	74	1	<1	3	1	25	6	3	1	1	<1
16. World History	40	10	348	89	2	1	3	1	17	4	4	1	1	<1
17. Sociology	103	26	279	71	2	1	4	1	29	7	4	1	1	<1

NOTE: <1 = .3. Percentages exceed 100 due to multiple responses.

IV. Has your district used these strategies to increase the number or type of credit-bearing, non-vocational courses ON-SITE for 9-12th graders in 1987-88?

				If Used: Check the subject area													
		Check if Not Used 1		English 2		Math 3		Science 4		Social Studies 5		Foreign Language 6		Other 9		No Response	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1.	Staggered teacher scheduling so that students took an extra class at start or end of the day.	339	87	18	5	7	2	7	2	9	2	10	3	22	6	8	2
2.	Teachers working part-time or on a shared basis to teach particular courses or subjects in your district.	110	28	75	19	49	13	47	12	38	10	156	40	133	34	7	2
3.	Classes by specially trained district teachers for college credit which is granted by a cooperating postsecondary school.	315	80	49	13	12	3	10	3	14	4	6	2	11	3	15	4
4.	Courses offered in alternate school years.	128	33	77	20	58	15	125	32	73	19	26	7	87	22	9	2
5.	High school honors, enriched, or "weighted" courses.	220	56	136	35	121	31	112	29	59	15	52	13	20	5	9	2
6.	Non-remedial summer-school academic classes for high school credit.	309	79	36	9	24	6	22	6	30	8	12	3	28	7	17	4
7.	Correspondence or extension courses for high school credit.	205	52	101	26	62	16	42	11	94	24	35	9	64	16	18	5
8.	Other (fill in method and subjects):	7	2	36	9	30	8	30	8	29	7	35	9	38	10	314	80
A.	_____																
B.	_____																

NOTE: <1 = .3. Percentages exceed 100 due to multiple response.

V. Do you have district-wide, general policies for high school homework and graduation? If so, please describe.

	YES #	YES %	NO #	NO %	Check if no set policy
1. Weeknight homework	31	8	361	92	☐
2. Minimum expectations for graduates:					
A. Reading level:	129	33	263	67	☐
B. Math level:	124	32	268	68	☐

If yes, fill in:

Amount: _____hrs. _____min.

_____grade-equivalent
See detail, page 9.

_____grade-equivalent
See detail, page 9.

In Minutes	#	% of 31
60	1	3
90	3	10
100	1	3
108	1	3
120	2	7
150	1	3
180	1	3
Not Spec.	21	68

3. Any other district-wide, established policies relating to academic performance necessary for graduation (describe):

See detail, page 9.

VI. Please indicate the importance of each factor to explain the number or type of high school (9-12) courses now available within or through your district.

	Check Degree of Importance: None 2 #	None 2 %	Little 3 #	Little 3 %	Some 4 #	Some 4 %	Much 5 #	Much 5 %	Critical 6 #	Critical 6 %	No Response #	No Response %
1. Student/parent demand	3	1	14	4	128	33	166	42	77	20	4	1
2. Faculty training/goals	4	1	28	7	122	31	192	49	43	11	3	1
3. State board requirements	1	<1	5	1	56	14	156	40	173	44	1	<1
4. Inter-district cooperation	57	15	78	20	137	35	92	24	27	7	1	<1
5. Financial resources	1	<1	15	4	92	24	145	37	139	36	0	0
6. Local board requirements	0	0	13	3	77	20	178	45	123	31	1	<1
7. Number of students enrolled	1	<1	8	2	84	21	185	47	113	29	1	<1
8. College entrance requirements	1	<1	13	3	137	35	189	48	52	13	0	0
9. Population characteristics	12	3	62	16	191	49	102	26	24	6	1	<1
10. Physical plant/buildings	17	4	108	28	185	47	65	17	17	4	0	0
11. Other (identify): _____	2	1	0	0	5	1	7	2	2	1	376	96

NOTE: <1 = .3. Percentages do not total 100 due to rounding.

VII. Which of these aspects of high school (9-12) academic instruction do you feel needs improvement in your district? (Note: Please also check the first box if your district currently does not have the following items.)

	(Don't have) 1		Check Degree of Need for Improvement: None 2		Little 3		Some 4		Much 5		Critical 6		No Response	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1. Textbooks/handouts	0	0	90	23	151	39	136	35	6	2	7	2	2	1
2. Classroom facilities	0	0	67	17	121	31	138	35	42	11	22	6	2	1
3. Computer lab	0	0	76	19	122	31	147	38	38	10	9	2	0	0
4. Media center	0	0	49	13	113	29	125	32	66	17	23	6	16	4
5. Library	0	0	67	17	117	30	130	33	57	15	16	4	5	1
6. Science lab	0	0	68	17	124	32	126	32	51	13	17	4	6	2
7. Language lab	0	0	44	11	64	16	89	23	62	16	9	2	124	32
8. Studio/performance areas	0	0	37	9	84	21	90	23	92	24	15	4	74	19
9. Art/design facilities	0	0	57	15	107	27	138	35	60	15	12	3	18	5
10. Other (identify): _____	0	0	1	<1	3	1	13	3	8	2	16	4	351	90

VIII. We would appreciate your identification of strengths and weaknesses in your district's high school (9-12) curriculum, including all methods of instruction.

	Identify Curriculum Weakness/Strengths													
	(don't have) 1		Very Weak 2		Weak 3		Accept-able 4		Strong 5		Very Strong 6		No Response	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
1. Foreign language	0	0	2	1	29	7	146	37	138	35	61	16	16	4
2. Computer education	0	0	1	<1	17	4	127	32	183	47	61	16	3	1
3. Science	0	0	1	<1	21	5	92	24	202	52	72	18	4	1
4. English	0	0	1	<1	9	2	103	26	199	51	78	20	2	1
5. Math	0	0	0	0	5	1	76	19	210	54	98	25	3	1
6. Social studies	0	0	4	1	16	4	159	41	174	44	37	9	2	1
7. Fine arts	0	0	10	3	50	13	172	44	123	31	33	8	4	1
8. Electives	0	0	1	<1	30	8	176	45	135	34	45	12	5	1
9. Other (identify): _____	0	0	2	1	11	3	6	2	11	3	11	3	351	90

This completes the questionnaire. Please enclose checklisted and other descriptive information about your district, and add comments if you wish.

Additional Comments	Code	Number	Percent
State should interfere less; request less duplicative information	1	3	1%
Cooperate with other districts to offer good curriculum	2	6	2
Small schools can have good curriculum and good environment	3	8	2
May pair or use ITV in future	4	10	3
Studying possible organizational/structural changes	5	2	1
Financial problems with current funding	6	8	2
Increasing graduation requirements	8	12	3
Miscellaneous/good questionnaire/feel free to call	9	23	6
No response	0	320	82

Type of Planned Change

Code		Number	Percent
1	Specific Courses	106	27
2	At-Risk Programs	2	1
3	Pairing-Sharing	14	4
4	Interactive TV (ITV)	19	5
5	International Baccalaureate	2	1
6	Staffing	2	1
7	Organization	13	3
8	Review Process	1	<1
9	Miscellaneous/studying possibility of making changes in future	13	3
19	Graduation Requirements	5	1
34	Pairing and ITV	1	
67	Staffing & Organization	1	<1
0	No Response	213	54

I.1.A. Instructional Class Periods Scheduled Per Day

Class Periods	Number of Districts	Percent
4	2	1
5	1	
6	39	10
7	297	76
8	52	13
9	1	

I.1.C. Maximum For-Credit Classes MAY Take Daily

Number of Classes	Number of Districts	Percent
4	2	1
5	1	<1
6	42	11
7	297	76
8	48	12
9	2	1

I.1.D. Minimum For-Credit Classes MUST Take Daily

Number of Classes	Number of Districts	Percent
4	7	2
5	130	33
6	237	61
7	18	5

I.2.C. Class Hours Needed to Earn One Credit (Recalculated from additional data)

Hours	Number	Percent
Less than 135	36	9
135-144	118	30
145-149	121	31
150-159	80	21
160 or more	37	9

I.2.D. Minimum Credits Needed to Graduate (Yearly Schedule)

Code	Credits	Number	Percent
1	Less than 20	3	1
2	20 to 21	82	21
3	21 to 22	95	24
4	22 to 23	116	30
5	23 to 24	50	13
6	24 to 25	39	10
7	25 to 26	3	1
8	26 or more credits	4	1

I.2.E. Maximum Correspondence Credits Counted Toward Graduation (Yearly Schedule)

Credits/Code		Number	Percent
0		65	17
.5		4	1
1.0		35	9
1.3		1	<1
1.5		2	1
2.0		32	8
3.0		20	5
3.5		1	
4		20	5
5		4	1
6		1	<1
7		1	<1
8		2	1
10		1	
44	Within Limits	1	
55	State Policy	2	1
66	No Policy	77	20
77	No Limit	41	11
88	Not Applicable	40	10
99	No Response	42	11

V.2.A. Minimum Reading Expectations for Graduates

Grade Level	Number	Percent of 90*
5	3	3
6	18	20
6.9	1	1
7	12	13
8	29	32
8.1	1	1
8.8	1	1
8.9	1	1
9	12	13
9.5	1	1
10	8	9
11	2	2
12	1	1

V.2.B. Minimum Math Expectations for Graduates

Grade Level	Number	Percent of 75*
6	8	11
7	4	5
7.1	1	1
8	31	41
8.1	1	1
8.9	1	1
9	16	21
10	10	13
11	2	3
12	1	1

V.3. Other Graduation Policies

Code		Number	Percent
1	Other	2	1
2	Percentile on Assurance of Mastery Test	39	10
3	Percentile on Another Test	19	5
4	Assurance of Mastery and Other Tests	6	2
5	In The Future	7	2
9	Miscellaneous/Graduation Credits/ Credits Per Subject Area	82	21
0	No Response	237	61

*Inappropriate responses to 2A (39) and 2B (49) are included in V.3. above.

SCHOOL DISTRICT PROFILES

Appendix D

	All Districts Except Twin Cities (n=434)	PSAT (n=173)	Planning and Background Survey (n=153)
REGION			
North (1,2,3,5)	26%	27%	26%
Central (4,6,7)	30	27	26
South (8,9,10)	33	34	35
Twin Cities Suburbs	11	13	13
Twin Cities Proper	0	0	0
CLASS SECTIONS			
1/2	7	3	3
1	17	22	20
2	29	32	35
3	13	14	13
4	8	8	9
5-6	8	4	4
7-10	7	5	6
>10	12	12	11
REFERENDUM LEVY			
Present	50	56	54
Absent	50	44	46
ADULTS WITH FOUR OR MORE YEARS OF COLLEGE			
<7%	29	29	27
7-10%	45	41	44
>10%	27	30	29
NONWHITE STUDENT ENROLLMENT			
0-2%	60	62	65
2-5%	25	24	23
5-100%	15	13	12

(continued)

Table 1: Profile of Minnesota School Districts Included in Post-High School Planning Program Samples

	All Districts Except Twin Cities (n = 434)	PSAT (n = 173)	Planning and Background Survey (n = 153)
PROJECTED ENROLLMENT CHANGE 1986-1991			
<-5%	37	38	39
+ or -5%	40	42	43
>5%	24	20	18
INSTRUCTIONAL EXPENDITURES PER STUDENT			
$0-$1,800	32	33	33
$1,800-$2,050	40	37	38
>$2,050	28	30	29
PERCENT OF TOTAL OPERATING EXPENDITURES FOR REGULAR INSTRUCTION			
<45%	17	18	17
45-55%	61	60	61
>55%	22	23	22

Note: Percentages do not total 100 due to rounding.

Table 1: Profile of Minnesota School Districts Included in Post-High School Planning Program Samples (continued)

	All Districts Except Twin Cities (n=434)	Reading (n=109)	Social Studies (n=128)	Math (n=150)	Science (n=108)
REGION					
North (1,2,3,5)	26%	21%	15%	18%	19%
Central (4,6,7)	30	34	35	35	35
South (8,9,10)	33	37	38	37	34
Twin Cities Suburbs	11	8	12	10	12
Twin Cities Proper	0	0	0	0	0
CLASS SECTIONS					
1/2	7	4	2	6	3
1	17	20	20	16	18
2	29	24	25	32	31
3	13	14	16	14	15
4	8	9	9	7	9
5-6	8	13	12	11	9
7-10	7	11	8	7	7
>10	12	6	8	8	10
REFERENDUM LEVY					
Present	50	51	57	49	56
Absent	50	49	43	51	44
ADULTS WITH FOUR OR MORE YEARS OF COLLEGE					
<7%	29	33	31	31	27
7-10%	45	43	50	44	47
>10%	27	24	19	25	26
NONWHITE STUDENT ENROLLMENT					
0-2%	60	67	70	70	60
2-5%	25	27	20	20	25
5-100%	15	6	10	10	15
PROJECTED ENROLLMENT CHANGE 1986-1991					
<-5%	37	30	31	30	34
+ or -5%	40	40	45	42	42
>5%	24	29	23	28	24
INSTRUCTIONAL EXPENDITURES PER STUDENT					
$0-$1,800	32	25	32	31	31
$1,800-$2,050	40	49	37	37	39
>$2,050	28	27	31	32	31
PERCENT OF TOTAL OPERATING EXPENDITURES					
<45%	17	14	18	15	18
45-55%	61	63	56	62	64
>55%	22	23	27	23	19

Note: Percentages do not total 100 due to rounding.

Table 2: Profile of Selected Districts Where 8th Grade MEAP Tests Were Given in Core Subjects, 1984-87

	All Districts Except Twin Cities (n=434)	Reading (n=100)	Social Studies (n=108)	Math (n=133)	Science (n=94)
REGION					
North (1,2,3,5)	26%	22%	20%	20%	18%
Central (4,6,7)	30	35	34	35	35
South (8,9,10)	33	38	38	36	38
Twin Cities Suburbs	11	5	7	9	9
Twin Cities Proper	0	0	0	0	0
CLASS SECTIONS					
1/2	7	2	1	5	2
1	17	20	17	19	17
2	29	30	32	30	29
3	13	15	18	15	18
4	8	11	8	12	7
5-6	8	12	12	9	13
7-10	7	5	6	4	9
>10	12	5	7	7	5
REFERENDUM LEVY					
Present	50	46	54	48	56
Absent	50	54	46	52	44
ADULTS WITH FOUR OR MORE YEARS OF COLLEGE					
<7%	29	34	30	35	31
7-10%	45	41	57	44	49
>10%	27	25	14	21	20
NONWHITE STUDENT ENROLLMENT					
0-2%	60	71	69	73	63
2-5%	25	20	24	17	26
5-100%	15	9	7	11	12
PROJECTED ENROLLMENT CHANGE 1986-1991					
<-5%	37	31	39	37	36
+ or -5%	40	45	40	37	38
>5%	24	24	21	26	26
INSTRUCTIONAL EXPENDITURES PER STUDENT					
$0-$1,800	32	25	29	29	29
$1,800-$2,050	40	50	43	41	44
$2,050	28	25	29	30	28
PERCENT OF TOTAL OPERATING EXPENDITURES					
<45%	17	12	13	12	14
45-55%	61	69	65	62	66
>55%	22	19	22	26	20

Note: Percentages do not total 100 due to rounding.

Table 3: Profile of Selected Districts Where 11th Grade MEAP Tests Were Given in Core Subjects, 1984-87

TABLE 4

PROFILE OF DISTRICTS WITH THREE OR MORE GRADUATES PROFILED BY FOUR PUBLIC UNIVERSITIES

			Districts With Three or More Graduates Who Enrolled as Freshmen			
			Fall 1986	Fall 1987	Fall 1986	
	All Districts (n=436)	All High School Districts (n=410)	Mankato State University (n=141)	Moorhead State University (n=82)	University of Minnesota--Twin Cities Campus (n=121)	1983-87 University of Wisconsin--Madison (n=38)
REGION						
North (1,2,3,5)	26%	26%	2%	31%	18%	3%
Central (4,6,7)	30	29	16	56	22	0
South (8,9,10)	33	33	54	4	23	18
Twin Cities Suburbs	11	11	26	10	35	74
Twin Cities Proper	<1	<1	1	0	2	5
CLASS SECTIONS						
1/2	6	2	<1	1	0	0
1	17	18	8	9	0	0
2	29	30	19	32	5	0
3	13	14	15	12	8	3
4	8	8	9	13	7	0
5-6	8	9	12	9	15	5
7-10	7	7	10	9	22	8
>10	12	13	27	16	43	84
REFERENDUM LEVY						
Present	50	52	54	37	49	74
Absent	50	48	46	63	51	26
ADULTS WITH FOUR OR MORE YEARS OF COLLEGE						
<7%	29	28	17	21	3	0
7-10%	45	44	39	52	29	0
>10%	27	28	44	27	68	100

Table 4, continued

	All Districts (n=436)	All High School Districts (n=410)	Districts With Three or More Graduates Who Enrolled as Freshmen			
			Fall 1986	Fall 1987	Fall 1986	
			Mankato State University (n=141)	Moorhead State University (n=82)	University of Minnesota--Twin Cities Campus (n=121)	1983-87 University of Wisconsin--Madison (n=38)
NONWHITE STUDENT ENROLLMENT						
0-2%	60	60	53	57	34	11
2-5%	25	25	33	24	41	50
5-100%	15	15	14	18	25	40
PROJECTED ENROLLMENT CHANGE 1986-1991						
<-5%	37	36	28	29	20	13
+ or -5%	39	40	37	49	35	16
>5%	24	24	35	22	46	71
INSTRUCTIONAL EXPENDITURES PER STUDENT						
$0-$1,800	32	30	35	28	36	42
$1,800-$2,050	40	42	44	54	43	37
>$2,050	28	29	21	18	22	21
PERCENT OF TOTAL OPERATING EXPENDITURES FOR REGULAR INSTRUCTION						
<45%	18	18	26	16	28	45
45-55%	61	62	53	62	58	45
>55%	22	21	22	22	14	11

Source: College admissions offices.

SELECTED PROGRAM EVALUATIONS

Insurance Regulation, January 1986	86-01
Tax Increment Financing, January 1986	86-02
Fish Management, February 1986	86-03
Deinstitutionalization of Mentally Ill People, February 1986	86-04
Deinstitutionalization of Mentally Retarded People, February 1986	86-05
Management of Public Employee Pension Funds, May 1986	86-06
Aid to Families with Dependent Children, January 1987	87-01
Water Quality Monitoring, February 1987	87-02
Financing County Human Services, February 1987	87-03
Employment and Training Programs, March 1987	87-04
County State Aid Highway System: Follow-Up, July 1987	87-05
Minnesota State High School League, December 1987	87-06
Metropolitan Transit Planning, January 1988	88-01
Farm Interest Buydown Program, January 1988	88-02
Workers' Compensation, February 1988	88-03
Health Plan Regulation, February 1988	88-04
Trends in Education Expenditures, March 1988	88-05
Remodeling of University of Minnesota President's House and Office, March 1988	88-06
University of Minnesota Physical Plant, August 1988	88-07
Medicaid: Prepayment and Postpayment Review - Follow-Up, August 1988	88-08
High School Education, December 1988	88-09
State Cost of Living Differences, Forthcoming	
Minnesota Housing Finance Agency, Forthcoming	
Access to Medicaid, Forthcoming	
Participation in Public Assistance Programs, Forthcoming	

Evaluation reports can be obtained free of charge from the Program Evaluation Division, 122 Veterans Service Building, Saint Paul, Minnesota 55155, 612/296-4708.

*These reports are also available through the U.S. Department of Education ERIC Clearinghouse.