Remedial Education

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A Program Evaluation Report

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STATE OF MINNESOTA
OFFICE OF THE LEGISLATIVE AUDITOR
JAMES R. NOBLES, LEGISLATIVE AUDITOR

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Members
Legislative Audit Commission

In May 1997, Governor Carlson raised two important questions about remedial education programs in Minnesota: How have schools used compensatory education revenues, and to what extent have schools implemented remedial education programs that help low-achieving students succeed academically? The State Auditor's Office addressed the first question in a report published in October 1997. The Legislative Audit Commission directed our office to conduct a study of the second question, focusing particularly on the programs for remediation used by primary and secondary schools throughout the state.

Our study found that many schools were making efforts to address the needs of students who were performing below grade level, although the overall results have been modest. Many schools have used one-on-one tutoring, shown by national research to be a promising strategy, and a smaller number of schools have implemented one or more research-based proprietary programs that employ tutoring. We set forth recommendations that we think will improve remedial education in the schools. We recommend better monitoring of schools by the Department of Children, Families & Learning, and suggest that the Legislature should consider allocating some portion of remedial funds based on measures of student need for remediation in addition to poverty.

We received the full cooperation of schools throughout the state and the Department of Children, Families & Learning. This report was researched and written by Jo Vos (project manager) and Steve Coleman, with assistance from Marilyn Jackson, Tara Jebens-Singh, and Josh Halverson.

Sincerely,

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SUMMARY

Besides funding basic and special education, government has provided revenue to help students whose academic achievement is below average for their grade in school. During fiscal year 1997, Minnesota school districts statewide received about $255 million in state and federal revenue for K-12 students' remedial education. Through the school funding formula, the Minnesota Legislature earmarked $132 million as ''compensatory revenue'' and another $39 million as ''targeted needs aid.'' The federal government provided an additional $80 million in Title I funds through the Improving America's Schools Act and about half a million dollars for homeless and new immigrant students.

Despite these large expenditures, more than one-fourth of Minnesota's public students failed either the eighth grade reading or math skills test given in 1996 and 1997 that the state now requires for graduation. As a result, in May 1997, the Legislative Audit Commission directed us to examine the remedial education services that school districts have provided.

Our evaluation addressed public school remedial education in grades K-12, regardless of funding source. For the purposes of our study, we defined remedial education broadly to refer to all strategies, programs, and services that schools routinely used to bring low-achieving K-12 students' academic performance closer to the standards for their grade in school. [1] We focused on the following major research questions:

- **How has state and federal support for remedial education changed over time, and how must that money be spent?**

- **How many students received remedial services during the 1996-97 school year? What kinds of remedial education programs and services have Minnesota schools provided?**

- **Does evidence suggest that Minnesota's remedial education programs and services have been effective?**

To answer these questions, we used information from a variety of sources. We analyzed average test scores for schools that received Title I funds during the 1995-96 school year and for schools that administered the Minnesota Basic

1 We excluded special education services delivered to students with individual education plans unless schools provided them with remedial education services in addition to special education.

Standards Tests in 1996 and 1997. We surveyed a sample of 659 elementary, middle, and secondary schools from around the state to learn what remedial education services have been provided to students, how many students participated, and whether there was any evidence of effectiveness. In addition, we interviewed staff from the Department of Children, Families & Learning, the University of Minnesota, and the U.S. Department of Education, and school administrators and teachers about remedial education. Finally, we reviewed the research literature to learn more about effective remedial practices and the experiences of other states.

TRENDS IN REMEDIAL EDUCATION FUNDING

The federal government became involved in remedial education in 1965 when it created Title I of the Elementary and Secondary Education Act. A component of President Johnson's War on Poverty, Title I was designed to address economic inequality by improving educational opportunities for children of poverty.

School districts receive remedial revenue from a variety of sources.

Minnesota's efforts to address the educational problems associated with poverty began in 1971 when the Legislature created the forerunner of what is now known as ''compensatory revenue.'' Since that time, the Legislature has refined and expanded its efforts to help ameliorate problems of poverty and the low achievement that is often associated with it. Over the last 10 years, the Legislature generally has expanded compensatory revenue to allow more districts to receive such aid and to change the basis of how that aid is calculated. Today, it represents the largest single source of state funds for remedial purposes.

In addition to compensatory revenue, at least three federal and three other state funding sources provided revenue to school districts primarily for remedial purposes during the 1996-97 school year. Federal revenue sources included: Title I, emergency immigrant grants, and homeless students. Other state revenue sources were: targeted needs revenue (which combines assurance of mastery, limited English proficiency, and integration grants), low-income concentration grants, and first grade preparedness. We found that:

- **Remedial education represents a small, but growing portion of the total operating revenue that school districts receive.**

From fiscal year 1988-89 through 1996-97, total school district operating revenue in inflation-adjusted dollars grew 31 percent compared with a growth in remedial funds of 64 percent. Remedial revenue as a percent of total operating revenue increased about 27 percent, going from 4.1 percent to 5.2 percent.

From fiscal year 1989 through 1997, total state and federal aid for remedial education increased 64 percent in constant dollars, going from about $155 million in 1989 to $255 million in 1997. During this same period, state revenue grew more than twice as fast as federal revenue: 83 percent compared with 35 percent.

In reviewing how districts could spend this revenue, we learned that:

- **For the most part, remedial education funds went to school districts with very little direction as to how that money should be spent.**

School districts must now spend state compensatory revenue on low-achieving students.

Although school districts generally received remedial funds based upon the number of students in poverty, the funds did not have to be spent on low-income students. Rather, statutes generally require that the money be spent on low-achieving students. While it was originally hoped that providing additional funds to districts would help offset or compensate for the effects of poverty on low-income students, the additional money must instead be used to compensate for regular instruction's inability to move all students along at grade level. However, most state funding for remedial education —compensatory revenue—did not even have to be spent on low-achieving students until the 1996-97 school year. Prior to that, districts could spend it for whatever they saw fit.

Not only do remedial funds not have to be spent on low-income students, but state laws allocating remedial education dollars give school districts considerable flexibility in how to spend remedial funds. Likewise, the federal government has loosened some of its restrictions on Title I expenditures. For the most part, districts can use remedial funds to provide a wide variety of services that may be directed at specific, low-achieving students or at the school as a whole. Services may be mainly academic, such as extra math or reading instruction either inside or outside the regular classroom or one-to-one tutoring, but may also include health, attendance, counseling, and safety programs.

WHAT WORKS?

In general, research has shown that remedial services funded through Title I have not been effective in closing the achievement gap between disadvantaged students and their nondisadvantaged peers. Most recently, the U.S. Department of Education issued its 1997 evaluation of Title I nationwide and reported that:

Nationwide, Title I-funded programs have not been effective.

- **Although Title I students made some progress, it was no greater than the progress of similar students who were not receiving remedial services funded through Title I.**

The department found that most of the variation among students in their level of achievement was related to individual or family characteristics, including family income, parental expectations, membership in a racial or ethnic group, limited-English proficiency, frequent changes in schools, disability, health problems, and having a single parent. Student participation in remedial activities that were paid for by Title I did not seem to have an effect on student achievement.

The U.S. Department of Education also looked at the characteristics of several Title I schools that performed better than other Title I schools. It found that the more successful schools usually grouped students by ability from first through sixth grades. They also had more experienced principals and less turnover among teachers, and there was more support for the school's mission by the community, parents, and teachers. In reading instruction, teachers emphasized comprehension along with the basics.

Another recent study looked at the effectiveness of several exemplary programs in a small number of Title I schools in high-poverty areas to see if these programs actually worked as expected. [2] The evaluation examined several nationally known programs, including the Comer school reform model, the Coalition of Essential Schools restructuring model for secondary schools, Success for All, Reading Recovery, the Paideia program, a computer-assisted program from the Computer Curriculum Corporation (CCC), and the METRA tutoring program. The evaluation also looked at a locally originated extended-year program and an extended-day program. Although the Reading Recovery programs involved too few students to analyze, results for the remaining programs showed that:

- **Of the alternatives evaluated, only the Comer reform model, Success for All, and METRA tutoring helped disadvantaged students.**

The remaining programs produced meager student progress at best, and in some schools student achievement declined. The evaluators also noted that student progress in any program was usually limited to the earliest grades.

Research supports one-on-one tutoring as the most effective remedial strategy.

Our review of educational research showed that only a few programs or strategies have consistently proven their worth in helping low-achieving students. We found that:

- **Substantial research evidence points to one-on-one tutoring by an adult to a student in the primary grades as the most effective remedial reading strategy. Tutoring by peers or older students can also be effective.**

Several highly structured reading programs for the early grades, such as Reading Recovery, Success for All, and Direct Instruction, have a tutoring component and have consistently demonstrated effectiveness. Small class sizes were also effective and seemed to be the only strategy where increased funding for schools had a demonstrable impact.

However, even in effective programs, most of the gains were made by students in the earliest grades; much less is known about the effectiveness of remedial programs at the middle school or secondary school level. The effectiveness of any program also depends on how faithfully it is implemented as designed, and the effectiveness of a program might be limited inadvertently by other situations in a school.

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2 U.S. Department of Education, *Special Strategies for Educating Disadvantaged Children--Final Report* (Washington, D.C., April 1997).

REMEDIAL EDUCATION SERVICES

Using data obtained from our survey of elementary, middle, and secondary principals in Minnesota, we estimated that:

About one-fourth of K-12 students received remedial services in 1996-97.

- **Approximately 24 percent of the state's public K-12 enrollment received remedial education at some time during the 1996-97 school year; another 2 percent needed services, but did not receive them.**

Student participation in remedial programs differed by school level (elementary, middle, and secondary) and the percentage of students in poverty, as measured by student eligibility for free or reduced-priced lunch. Perhaps because of their long association with Title I, we found that:

- **Elementary schools, especially those with higher rates of student poverty, provided remedial services to a greater percentage of their enrollment than middle or secondary schools.**

As shown in the table below, elementary, middle, and secondary school principals estimated remedial education participation rates of 33, 26, and 19 percent, respectively, during the 1996-97 school year. Elementary, middle, and secondary schools with higher rates of student poverty reported participation rates of 37, 31, and 21 percent respectively, compared with rates of 26, 20, and 17 percent in schools with lower rates of student poverty.

Also, remedial students in schools with higher rates of student poverty were more likely than remedial students in schools with lower rates of student poverty to have limited-English proficiency, frequent school changes, poor attendance records, little home support, or were likely to have received inadequate instruction

Student Participation in Remedial Education, 1996-97

Level	Percent of Enrollment that Received Remedial Services
Elementary Schools	33%
High-poverty schools	37
Low-poverty schools	26
Middle Schools	26
High-poverty schools	31
Low-poverty schools	20
Secondary Schools	19
High-poverty schools	21
Low-poverty schools	17

NOTE: The question was: "About what percentage of your students received remedial services at some time during the 1996-97 school year to help bring their academic achievement closer to standards for their grade level?"

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

earlier in their educational careers. These problems became more pronounced, that is, were reported affecting more students, as school level increased, regardless of students' poverty.

To learn how students were actually served by remedial programs, we asked school principals to estimate the percentage of their low-achieving students who received remedial services in a variety of methods. We learned that:

- **Most low-achieving students, especially those attending schools with higher rates of student poverty, received remedial services through a wide variety of methods to address their problems.**

Most elementary schools provided one-on-one tutoring.

Seventy-five percent of elementary schools reported that half or more of their remedial students received help from instructional aides in the regular classroom and 73 percent reported using small group instruction in the regular classroom. Also, 53 percent reported that half or more of their remedial students received individual tutoring by instructional aides, 48 percent reported having individual learning plans, and 46 percent reported that half or more of their students received small group instruction outside the regular classroom. In addition, elementary schools with higher rates of student poverty reported using significantly less individual tutoring by adult volunteers or peers (15 percent compared with 29 percent), but more individualized computer labs (49 percent compared with 39 percent) than schools with fewer students in poverty. As discussed earlier, one-to-one tutoring has been shown to be one of the most effective remedial methods, while the effectiveness of individualized computer instruction has been largely unproved.

In middle schools, 64 percent of the principals reported that half or more of their remedial students were assigned to an advisor, 57 percent reported that over half of remedial students had instructional aides in the classroom, and 53 percent reported that over half of remedial students received small group instruction within the regular classroom. Few middle school principals reported widespread use of individual tutors or computerized instruction.

No single method of remediation was dominant in secondary schools. Forty-seven percent of secondary principals reported that half or more of their remedial students had individual learning plans and 44 percent reported that the majority of remedial students received help via small group instruction in the regular classroom. Like their middle school counterparts, few secondary school principals indicated that individual tutoring was commonplace.

As discussed earlier, national research has shown that schools that used proprietary, research-based remedial strategies, such as Reading Recovery and Success for All, were more successful in remediating students than schools that relied on locally developed models. We found that:

- **Elementary schools, especially those serving higher percentages of students in poverty, were significantly more likely to use specific**

instructional programs developed by others for remedial education than middle or secondary schools.

Forty-three percent of the elementary schools compared with 29 percent of the middle and 8 percent of secondary schools reported using special, proprietary programs developed by others for remedial education. Also, elementary schools serving large proportions of students in poverty were also significantly more likely to be using such programs. Most frequently cited were: Reading Recovery, Higher Order Thinking Skills, Read Naturally, Computer Curriculum Corporation, and Success for All. Some of these programs, like Reading Recovery and Success for All, have been shown to be effective in national studies, while the effectiveness of others has yet to be proven on a large scale.

Finally, we questioned principals in schools that had students who failed one or more of the state's basic skills tests about what strategies, if any, they used during the 1996-97 school year to help these students. We found that:

- **Most schools were trying to address the needs of students who failed one or more of the Minnesota Basic Standards Tests.**

More than half of the schools reported giving students practice tests (81 percent), spending more time on basic skills (77 percent), sharing students' test scores with teachers (60 percent), holding summer schools (59 percent), and meeting with students and parents (56 percent).

Schools used many strategies to help students who failed graduation tests.

Elementary schools that had eighth-grade students were more likely than middle and secondary schools to develop individual learning plans for students. Along with middle schools, they were also more likely than secondary schools to extend the school day or have summer school to provide remedial services. On the other hand, secondary and middle schools were more likely than elementary schools to give their students practice tests to help them pass the basic skills tests.

PROGRAM EFFECTIVENESS

The Department of Children, Families & Learning does not collect data on the effectiveness of remedial programs in general. It does, however, collect limited data on remedial programs that are funded through Title I. To analyze the effectiveness of these programs in Minnesota, we compared the average pre- and post-test scores of Title I schools in Minnesota with national averages. Until 1996, schools receiving Title I funds had to test participating students before and after they received remedial services. We looked at test results for the three most recent school years for which data were available (from 1992-93 to 1994-95) for grades 3 to 5 for both reading and mathematics. [3] This analysis showed that:

3 Department of Children, Families & Learning, *System Performance Measure Report* (St. Paul, November 15, 1996); U.S. Department of Education, *State Chapter I Participation and Achievement Information 1992-93* (Washington, D.C., 1994); *State Chapter I Participation and Achievement Information 1993-94* (Washington, D.C., 1996), and *State Chapter I Participation and Achievement Information 1994-95* (Washington, D.C., forthcoming).

- **On average, student progress in Minnesota's Title I remedial programs was slight and no different than the national average; remedial services funded through Title I have not significantly reduced the achievement gap.**

The largest difference between Minnesota and the national averages in grades 3 to 5 over three years was 3.7 NCEs. [4] In only 4 of 18 comparisons by subject, year, and grade did the difference between Minnesota and the national averages exceed 2 NCEs. While Title I students did show some progress, their test scores increased only slightly —not nearly enough to bring them up to grade-level standards. Overall, Title I programs have been judged to be ineffective nationally and the same can be said about Title I programs in Minnesota.

Nevertheless, some Minnesota schools have reported better results than others. In looking at what distinguished the more successful schools from the less successful ones, we found that:

Attendance was most strongly related to student achievement.

- **School attendance was strongly related to average school pretest results in reading and math in programs funded by Title I.**

The average reading test NCEs of third graders were about 1.5 higher in a school for every percentage point higher rate of school attendance; results for mathematics were similar. While this result does not mean that schools' test scores will automatically go up if attendance improves, on average, schools with better attendance had better test scores. The percentage of students eligible for a free or reduced-priced lunch was not significantly related to the Title I test scores.

We did a similar analysis on school and district average test scores on the Minnesota Basic Standards Tests in reading and math and found that:

- **Average scores on the 1997 Minnesota Basic Standards Tests in reading and mathematics were also strongly related to school and district attendance rates.**

Attendance had the strongest relationship with average school test scores of the variables that we examined. For every percentage point higher attendance rate, average school and district reading and mathematics scores were about 0.8 points higher. We found a much weaker relationship for poverty. For every percentage point higher rate of students eligible for subsidized lunch, average scores were about 0.1 points lower.

EFFECTIVE REMEDIAL PROGRAMS IN MINNESOTA

In general, we found that:

4 Test results are expressed in terms of ''normal-curve equivalents'' or NCEs, which range from 1 to 99 and can be compared across tests, years, and student populations.

- **Schools, especially elementary schools with higher rates of student poverty, have responded to the needs of remedial students, although overall measurable results have usually been small.**

Few elementary schools used remedial programs of proven effectiveness.

According to our review of the research literature, two remedial reading programs currently used by a small number of Minnesota schools have a proven record of effectiveness: Reading Recovery and Success for All. Our own analysis of Title I post-test scores also found that Reading Recovery had a positive impact. Yet our survey results, weighted to reflect statewide numbers, showed that only about 11 percent of elementary schools were using either of these programs during the 1996-97 school year. While another 10 percent of schools were using other ''packaged'' programs that may hold some promise, we did not have sufficient information on their effectiveness.

In contrast to the findings of national research, we observed that:

- **Although many schools, especially elementary schools, reported that they gave individual tutoring to low-achieving students, our analysis did not find evidence of effectiveness for tutoring in schools where students received Title I services or took the basic standards tests.**

Ineffective tutoring might be due to the fact that schools generally used instructional aides rather than licensed teachers for one-to-one tutoring, and these aides may have needed more training and supervision. A 1997 survey by the Department of Children, Families & Learning of over 1,800 paraprofessionals in schools throughout the state found that 49 percent of remedial aides had no degrees beyond a high school diploma or its equivalent. [5] Moreover, only 39 percent of remedial paraprofessionals reported that they had any non-student contact planning time with licensed staff, even though about half of remedial aides reported that their typical activities included designing and preparing student instructional activities, modifying or adapting classroom curriculum, and designing individualized instructional plans for students.

We also examined average school scores on the basic skills tests in relation to remedial practices identified on our survey, while taking into account other variables, such as the school's attendance and poverty rates. We found that:

- **Several practices that are likely to have a positive effect with achievement were being widely used in schools.**

Schools reporting a higher percentage of students in classes with instructional aides in regular classrooms had slightly higher average scores on the basic standards tests, as did schools that gave their students practice tests. We found that 52 percent of schools had instructional aides serving half or more of the low-achieving students, and practice tests were given in 81 percent of schools that had students who failed the basic standards tests. Among schools with a majority of students failing the basic standards test in reading, 56 percent were offering a

5 Department of Children, Families & Learning, *Characteristics and Training Needs of Paraprofessionals in Minnesota* (St. Paul, March 1997).

summer remedial program, compared with 45 percent where the majority of students passed the test. Schools where more students chose not to participate in the remedial program had slightly lower reading scores on the basic standards tests.

Many schools have implemented practices to increase achievement, but results have been limited.

At the elementary level, extra instructional time was "strongly" emphasized in 35 percent of schools in our survey. Our analysis found that this practice was positively related to the reading progress of third-grade students receiving Title I services. Schools that had a Reading Recovery program also had a positive relationship with reading progress in Title I programs. There were too few schools in the survey that used Success for All or other reading programs, however, to do a statistical analysis of their effectiveness.

Finally, we found that:

- **Many schools were also working to improve attendance —a policy that our research supports —although our analysis does not prove a cause-and-effect link between attendance and achievement.**

For example, the St. Paul School District voted in 1997 to spend up to $500,000 on staff and programs to increase attendance at all school levels. St. Paul had recently discovered that about 40 percent of students had missed at least 15 days of school in the 1995-96 school year. [6]

RECOMMENDATIONS

Remedial education is both a state and local responsibility. The state and federal governments have long provided extra funds to school districts to help low-achieving students, usually based upon some measure of student poverty. However, there has generally been no state requirement to provide remediation to students, no state definition of who must receive such help, and no consistent measure of achievement to identify low-achieving students.

Although schools are supposed to use remedial education revenue to increase student achievement, schools and districts do not receive remedial funds based on a direct measure of student achievement. Currently, most remedial aid, both state and federal, is based on a measure of poverty; that is, the percentage of students who are eligible to receive a subsidized lunch. Our analysis showed that this measure of poverty had, at most, a moderate, negative relationship with student achievement, as measured by average Title I and Minnesota Basic Standards Tests scores.

Furthermore, we did not find a strong relationship between poverty and participation in remedial programs. In elementary and middle schools, only 25 percent of the variation in the percentage of students who were receiving remedial

6 Maureen Smith, "St. Paul Schools Decide How to Spend Attendance Money," *Star Tribune*, October 21, 1997, B5.

services was related to the level of student poverty in schools. The link between poverty and remedial students dropped to 4 percent in secondary schools.

Finally, for schools administering the Minnesota Basic Standards Tests, we found no relationship between student participation in remedial programs and student achievement, as measured by average test scores or passing rates. Schools with low passing rates on the basic skills tests did not tend to provide remedial services to a greater percentage of their enrollment than schools with higher passing rates.

Taken together, the overall lack of strong relationships between poverty, participation, and achievement suggest that, if revenue for remediation is allocated strictly in terms of student poverty at the building level, particularly at the secondary level, schools may not receive remedial revenue in proportion to their students' needs, as currently identified. Therefore, we recommend that:

- **Working with the Department of Children, Families & Learning, the Legislature should consider distributing some portion of remedial funds based upon measures of student need for remediation rather than poverty.**

Allocating funds solely based on the level of poverty may not target those needing remediation.

This might be done by means of students' scores on standardized achievement tests, such as those planned under the state's new education accountability system. The 1997 Legislature directed the Department of Children, Families & Learning to develop a statewide testing and reporting system that includes testing all third, fifth, and eighth grade students annually. [7] The department expects to begin testing third and fifth graders in February and March of 1998 using the Minnesota Comprehensive Assessment Test, which will measure student progress along state standards. Thus, consistent statewide data will be available to help identify how many students may need remediation, at least beginning in the third grade.

It should be noted that the Department of Children, Families & Learning is currently examining various ways to link performance and funding. The 1997 Legislature directed that the department, in consultation with the State Board of Education and other stakeholders, recommend to the Legislature performance funding options for successful and at-risk schools, to be implemented during the 1999-2000 school year. [8]

Regardless of how districts or schools receive remedial education funds, the money must be spent effectively if the state hopes to raise the academic achievement of students performing below grade-level standards. Although a small number of schools have implemented remedial programs of proven effectiveness, much more could be done statewide. Thus, we recommend that:

- **The Department of Children, Families & Learning should use its new education accountability system to monitor and report on schools' efforts to ensure that all students are meeting grade-level standards.**

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7 *Minn. Laws* (1997), ch. 138.

8 *Minn. Laws* (First Special Session, 1997), ch.4, art. 5, sec. 25.

The state should monitor schools' remedial efforts and effectiveness.

Our evaluation did not examine the Department of Children, Families & Learning's role in assuring that schools identify low-achieving students and provide them with effective remedial services. However, with the advent of the state's new education accountability system, the department will be in a unique position not only to track school performance, but to also identify schools that are making better or worse than expected progress in having all students performing at grade-level standards. The department should be able to use these data to encourage schools to adopt promising remedial methods.

Finally, we recommend that:

- **Whenever possible, schools should adopt remedial methods that have proven to be effective elsewhere rather than use locally-developed strategies of unknown effectiveness.**

We encourage the Department of Children, Families & Learning to provide technical assistance to schools to help them judge the merits of various remedial strategies that have been shown to be effective elsewhere and help schools implement those that seem appropriate. Also, the department should help schools routinely evaluate the effectiveness of their remedial programs.

Additional funding may not be needed.

We do not think it is necessary to provide increased funding for remedial programs to encourage greater use of proven remedial methods. As we pointed out earlier, districts already receive most remedial revenue with few strings attached. Adopting proven methods of remediation and discarding unproved or ineffective methods are possible within current funding levels. As noted earlier, 10 to 20 percent of elementary schools used some proprietary remedial packages of proven effectiveness during the 1996-97 school year, with more schools planning to implement them during the 1997-98 school year.

Finally, our study, as well as other recent reports on school districts' use of compensatory revenue, have pointed out the wide array of activities for which school districts may spend remedial revenue. Our review of the literature suggests that the list of activities may be excessively broad, especially at the elementary level where considerable research has already been done on effective remedial programs. However, because less is known about the effectiveness of various remedial strategies for older students, we think that it may be difficult for the Legislature to mandate specific remedial services or programs for all grade levels. At the same time, if the Department of Children, Families & Learning uses its new education accountability system to monitor and report on schools' progress in assuring that all students are meeting state standards, school districts will be under greater pressure to adopt proven methods and discard unproven ones.

Introduction

Besides funding basic and special education, government has provided revenue to help students whose academic achievement is below average for their grade in school. During fiscal year 1997, districts statewide received about $255 million in state and federal revenue for K-12 students' remedial education. Through the school funding formula, the Minnesota Legislature earmarked $132 million as ''compensatory revenue'' and another $39 million as ''targeted needs aid.'' The federal government provided an additional $80 million for the complementary Title I program through the Improving America's Schools Act and about half a million dollars for homeless and new immigrant students.

Despite these large expenditures, more than one-fourth of Minnesota's public students failed either the eighth grade reading or math skills test given in 1996 and 1997 that the state now requires for graduation. As a result, in May 1997, the Legislative Audit Commission directed us to examine the remedial education services that school districts have provided.

Our evaluation addresses public school remedial education in grades K-12, regardless of funding source. For the purposes of our study, we defined remedial education broadly to refer to all strategies, programs, and services that schools routinely used to bring low-achieving K-12 students' academic performance closer to the standards for their grade in school. [1]

We used this definition for two main reasons. First, the definition is funding source neutral. As we show in Chapter 1, school districts receive revenue for remedial services from a variety of sources. Second, the definition encompasses the entire range of strategies that schools may use, from individual or group services for specific low-achieving students to schoolwide reforms that affect the entire school population.

Our study focused on the following major research questions:

- **How has state and federal support for remedial education changed over time, and how must that money be spent?**

1 We excluded special education services delivered to students with individual education plans unless schools provided them with remedial education services in addition to special education.

- **How many students received remedial services during the 1996-97 school year? What types of students received remedial services?**

- **What kinds of remedial education programs and services have Minnesota schools provided? Are these programs, services, and delivery methods consistent with what research has identified as generally effective educational practices?**

- **How have districts responded to some students' failure to pass the eighth grade reading or math tests?**

- **Does evidence suggest that Minnesota's remedial education programs and services have been effective? How much have students' reading and math skills typically improved? How has this compared with national averages?**

To answer these questions, we used information from a variety of sources. We collected descriptive data about school districts, schools, and students from the Department of Children, Families & Learning. We analyzed average test scores for schools that received Title I funds during the 1995-96 school year and for schools that administered the Minnesota Basic Standards Tests in 1996 and 1997. We surveyed a sample of 659 elementary, middle, and secondary schools from around the state to learn what remedial education services have been provided to students, how many students participated, and whether there was any evidence of effectiveness. In addition, we interviewed staff from the Department of Children, Families & Learning, the U.S. Department of Education, and the University of Minnesota, and school administrators and teachers about remedial education. Finally, we reviewed the research literature to learn more about effective remedial practices and the experiences of other states.

We documented how schools have tried to help low-achieving students.

For the most part, our study focused on services that schools provided to students during the 1996-97 school year, including summer school, regardless of how the programs were funded. While we documented how schools have tried to help students who were performing below grade level, we have not examined the adequacy of the remedial or regular education curriculum or the overall quality of schools or teachers. Also, because the vast majority of students are served in regular K-12 schools, we concentrated on regular schools and excluded charter schools and other alternatives such as area learning centers. Similarly, time limitations kept us from looking at preschool programs, even though research indicates that early experiences are crucial to children's readiness to learn and later success in school. Finally, we have not documented how school districts specifically spent state and federal aid that they received for remedial purposes. In May 1997, the Governor asked the State Auditor's Office to determine how school districts have accounted for and spent the money that the Legislature has provided as compensatory revenue, the largest source of remedial funds. That report was issued in October 1997 and is briefly discussed in Chapter 1. [2]

2 Office of the State Auditor, *Compensatory Education Revenue Survey* (St. Paul, October 1997).

This report has four chapters. Chapter 1 provides background information on remedial education and examines how revenues for it have changed over time. Chapter 2 presents our review of the literature concerning the effectiveness of various remedial education strategies and approaches. Chapter 3 describes the services that Minnesota schools provided to low-achieving students during the 1996-97 school year. Finally, Chapter 4 examines the effectiveness of remedial education programs in Minnesota schools.

Background

CHAPTER 1

Minnesota has traditionally enjoyed a strong national reputation for public education. Since the early 1980s, the Legislature has passed many innovative, voluntary programs directed at school districts, students, teachers, and administrators. High ACT and SAT test scores and the large percentage of high school graduates pursuing further education generally reinforced the state's lofty public image.

At the same time, questions have been raised about schools' ability to serve all students. Since the 1980s, the private sector has expressed concerns about the academic skills of many high school graduates. Also, postsecondary schools have, over the years, added more remedial services to better prepare incoming students for entry-level college courses. Most recently, an alarmingly high number of students have been unable to pass the state's eighth grade basic skills tests that will be necessary for graduation in the year 2000.

This chapter presents some general background information on state and federal efforts to bring the academic performance of low-achieving students closer to the standards for their grade in school, which we refer to simply as ''remedial education.'' It focuses on the following questions:

- **How has state and federal support for remedial education changed over time? How much money have school districts received for remedial education?**

- **To what extent do state and federal laws dictate how that money must be spent?**

To answer these questions, we examined state and federal legislation that provided funds to school districts to help low-achieving students. We collected data on the amount of revenue school districts have received for remedial education since fiscal year 1989. We focused on revenue rather than expenditures for three major reasons. First, the State Auditor's Office conducted a separate study of how districts have spent certain compensatory revenue from the state, and we did not want to duplicate those efforts. Second, as we explain later, school districts receive revenue for remedial education from a variety of sources that generally do not dictate exactly how that money must be spent. In addition, districts may spend general education revenue or local funds for remedial education. Third, the accounting system used by school districts, the Uniform Financial Accounting and

Reporting Standards (UFARS), does not require that districts specifically identify all expenditures made for remedial purposes. [1] Therefore, it would be difficult, if not impossible, to isolate remedial expenditures.

Overall, we found that both state and federal government have helped to finance school districts' remedial education efforts for over 25 years. The U.S. Congress passed Title I legislation as part of the Elementary and Secondary Education Act in 1965 and the Minnesota Legislature created the forerunner of today's compensatory revenue in 1971. Over the last several years, the Legislature has appropriated increased amounts of money for remedial education for low-achieving students, generally based upon some measure of student poverty. However, there is no statewide measure of how many students actually need remediation. At the same time, the Legislature and the federal government have given districts considerable flexibility in how to spend that money.

SHORT HISTORY OF REMEDIAL EDUCATION

The federal government created Title I in 1965.

The federal government became involved in remedial education in 1965 when it created the Title I program as part of the Elementary and Secondary Education Act.[2] One component of President Lyndon Johnson's War on Poverty, Title I was designed to address economic inequality by improving educational opportunities for children in poverty. Research as early as the mid-1960s had shown a close relationship between poverty and academic achievement--children from wealthier families generally performed better in school than children from poorer families. This academic edge presumably gave wealthier students increased access to postsecondary schools and, ultimately, to better jobs. To help poor students close the gap, Title I provided additional resources to school districts based on the number of children living in poverty. The hope was that extra, supplemental aid for schools that served children of poverty would increase student achievement and, later, overall income, thereby breaking the cycle of poverty. However, low-achieving students with the greatest academic deficits, regardless of family income, were eligible for Title I services.

With each reauthorization, Congress refined Title I's overall approach to remediation. In the beginning, school districts generally used Title I funds to provide remedial math and reading services to eligible elementary students outside the regular classroom. By the late 1980s, the federal government began to stress curriculum coordination, encouraging schools to deliver more remedial services within the regular classroom. Also, the federal government began to

1 Our 1989 study, *School District Spending*, raised serious questions about the reliability and validity of UFARS spending data. See: Office of the Legislative Auditor, *School District Spending* (St. Paul, 1989). More recently, the State Auditor's Office found that schools were not consistentl y using the required UFARS accounting codes to record compensatory revenue expenditures. See: State Auditor, *Compensatory Revenue Survey.*

2 Congress renamed the Title I program Chapter I in the mid-1980s, but then changed its name back to Title I in the 1990s. For the purposes of our research, we refer to the program as Title I, regardless of the year discussed.

allow schools with 75 percent or more of their students from low-income families to implement ''schoolwide'' projects, which let these schools spend Title I funds on a wider variety of services directed at the entire school, not just individual students. By the mid-1990s, the federal government lowered the cutoff point for schoolwide projects from 75 percent of children in poverty to 50 percent to encourage even greater participation. Districts were urged to align Title I services with their regular curriculum by requiring that disadvantaged students meet the same high standards as other students. In addition, the federal government encouraged schools to use Title I funds to add extra instructional time for low-achieving students with extended-day or -year programs or summer school.

Minnesota's own efforts to address the educational problems associated with poverty began in 1971 when the Legislature created the forerunner of what is now known as compensatory revenue. ''To meet the problems of educational overburden caused by broken homes, poverty and low income . . . , '' the Legislature began to appropriate additional foundation aid to school districts based on the number of their students from families who received Aid to Families with Dependent Children (AFDC). [3] All districts received some additional revenue under this formula, although the funds were not tied specifically to any program, set of services, or eligible population. Furthermore, there was no requirement that the money be passed on to the schools where the students from low-income families were actually being educated.

All districts can receive compensatory revenue.

Since that time, the Legislature has repeatedly refined and expanded its efforts to help ameliorate problems of poverty and the low-achievement that is often associated with it. As shown in Figure 1.1, the 1987 Legislature removed AFDC pupil units from the measure of total pupil units and created a separate category called compensatory revenue. Initially, districts had to have at least 6 percent of their students from families that received AFDC to qualify for compensatory revenue. This reduced the number of districts receiving aid from 432 in the 1987-88 school year to 151 in the 1988-89 school year. However, the 1991 Legislature changed how compensatory revenue was computed and began to phase in a new formula in which all districts with eligible students could receive compensatory aid.

Although the Legislature has always appropriated compensatory revenue based on some measure of student poverty, the Legislature has never required districts to spend the funds on low-income students. When the Legislature first created compensatory revenue in 1987, it required districts to spend this aid on low-achieving students only, although the money could be spent on a very wide variety of services. However, one year later the Legislature removed the requirement that the money had to be spent on low-achieving students and instead made it permissive. School districts were allowed to spend funds as they saw fit until the 1996 Legislature once again mandated that compensatory revenue be spent only on services for low-achieving students.

However, it was not until 1997 that the Legislature required that districts allocate compensatory revenue to the schools where the low-income students who

3 *Minn. Laws* (1971), ch. 31, art. 20, sec. 2.

Figure 1.1: Major State Legislation Related to Remedial Education

1987

- The Legislature overhauls the state education aid program and creates compensatory revenue as one category of general education revenue. Districts with at least 6 percent of their students from families receiving AFDC can receive compensatory revenue which must be used only for services for low-achieving students.
- School districts under desegregation orders from either the courts or the Minnesota State Board of Education are given authority to levy for related costs; state funds are also made available for this purpose.

1989

- Assurance of mastery program created to provide additional math and/or communications services in the regular classroom to low-achieving K-8 students.
- The Legislature removes statutory language that requires districts to spend compensatory revenue on low-achieving students.

1991

- The Legislature adopts a new compensatory revenue formula that makes all districts eligible to receive compensatory revenue, to be phased in beginning 1992-93 through 1994-95.
- State funds matching local assurance of mastery funds become available to school districts. Assurance of mastery program expanded to include 9-12 students if the needs of K-8 students are being appropriately met.

1994

- The low-income concentration grant program created to provide aid to schools that have a high concentration of low-income students compared with the district as a whole.

1995

- The targeted needs program created by combining revenue from three programs (limited-English proficiency, integration aid, and assurance of mastery) and delineating how these funds may be spent.

1996

- The first-grade preparedness program created to ensure that all children have opportunities to develop the skills needed to read and succeed in school before entering first grade.
- The Legislature requires that districts spend compensatory revenue only on services to meet the needs of low-achieving students.

1997

- The Legislature revises the compensatory revenue formula so that districts receive aid based on the number of students in each building who are eligible for free or reduced-priced lunch and requires that funds follow students to the building level. The options of how compensatory revenue may be spent are extended, and school site teams must recommend how to spend the money.
- Targeted needs program to be phased out in 1998-99 and replaced with the basic skills revenue program.
- All students in grades three, five, and eight must be tested annually with a single, statewide test for the purpose of accountability.
- The learn and earn program created for students who live or attend schools in high crime or poor neighborhoods. Students receive compensation for completing learning components and hours spent learning, with an equal amount of money put into a postsecondary account for them.
- The early intervention reading challenge program created to provide grants to train teachers and provide intense reading instruction for children who are having difficulty learning to read.
- Districts may be financially responsible for some students who need remedial services in postsecondary schools.
- Additional state aid made available for homeless students who are eligible to participate in the graduation incentives program.

generated the revenue were being educated. As shown in Figure 1.1, beginning with the 1997-98 school year, districts receive aid based on the number of students in each school building who are eligible to receive free or reduced-priced lunch, a count that is usually greater than the number of children from families who receive AFDC. Funds must follow each student to the building level so that each building is guaranteed funds based upon its population of students in poverty. Furthermore, school site teams must recommend how to spend the money on services for low-achieving students. Previously, district administration was free to allocate compensatory revenue as it saw fit because funds were appropriated based on a districtwide measure of AFDC participation.

Besides expanding and refining compensatory revenue, the Legislature, over the years, has created additional funding mechanisms for remedial purposes. For example, the assurance of mastery program for low-achieving students in grades K-8 was created in 1989, the low-income concentration grant program directed at high-poverty schools in 1994, and the first grade preparedness program in 1996. Some of these funds target specific groups of disadvantaged students, usually elementary students, while others are schoolwide in scope.

REVENUE SOURCES

Districts receive revenue for remedial services from a variety of sources.

School districts receive remedial education revenue from a variety of state and federal sources. In addition, there are numerous other sources of state, federal, and private funds available to school districts who apply for them that may be spent on remedial services. Also, districts may spend part of their general education revenue or local levy on remedial programs.

For the purposes of our analysis, we looked at four state and three federal programs that provided funds for remedial purposes during the 1996-97 school year. We focused on revenue passing through the Department of Children, Families & Learning that was directed at K-12 students who were achieving below standards for their age or grade in school. Four state programs provided funds for remedial purposes: (1) compensatory revenue, (2) targeted needs revenue, which includes assurance of mastery, limited-English proficiency, and integration aid, (3) low-income concentration grants, and (4) first-grade preparedness. Three sources of federal revenue provided remedial funds: (1) Title I, (2) emergency immigrant program, and (3) homeless student program. These funding streams are each briefly described below as well as summarized in Figure 1.2.

Compensatory Revenue

As mentioned earlier, beginning with the 1997-98 school year, districts receive compensatory revenue based on the number of students that they serve who are eligible to receive free or reduced-priced lunch. Prior to this, districts received compensatory revenue based upon the number of students who came from families that received AFDC. Statutes encouraged, but did not require, districts to

Figure 1.2: Major Sources of Remedial Education Revenue, 1996-97

Revenue	Basis for Appropriating Revenue	Who Revenue is Spent On	Uses	Number of Districts Receiving Revenue
STATE				
Compensatory Revenue	Poverty	Low Achievers	• Assurance of mastery services • Remedial instruction in math, reading, and langugage skills • Additional teachers and aides • Summer school • In-service • Instructional materials • Truancy, health, social, counseling, and safety programs • Limited-English services • All day kindergarten • Extended-day or -year programs • Other methods to increase achievement	356
Targeted Needs Revenue				
* Assurance of Mastery	K-8 Enrollment	Low Achievers	• Remedial instruction in math, reading, language, and study skills • Additional teachers and aides • In-service • Instructional materials • Truancy, health, social, counseling, and safety programs • Home visits • Limited-English services • Extended-day or -year programs • Programs established under a desegregation plan • Parent involvement	338
* Limited-English Proficiency	Achievement	Low Achievers		20
* Integration Revenue	Minority Enrollment	Low Achievers		3
First-Grade Preparedness	Poverty	All Students	• Half-day, every day programs for 4 year olds or full-day every day kindergarten for 5 year olds	21
Low-Income Concentration Grants	Poverty	Low Achievers	Same uses as compensatory revenue	8

Figure 1.2: Major Sources of Remedial Education Revenue, 1996-97, continued

Revenue	Basis for Appropriating Revenue	Who Revenue is Spent On	Uses	Number of Districts Receiving Revenue
FEDERAL				
Title I				
* Targeted Assistance	Poverty	Low Achievers	• Supplemental instruction in math, reading, or language arts programs	320
* Schoolwide	Poverty	All Students	• Schoolwide reforms • Lower class size • Parent education • Strengthening existing instruction • Supplemental instruction coordination	15
Emergency Immigrant Grants	Immigrant Enrollment	Immigrant Students	• Family literacy, outreach, and training • Tutoring, mentoring, and counseling • Instructional materials • Technology • Basic instruction	7
Homeless Students	Homeless Enrollment	Homeless Students	• Tutoring, remedial education, counseling, or other education services • Professional development • Education • Referral and coordination • Transportation • Early childhood • Extended-day program • School supplies	8

SOURCE: Office of the Legislative Auditor.

allocate compensatory revenue to individual school buildings based upon each building's concentration of students from low-income families. Beginning in the 1997-98 school year, districts must allocate the aid to the school where the student who generates it receives instruction. The revenue must be used to meet the educational needs of students who are achieving below grade- or age-level standards.

Districts can spend compensatory revenue in various ways.

As shown in Figure 1.2, compensatory revenue can be used for a wide variety of purposes, such as hiring additional teachers or instructional aides for individual tutoring, lower student-teacher ratios, or team teaching; extending the school day or year; staff development to help identify and serve remedial students; truancy and other social programs; increased parent involvement; and "other methods to increase achievement, as needed."[4] On-site school teams must make recommendations regarding the expenditure of these funds.

Targeted Needs

The 1995 Legislature created the targeted needs program by combining three previously existing programs: assurance of mastery, limited-English proficiency, and integration aid. The assurance of mastery program, enacted in 1989, provides funds for supplemental services for students who are not making adequate progress toward the state's graduation standards. Districts can receive up to $45 per K-8 pupil as a state match for districts' contribution. Since 1991, districts have been able to serve students in grades 9-12 if they can show that the needs of K-8 students have been met. Assurance of mastery instruction may be provided by teachers or aides, although instruction must be different from what the student received initially in the regular classroom.

Since 1980, school districts have operated limited-English proficiency programs for students whose first or home language is not English and who score significantly below the district average on a nationally normed reading or language test. Districts receive aid based upon teacher salaries and equipment costs to operate English-as-a-second-language (ESL) programs where eligible students are taught to read, write, listen, and speak in English. Schools may also provide bilingual programs where students are taught certain courses like math, science, and social studies in their native language until they can do ordinary classwork in English. During the 1996-97 school year, approximately 27,000 students, speaking over 70 different languages, received services.

Integration grants provide funds to three school districts (Minneapolis, St. Paul, and Duluth) to help offset the costs involved in implementing an approved desegregation plan. These districts may also levy up to 2 percent of their adjusted net tax capacity for desegregation purposes. According to State Board of Education rules, a desegregation plan is needed whenever the percentage of minority students in any one building exceeds the districtwide average by more than 15 percent.[5] Beginning with the 1997-98 school year, integration aid must be

4 *Minn. Stat.* §124A.28, subd.1 (12).

5 *Minn. Rules* §3535.

used to increase learning opportunities and reduce the learning gap between students from families in poverty and their peers.

First-Grade Preparedness Grants

The purpose of the first-grade preparedness program is to ensure that every child has the opportunity before the first grade to develop the skills and abilities necessary to read and succeed in school, thereby reducing the need for compensatory revenue. Created in 1996, the program provides revenue for half-day, everyday school for four year olds and full-day, everyday kindergarten for five year olds. During the 1996-97 school year, 32 schools received funds based upon the percentage of their enrollment eligible for free or reduced-priced lunch and their geographic location (Minneapolis, St. Paul, metropolitan suburban, and outstate). The Legislature appropriated $3.5 million for first-grade preparedness programs in 1996-97.

Low-Income Concentration Grants

The 1994 Legislature created the low-income concentration grant program to provide additional resources to school buildings where the concentration of students from low-income families is high compared with the district as a whole. To be eligible, at least 20 percent of the building's students must be eligible for free or reduced-priced lunch and at least 20 percent must be members of racial minorities. These buildings must be located in school districts that have at least 10 percent of their student population eligible for subsidized lunch and where at least 10 percent of their students are students of color. Furthermore, districts must have at least 1,500 students in average daily membership, and be located in the seven-county metropolitan area, excluding Minneapolis and St. Paul school districts. During the 1996-97 school year, eight districts received grants, ranging from $50,000 to $200,000. In addition, Osseo School District was permitted to levy $800,000 for taxes payable in 1997.

Title I

As indicated earlier, Congress created the Title I program in 1965 to try to ameliorate the effects of poverty on students' academic achievement. The federal government has given schools much flexibility in determining how to spend Title I funds. Schools can choose which services to provide based on the needs of the participating students, usually providing extra instruction in math, reading, or other areas. Supplemental instruction may be provided using pull-out services, in-class models, or extended learning time strategies. ''Pull-out services'' consist of removing Title I students from the regular classroom for short periods of time to provide additional or individualized instruction. ''In-class models'' provide additional resources, teachers, or aides to Title I students in the regular classroom. ''Extended learning time strategies'' provide extra instruction to Title I students in before or after school programming, full-day kindergarten, or summer school programs.

In addition, many schools may choose to offer Title I-funded services to all grades or to focus some or all services on specific grade levels. Although not required, most school districts focus Title I programs on elementary grades. This follows the belief that compensatory education efforts have a larger impact at younger ages. For the past five years, approximately two-thirds of Title I services in Minnesota were provided to children at or below the third grade. [6]

Schools receiving Title I funds operate either targeted assistance or schoolwide programs. Most operate targeted assistance programs but a growing number of schools are becoming eligible to run schoolwide programs. Targeted assistance schools can only use Title I funds for programs that provide services to eligible students and not to all students in the school. In fiscal year 1996, over 800 schools in Minnesota were Title I targeted assistance schools. In the same year, approximately 20 schools were running schoolwide programs.

A few schools use Title I funds to operate schoolwide programs for all students.

Schoolwide programs rely on comprehensive reform strategies to upgrade the school's entire educational program rather than add separate services targeted to specific students. Schools that have at least 50 percent of their students from low-income families may choose to implement a schoolwide program. In doing so, schools have greater flexibility in deciding how to spend Title I funds. Some examples of schoolwide reforms include: lowering class size, education for parents, staff development, computer-assisted instruction, strengthening existing programs, supplemental instruction, and better coordination and integration of regular and supplemental curriculum. [7]

Emergency Immigrant Aid

Emergency immigrant aid provides supplementary revenue to school districts that have at least 500 immigrant students or at least 5 percent of enrollment are immigrants. Students are considered immigrants if they were born outside the United States and have attended schools in one or more states for less than three school years. During the 1996-97 school year, four out of seven eligible districts received emergency immigrant aid of $170,000 each. These four districts provided services such as outreach, parent education, tutoring, counseling, and basic instruction to about 3,500 students.

Homeless Student Aid

Congress passed the Homeless Assistance Act in 1987 which provides grants to eligible school districts to ensure that homeless children have access to the same educational programs as other children. During the 1996-97 school year, nine school districts received funds totaling $219,000 to provide tutoring, remedial education, and other education and support services to approximately 6,000 homeless students.

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6 Department of Children, Families & Learning, *Title I State Performance Reports* (St. Paul, various years).

7 *Ibid*.

STATUTORY REQUIREMENTS

Figure 1.2 shows the array of services that may be provided to students, the student population to be served, and the number of districts that received funds under each source for the 1996-97 school year. As shown,

- **For the most part, remedial education funds went to school districts with very little direction as to how that money should be spent.**

Although school districts generally received remedial funds based upon the number of students in poverty, the funds did not have to be spent on low-income students. Rather, statutes generally require that the money be spent on low-achieving students. While it was originally hoped that providing additional funds to districts would help offset the effects of poverty on low-income students, the additional money in fact does not have to be spent on low-income students.

In addition, state laws allocating remedial education dollars give school districts considerable flexibility in how to spend remedial funds. Likewise, the federal government has loosened some of its restrictions on Title I expenditures. Districts can use remedial funds to provide a wide variety of services that may be directed at specific, low-achieving students or at the school as a whole. Services may be mainly academic, such as extra math or reading instruction, either inside or outside the regular classroom, but may also include health, attendance, counseling, and safety programs.

Thus, there is no simple description of remedial education. Unlike special education, for example, there are no statewide criteria to determine student eligibility for services nor are there detailed state rules regarding services that must be available to low-achieving students. Consequently, as we show in Chapter 3, remedial education strategies, practices, and services have varied considerably among schools based upon their own choices.

There are no statewide eligibility criteria for remedial education.

Along with the wide array of possible services, the fact that the bulk of state funds for remedial education —compensatory revenue —did not have to be spent on low-achieving students until the 1996-97 school year further complicates the remedial education picture. At the request of the Governor, the State Auditor's Office reviewed how school districts used compensatory revenue and accounted for its expenditures from fiscal years 1990 through 1995. Although Minnesota statutes have required that districts maintain separate accounts to identify expenditures related to compensatory revenue since 1988, the State Auditor found that many districts did not maintain separate accounts nor did they specifically track how they spent compensatory funds. [8] Furthermore, the State Auditor noted that the broad statutory language regarding how such funds could be spent resulted in considerable ambiguity regarding allowable expenditures. The State Auditor recommended that the Legislative Auditor's Office determine whether spending money on the statutorily authorized programs actually increases student achievement. Furthermore, it recommended that the Legislature consider whether the compensatory revenue statutes should be changed to ensure accountability.

8 State Auditor, *Compensatory Revenue Survey*.

Districts' use of compensatory revenue was also the subject of a recent Citizens League report that examined whether school districts were allocating their 1997-98 compensatory revenue to school buildings as required by the 1997 Legislature.[9] Specifically, the League found that some school districts were not allocating money to schools based on the number of students who generated that revenue. Furthermore, although the Legislature required that local site councils comprised of parents, teachers, and administrators recommend how that money be spent, the League noted that there was little meaningful parental involvement reflecting the community's diversity.

REMEDIAL REVENUE TRENDS

We looked at the amount of revenue that school districts received from major state and federal funding sources for remedial education and found that:

- **Remedial education represents a small, but growing portion of the total operating revenue that school districts receive.**

From fiscal year 1989 through 1997, total school district operating revenue grew 31 percent in inflation-adjusted dollars compared with a growth in remedial funds of 64 percent.[10] Remedial revenue as a percent of total operating revenue increased about 27 percent, going from 4.1 to 5.2 percent.

Statewide, school districts received $255 million for remedial services in 1996-97.

During this same period, total state and federal aid for remedial education increased 64 percent in constant dollars, going from about $155 million in 1989 to $255 million in 1997. As shown in Table 1.1, state revenue grew more than twice as fast as federal revenue: 83 percent compared with 35 percent.

Three major factors explain the large increase in state revenue for remedial education. First, as previously discussed, the Legislature has repeatedly expanded the compensatory revenue program, the largest source of funds for remedial education, since the late 1980s by increasing the number of districts eligible to receive funds and by changing the allocation formula. Second, the number of students from families in poverty, which determines the amount of state revenue that districts receive for remedial purposes, has increased considerably, as shown in Table 1.2. From the 1988-89 through the 1996-97 school year, student enrollment increased about 15 percent while the number of students who were eligible to receive free or reduced-priced lunch increased 42 percent, from 160,420 to 228,451 public school students. The number of students from families that receive AFDC increased by 22 percent —a less dramatic growth due chiefly to the recent reforms made to the welfare system and general economic growth. Also, the number of students eligible for limited-English proficiency services has

9 Citizens League, "Move to Give School Sites Control of Extra Funding for Needy Kids Faces Roadblocks," *Minnesota Journal* (Minneapolis: November 18, 1997).

10 In analyzing revenue trends, we used an index—the national price deflator for state and local government consumption expenditures and gross investment (PGSL)—which reflects the general rate of inflation faced by state and local governments. This index increased 31 percent from fiscal years 1988 through 1997.

Table 1.1: Remedial Education Revenue for School Districts in Constant Dollars, Fiscal Years 1989-97

	Fiscal Year									Percent Change
	1989	1990	1991	1992	1993	1994	1995	1996	1997	FY 1989-97
STATE REVENUE SOURCES										
Compensatory	$76,608,233	$77,145,895	$75,130,417	$80,293,175	$93,375,539	$102,555,633	$120,650,753	$131,847,594	$131,806,747	72%
Targeted Needs Assurance of Mastery	0	0	13,656,703	13,914,112	12,849,276	12,683,605	13,162,252	12,613,380	12,398,747	-9[a]
Limited-English Proficiency	3,963,862	4,545,866	4,082,257	4,623,139	5,187,567	6,806,350	7,829,303	7,525,299	7,316,259	85
Integration Grants	15,286,350	18,260,941	17,471,749	18,115,668	17,686,471	20,580,254	20,006,380	19,369,871	18,844,000	23
Low-Income Concentration Grants	0	0	0	0	0	0	1,061,538	1,053,031	1,300,000	22[b]
First-Grade Preparedness	0	0	0	0	0	0	0	0	3,343,911	--
Total State Revenue	$95,858,444	$99,952,702	$110,341,126	$116,946,094	$129,098,853	$142,625,843	$162,710,226	$172,409,174	$175,009,664	83%
FEDERAL REVENUE SOURCES										
Title I	$59,277,046	$58,931,817	$64,577,245	$71,576,580	$75,031,179	$80,760,227	$81,126,708	$82,299,837	$79,912,577	35%
Emergency Immigrant Aid	160,133	132,201	130,284	137,916	126,624	135,455	177,761	217,563	236,057	47
Homeless Student Aid	0	0	0	40,018	249,205	268,090	272,513	337,774	219,751	449[c]
Total Federal Revenue	$59,437,179	$59,064,018	$64,707,529	$71,754,515	$75,407,007	$81,163,772	$81,576,982	$82,855,174	$80,368,385	35%
TOTAL REVENUE	$155,295,623	$159,016,720	$175,048,655	$188,700,609	$204,505,860	$223,789,614	$244,287,208	$255,264,348	$255,378,049	64%

NOTE: Results may not total exactly due to rounding.

SOURCE: Department of Children, Families & Learning.

[a]Percent change from fiscal year 1991 through 1997.

[b]Percent change from fiscal year 1995 through 1997.

[c]Percent change from fiscal year 1992 through 1997.

Table 1.2: Public School Enrollment Trends, Fiscal Years 1989-97

Fiscal Year	K-12 Public Enrollment	Students Eligible for Free or Reduced-Priced Lunch	Students Whose Families Received AFDC
1988-89	721,123	160,420	60,269
1989-90	739,339	164,325	60,715
1990-91	749,203	176,857	63,354
1991-92	766,784	190,265	67,304
1992-93	786,413	204,656	68,888
1993-94	803,393	212,799	75,738
1994-95	813,103	215,200	76,437
1995-96	826,074	220,666	78,153
1996-97	827,589	228,451	73,655
Percent Change	15%	42%	22%

SOURCE: Department of Children, Families & Learning.

more than doubled, going from 10,149 students receiving services in 1988-89 to 27,174 in 1996-97. Third, the Legislature has created new programs that provide funds for remedial education.

During the 1996-97 school year, districts received from $30 to $3,073 per student in remedial education revenue. On average, districts received about $249 per student with a median of $184 per student. Revenue per student eligible for free or reduced-priced lunch ranged from $95 to $4,133 per eligible student, with an average of $811 and a median of $720. Minneapolis, St. Paul, and Duluth school districts typically received higher amounts of remedial aid per student eligible for subsidized lunch in part because they received state integration aid.

SUMMARY

Overall, we found that school districts have been receiving remedial education aid from both the state and federal government for over 25 years. The U.S. Congress passed Title I legislation in 1965 and the Minnesota Legislature created the forerunner of today's compensatory revenue in 1971 to help offset economic inequality by improving educational opportunities for children of poverty. Over the last several years, the Legislature has appropriated increased amounts of money for remedial education for low-achieving, rather than low-income, students, generally based upon some measure of student poverty. Although districts receive remedial funds from a variety of state and federal sources, there is no statewide measure of how many students actually need remediation. At the same time, the Legislature and the federal government have given districts considerable flexibility in how to spend that money.

What Works?

CHAPTER 2

Educational researchers have published hundreds of articles and books on topics related to remedial education. To give us a standard of comparison to use in assessing Minnesota's remedial education efforts, we reviewed relevant education research to learn about effective remedial practices nationwide. Our review of research on remedial education sought to answer these questions:

- **What does the research literature say are generally effective remedial education practices and approaches?**
- **Have national studies shown that remedial education programs can close the gap between disadvantaged and nondisadvantaged students?**
- **What characteristics of students, schools, or programs affect student achievement and the success of remediation efforts?**

Our review of the literature paid particular attention to recent studies and those that summarized previous research. Also, we limited our review to several of the most important topics that prior research has focused on. Many of the programs that we reviewed are not exclusively remedial because they could benefit students at any level of achievement, but the programs are often perceived as remedial when they are used in schools with large proportions of underachieving or low-income students.

In considering education research, one should keep in mind that much of the research and evaluation has been done by advocates of particular strategies or programs. Also, most of the research on remedial education relates to the primary grades; much less is known about the effectiveness of remedial programs at the middle or secondary levels.

Overall, we found that substantial research evidence points to the individual tutoring of students in the primary grades as the most effective remedial reading strategy. Several highly structured reading programs for the early grades that have consistently demonstrated effectiveness, such as Reading Recovery and Success for All, include a tutoring component. Also, smaller class sizes have demonstrated effectiveness in improving student performance.

EVALUATION OF TITLE I

As discussed in Chapter 1, Title I provides federal funds to schools nationwide to bring low-achieving students up to a level nearer to their grade, with a particular focus on impoverished students. It is still the primary source of funding for many programs for disadvantaged students. Because the program has involved such a large, sustained effort, it has received more attention from researchers than other remedial programs.

According to a 1994 review by the U.S. Department of Education, several nationwide evaluations in the mid-1980s found that the programs funded through Title I had modest, positive benefits on students' reading and mathematics skills.[1] However, it was less effective with more disadvantaged students. Overall, these studies concluded that Title I programs did not bring disadvantaged students up to grade level and that the gains that they made often evaporated within two years after they left the program.

Nationally, Title I-funded programs have not been proven effective.

The U.S. Department of Education issued its most recent evaluation of Title I programs in 1997 and found that:

- **While students who participated in Title I programs showed progress, the program failed to close the achievement gap between schools with high concentrations of disadvantaged students and other schools.[2]**

Schools with the most disadvantaged students lagged substantially behind schools with few disadvantaged students on standardized reading comprehension tests in each grade. As a group, disadvantaged students in schools with high rates of student poverty never rose above the 30th percentile in comparison with the average for grade level, the 50th percentile.

To analyze the effectiveness of Title I, the Department of Education also compared students in Title I programs with similar students who were not in a Title I program. This comparison showed that:

- **Although Title I students made some progress, it was no greater than the progress of similar students who were not receiving remedial services funded through Title I.**

Further analysis of students in Title I programs showed that characteristics of students and their families accounted for most of the variation in achievement. Factors associated with lower achievement were minority race or ethnic group, limited-English proficiency, student mobility, health problems, disability, low family income, having a single parent, coming from a larger family, or being

1 U.S. Department of Education, *Education Reforms and Students at Risk: A Review of the Current State of the Art* (Washington, D.C., January 1994).

2 U.S. Department of Education, *Prospects: Student Outcomes—Final Report* (Washington, D.C., April 1997).

male. Low parental expectations were also negatively related to student achievement.

The evaluation also looked at the characteristics of several schools with Title I programs that performed better than others. The more successful schools usually tracked students by ability from first through sixth grades. They also had more experienced principals and less turnover among teachers. There was more support for the school's mission by the community, parents, and teachers. In reading instruction, teachers emphasized comprehension along with the basics.

This same analysis reported that:

- **The poverty level in a school was negatively associated with achievement, while school size, length of the school year, the student-teacher ratio, and instructional time per week were not significantly related to achievement.**

Smaller class size and use of computers were associated with higher achievement for first graders only. Instructional aides boosted student achievement but only in mathematics.

Only a few remedial programs have proven effective with disadvantaged children.

Another recent study looked at the effectiveness of several exemplary programs that were tried in a small number of schools in high-poverty areas. [3] The idea behind the study was to see if programs that seemed to be the most promising actually worked as expected. Evaluators followed the progress of students for up to three years. The evaluation included several nationally known programs and some local school efforts. The nationally known programs, which are described in Figure 2.1, were the Comer school reform model, the Coalition of Essential Schools restructuring model for secondary schools, Success for All, Reading Recovery, the Paideia program, a computer-assisted program from the Computer Curriculum Corporation (CCC), and the METRA tutoring program. The evaluation also looked at a locally originated extended-year program and an extended-day program. As it turned out, some of the programs were not fully implemented or, as with Reading Recovery, had too few students involved for an analysis to be done. Where an analysis was possible, however, the results showed that:

- **Of the alternatives evaluated, only the Comer reform model, Success for All, and METRA tutoring helped disadvantaged students.**

The Comer reform model and Success for All, in schools where they were fully implemented, succeeded in raising the average reading level of disadvantaged, elementary students from about the 20th percentile to about the 50th percentile over three years (the 50th percentile is the normal grade level).

3 U.S. Department of Education, *Special Strategies for Educating Disadvantaged Children—Final Report* (Washington, D.C., April 1997).

Figure 2.1: Remedial Programs

Remedial Program	Description
Comer school reform model	Comprehensive reform model from Yale University. Aims to meet social and mental health needs of disadvantaged children and increase parental involvement as necessary condi - tions for academic achievement. Makes changes to school management. Introduces a so - cial skills curriculum and mental health team. Yale staff provide training. Implementati on is difficult and may take several years.
Success for All	Highly structured, intensive, early-intervention reading program that starts in kindergart en or before. Goal is grade-level by third grade. Teachers are trained and certified to be one-on-one tutors. Uses 20 minute individual tutoring sessions plus 90 minute group reading sessions daily with 15-20 students per group. Special reading materials. Frequent asses s- ment. School has program facilitator. Emphasizes parental involvement. Requires sub - stantial investment and commitment by the school for staff training, teacher participation , and multi-year program.
METRA tutoring	Commercially available for reading, math, and ESL. Combines one-on-one tutoring with special materials. School uses paraprofessional aides trained by METRA, but can include peer tutoring. Emphasis on phonetics and comprehension in daily 15 minute tutoring for reading; also 15 minute daily tutoring for math. Attractive to many schools because of ef - fectiveness combined with low cost.
Coalition of Essential Schools model	Originally designed for high schools, but now tried in lower grades. Emphasis on social re - lationships: tolerance, generosity, fairness. Focus on basic learning areas; students have limited goals. More personalized instruction; smaller classes. Students more involved in own learning. Diploma awarded for mastery of skills, not by years of attendance or credits earned. Sponsored by Brown University.
Paideia model	Emphasis on seeking knowledge rather than teaching knowledge. Includes all children re - gardless of ability. Uses Socratic method. Students and teachers discuss issues from "great books." Requires extensive staff development.
Computer Curriculum Corporation (CCC)	Computer-assisted instruction for grades 3 to 5. Available for reading, math, and science. Students progress at own level of ability and get immediate feedback; on-line tutorial he lp. Students spend about 11-13 minutes per day on each subject. Computers and software re - quire substantial investment and extra staffing.
Reading Recovery	Intensive, stand-alone, early-intervention reading program starting in first grade. Empha sis on diagnosis of problems, tutoring, and teacher training. Students get 30 minutes of ind i- vidual tutoring daily with a specially trained teacher, usually for 12 to 16 weeks. Parents are involved in nightly reading. Teacher must have year-long training. Sometimes not of - fered to lowest achieving students, who may not be able to "recover." May be difficult to integrate with regular classroom reading.

SOURCE: U.S. Department of Education, *Special Strategies for Educating Disadvantaged Children—Final Report* (Washington, D.C., April 1997).

The METRA tutoring program raised the average reading and mathematics scores of all students in the program. It also raised the average scores of disadvantaged students who were below the 20th percentile, but the study included too of these students to generalize about the program's effectiveness for this group. The extended-day, extended-year and computer-assisted programs produced meager student progress at best, while in some schools student achievement declined. The evaluators also noted that student progress in any program was usually limited to the earliest grades.

Schoolwide Title I

The latest trend in Title I is for some schools to offer a remedial program to all students in the school. The schoolwide approach is a reasonable choice when a large percentage of the students are disadvantaged. Minneapolis, for example, has schoolwide programs in place. As discussed in Chapter 1, a schoolwide program can use federal dollars for a variety of remedial strategies.

The effectiveness of a schoolwide program depends on its remedial or reform components. The Comer reform model and Success for All, cited earlier, are examples of effective schoolwide programs. In general, however, evaluations of schoolwide programs have reported less favorable results. In one 1997 study, evaluators reported "some tentative evidence of the long-term effects of being in a schoolwide project." [4] The results were puzzling, however, because the effectiveness of the program seemed to vary by grade, sometimes positively and sometimes negatively. Effectiveness also varied by gender, age, and race, although the impact of race seemed to dissipate by the fifth grade.

A cost-effectiveness comparison of the schoolwide approach with a more limited Title I program was done in Austin, Texas. [5] In the schoolwide program all students, regardless of ability, were in the same classroom, but class size was reduced to a student-teacher ratio of 15 to 1. In the other program, Title I students received supplementary instruction from a reading specialist. Analysis showed that:

- **The schoolwide approach cost two to three times as much to achieve the same gains in reading as made by students who were helped by a reading specialist.**

Because the Title I program can take many directions, it is hard to evaluate as a single entity. The lack of effectiveness in the Title I program might be partly the result of the variety of approaches used by schools. Practices that work might be overshadowed by ineffective practices. Below we discuss several teaching methods or strategies that are often used within Title I and other remedial programs.

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4 Center for Research on Effective Schooling for Disadvantaged Students, Johns Hopkins University, "Center Mission and Programs," undated, WWW document, URL http://scov.csos.jhu.edu/cds/cds.html (1997).

5 Miriam E. Fairchild, "What Price Achievement: A Cost-Effectiveness Study of Chapter I and Schoolwide Projects." Austin Independent School District, Office of Research and Evaluation (April 1988).

RESEARCH ON SPECIFIC REMEDIAL PRACTICES

Tutoring

Our review of the research literature found that:

- **One-on-one tutoring by adults to students in the primary grades can have substantial positive effects on reading achievement.**

The METRA tutoring program cited earlier is an example of an effective tutoring program. A three-year evaluation of METRA in one school showed that it raised the average reading and mathematics test scores of below-average students from about the 25th percentile to nearly the 50th percentile. [6] According to the evaluators, this result was consistent with previous research findings.

Tutoring is usually the most effective remediation practice.

Tutoring is also a central feature of several comprehensive remedial reading programs that have proven successful for beginning readers. [7] These are Reading Recovery, Success for All, Prevention of Learning Disabilities, the Wallach Tutorial Program, and Programmed Tutorial Reading. We discuss the effectiveness of Success for All and Reading Recovery later. Without a sound curriculum, trained tutors, and good materials, however, tutoring may not necessarily produce the same level of effectiveness seen in these programs.

Tutoring by older students or peers can also be effective at increasing achievement, and may give stronger results in mathematics than reading. An analysis of 65 of the best studies that have been done on this topic showed that, on average, students who were tutored scored at the 66th percentile in relation to students in control groups who received no tutoring, and the tutoring experience also benefited the students who did the tutoring. [8]

In 1997, President Clinton proposed the America Reads Challenge Act, which would appropriate $2.75 billion over five years for a vast program to tutor children in kindergarten through third grade. The proposal called for hiring 25,000 reading specialists—including 11,000 AmeriCorps members—to recruit, train, and supervise up to one million volunteer tutors. As a result of another Clinton proposal, colleges are increasing their use of federal work-study funds in 1997 to support college students as tutors.

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6 U.S. Department of Education, *Special Strategies*: 13-78.

7 Center for Research on Effective Schooling for Disadvantaged Students, Johns Hopkins University, "Center Mission and Programs"; G. S. Pinnell, C. A. Lyons, D. E. DeFord, A. S. Bryk, and M. Seltzer, "Comparing Instructional Models for the Literacy Education of High-Risk First Graders." *Reading Research Quarterly* 29 (1994): 8-39; B. A. Wasik and R. E. Slavin, "Preventing Early Reading Failure with One-to-One Tutoring: A Review of Five Programs." *Reading Research Quarterly* 28 (1993): 178-200.

8 P. A. Cohen, J. A. Kulik, and C. C. Kulik, "Educational Outcomes of Tutoring: A Meta-Analysis of Findings." *American Educational Research Journal* 19/2 (1982): 237-248.

Ability Grouping of Students

Grouping students by their ability is an old practice that is often criticized because lower-ability groups tend to have disproportionately more disadvantaged, minority students, which can raise the legal issue of discrimination. ("Grouping" is the usual term for lower grades and "tracking" or "streaming" for middle or high schools.) Because much of the research on grouping has to do with accelerated programs or classes for gifted students, it is not a reliable guide to the effect of ability grouping on low-achieving students. A review by the U.S. Department of Education reported that research is inconclusive about whether ability grouping helps or harms student achievement among low-achieving students, but noted that:

- **Ability grouping showed some success at the elementary level when students were grouped by ability for one or two subjects but were otherwise in mixed classes.** [9]

Success for All, discussed earlier as an effective remedial reading program, uses a particular form of ability grouping, the Joplin plan. Students are grouped temporarily for 90-minute reading periods according to their performance level. Students in different grades who are at the same performance level are put into the same reading group. During most of the day, however, students are in their normal, age-grouped school classes. Robert Slavin, the originator of Success for All, based his grouping scheme on his own review of the research on ability grouping. [10]

***Reading Recovery, Success for All,* and *Direct Instruction* are remedial programs that have shown consistent effectiveness.**

Reading Recovery

This is a widely used reading program that originated in New Zealand. Reading Recovery takes a highly structured reading approach for first graders who are having reading difficulties and gives them one-on-one tutoring. Teachers must go through an extended training program if the program is to be fully implemented. Research studies have shown that:

- **Reading Recovery has demonstrated positive effects of the program at the end of first grade with some maintenance of these gains in later grades.** [11]

In two large evaluations of Reading Recovery in Ohio schools, about 70 percent of the students who completed the program reached the average range of reading ability expected for their grade. [12] In these and most other

9 U.S. Department of Education, *Education Reforms and Students at Risk.*

10 R. E. Slavin, "Ability Grouping and Student Achievement in Elementary Schools: A Best-Evidence Synthesis." *Review of Educational Research* 57 (1987): 347-350.

11 U.S. Department of Education, *Special Strategies*. T. Shannahan and R. Barr, "Reading Recovery: An Independent Evaluation of the Effects of an Early Instructional Intervention for At-Risk Learners," *Reading Research Quarterly* 30 (1995): 958-997.

12 U.S. Department of Education, *Special Strategies*: 13-50.

evaluations of Reading Recovery, however, students who did not complete 60 lessons were excluded from the evaluation, which may inflate the reported success rate. Because it relies on one-on-one tutoring, Reading Recovery is expensive to implement.

Success for All

This is another intensive and highly structured reading program that has proven successful for beginning readers. It is used in 750 schools nationally, including some in Minnesota; most of the schools have high poverty levels among the students. Robert E. Slavin, creator of the program, is co-director of Johns Hopkins University's Center for Research in the Education of Students at Risk—the same institution that has reviewed and evaluated many of the remedial education programs and practices. Success for All incorporates individual tutoring, ability grouping, and phonics learning. It also uses elaborate guides for the teachers, standardized stories, and frequent performance assessment. Students are required to read at home each day. The program is only implemented in a school if 80 percent of the teachers agree to support it and receive special training from the program's facilitators.

Success for All **uses tutoring, ability grouping, and phonics instruction.**

According to a summary of research on Success for All:

- **Slavin, the originator of Success for All, showed that it can generally raise average reading scores of low-achieving students above the scores of similar students who are not in the program at every grade level from 1 to 5.** [13]

In the schools Slavin evaluated, Success for All increased the difference between the reading performance of students in Success for All and other students from about one-fourth of a grade level in first grade up to about one grade level by fifth grade.

Diane McGuiness gave a more negative review of Success for All. [14] She recognized that the program has had success with low-achieving students, especially when they are first learning to read. She argued, however, that because of inherent weaknesses in the program, many students are not able to catch up to their peers in later grades. In particular, she showed that the program has a built-in reliance on whole-word memorization that, according to McGuiness, ultimately limits a student's reading progress. The program also uses word rhyming, a teaching method that has been proven to be ineffective, according to McGuiness.

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13 Robert E. Slavin, Nancy A. Madden, Lawrence J. Dolan, and Barbara A. Wasik, "Success for All: A Summary of Research," *Journal of Education for Students Placed at Risk* 1 (1996): 41-76.

14 Diane McGuiness, *Why Our Children Can't Read—And What We Can Do About It* (New York: Free Press, 1997.)

Direct Instruction

This comprehensive reading program is the most extreme and rigid in its structure but also may be the most effective. It was started by Siegfried Engelman at the University of Illinois in 1964 and is currently undergoing a revival. In each lesson the teacher follows a script that was carefully developed over a period of years based on its proven ability to teach reading skills. The method is phonics-based. Although the program is frequently criticized for its excessive rote-learning and authoritarian style, it has achieved remarkable success rates in some very impoverished school populations, bringing them from levels as low as the 20th percentile up to grade level (50th percentile) or, in some cases, several grade levels above their school grade.

- **In a comparison of ten educational programs for the early grades, students taking Direct Instruction outperformed a control group of students and students in the other nine programs on every academic measure.[15]**

Direct Instruction was one of ten educational programs evaluated in Project Follow Through, which remains the largest and most expensive educational experiment ever conducted.[16] The project began in 1967, as part of President Johnson's War on Poverty, and continued until 1995, at a total cost of about one billion dollars. The goal of the project was to find out what educational model would succeed best with impoverished children in kindergarten through third grade. The models in the experiment varied in their emphasis on basic skills, cognitive and affective development, parental involvement, and the degree to which children directed their own learning. Direct Instruction was the only model that consistently produced substantial progress in all grades, and it was the only model where students surpassed the performance of non-Follow Through children in the control group.

Phonics

Phonics instruction is crucial for children with dyslexia.

Nationally, there is an ongoing debate about the value of phonics in early reading instruction, that is, about teaching children to read by learning the sounds of letters. The strongest evidence for phonics-based reading instruction is for children with dyslexia. The National Institutes of Child Health and Human Development have pioneered research in how to teach students with dyslexia to read.[17] Although not all students needing remedial education have dyslexia, researchers have estimated that about one child in

15 American Federation of Teachers, *Passing on Failure* (Washington, D.C., 1997).

16 G. Bock, and L. B. Stebbins, with E. C. Proper, *Effects of Follow Through Models—Abt Associates Report No. AAI-76-196B* (Washington, D.C.: Abt Associates, April 15, 1977); L. B. Stebbins, R. G. St. Pierre, E. C. Proper, R. B. Anderson, and T. R. Cerva, *An Evaluation of Follow Through—Abt Associates Report No. AAI-76-196A* (Washington, D.C.: Abt Associates, April 15, 1977).

17 G. Reid Lyon, "Research Initiatives in Learning Disabilities: Contributions from Scientists Supported by the National Institutes of Child Health and Human Development," *Journal of Child Neurology* 10 (1995): 1.

five is affected by dyslexia and likely to need remediation. Many of these students, but not all, are in special education (which is outside the scope of this report). According to the National Institutes, dyslexia is not simply a delay in a child's development of reading ability but a long-term problem with physical origins. New research on the brain has showed that a child with dyslexia has a fundamental problem discriminating the sounds that make up language, the phonemes. The result is that the child does not correctly learn the alphabetic code and has difficulty reading and writing. To overcome this problem, the child must be given highly structured instruction in phonic rules and their application to the printed language. Of third graders who suffer from dyslexia, the National Institutes estimate that 74 percent will still be reading-disabled in ninth grade. The National Institutes affirm, however, that many students with dyslexia can learn to read at normal or nearly normal levels with proper remediation.

Other Strategies or Practices

A number of other strategies have been proposed to help underachieving students, but we did not find a solid research and evaluation basis for these proposals. Some reformers have advocated a longer school day or year. According to the U.S. Department of Education, evidence supports the idea that achievement is related to the amount of learning time and that high schools with more annual hours of instruction tend to have higher achievement.[18] The Title I evaluations cited earlier, however, did not find a benefit to achievement from a longer school year or an extended school day. Clearly, a longer school day or year will not necessarily be more productive if the time in class is not used wisely.

Computer-assisted instruction and extended-day and -year programs have not shown consistent effectiveness.

Full-day kindergarten, summer school, continuous progress programs in elementary reading and mathematics, and computer-assisted instruction (especially the drill-and-practice type) are other types of programs that show some evidence of success but need further evaluation. As discussed earlier, the CCC computer-assisted program, which our survey showed being used in a number of Minnesota schools, did not prove effective in an evaluation of programs for disadvantaged children.[19] Similarly, many schools are working to increase parental involvement, which is widely believed to be important to a student's success, but evaluation of these efforts is inherently difficult.

18 U.S. Department of Education, *Effective Compensatory Education Sourcebook, Volume I, Revised* (Washington, D.C., 1992): 28.

19 See the review of computer-assisted learning research in U.S. Department of Education , *Special Strategies*: 14-34 to 14-40.

RESEARCH ON SCHOOLWIDE REMEDIAL PRACTICES AND POLICIES

Class Size

Research on the impact of smaller classes on achievement has produced mixed results, but

- **The best research project on class size found a positive effect for small classes in the early grades.**

Small class size can improve student achievement.

From 1985 to 1989, under sponsorship of the Tennessee Legislature, the Tennessee Student Teacher Achievement Ratio project did a comparative evaluation of three class types using an experimental design. Over 7,000 children each year were assigned to classes randomly and were followed from kindergarten through third grade in 75 schools and 42 school systems; a follow-up study of fourth graders was also done. The three types of classes were: (1) 13 to 17 students per teacher, (2) 21 to 28 students per teacher (the regular size), or (3) 21 to 28 students per teacher, who also had a teacher's aide. An evaluation showed that students in the smaller classes made significantly greater gains than other students. [20] While some of the gains made in kindergarten were lost in older grades, fourth graders who had been in the smaller classes continued to show greater achievement than other students.[21] These results support the expenditures that the Minnesota Legislature and local districts (notably Minneapolis) have made to reduce class size.

Minimum Competency Tests

A minimum competency test represents a basic level of educational achievement that students are required to attain. Minimum competency tests can also be a political response of states to a widely perceived drop in educational achievement. But what happens to student achievement when states introduce minimum competency tests for graduation or promotion? Do the tests promote achievement or, as some critics contend, become instead a performance ceiling of lowered expectations?

According to the American Federation of Teachers, 17 states require students to pass high-school graduation exams. Thirteen of these states set their

20 John Folger and Carolyn Breda, "Evidence from Project STAR About Class Size and Student Achievement," *Peabody Journal of Education* 67 (1992): 17-33.

21 Barbara A. Nye, *The Lasting Benefits Study: A Continuing Analysis of the Effect of Small Class Size in Kindergarten through Third Grade on Student Achievement Test Scores in Subsequent Grade Levels: Fourth Grade* (Nashville, TN: Tennessee State University, 1991).

minimum competency requirement at the seventh- to ninth-grade level, while four states have exams at the tenth-grade level. [22] Of the states with lower standards, six plan to raise them to the tenth-grade level or above. An additional four states plan to begin minimum competency testing at the tenth-grade level or above.

States with minimum competency testing have seen increased performance by low-achieving students but decreased performance among high achievers.

Minnesota's State Board of Education set a requirement for students to pass minimum competency tests in reading and mathematics as part of its graduation standards effective in April 1996. [23] The Minnesota Basic Standards Tests are first administered in the eighth grade, which represents a "safety net" of basic skills that all students need, not a graduation standard. [24] The tests have been administered twice, in 1996 and 1997, mostly to eighth-grade students and some ninth-grade students (who may have failed the test in eighth grade). In 1996, the minimum passing threshold or standard was 70 percent; in 1997 it was raised to 75 percent. A student may be exempt from the test or receive a special accommodation if there is a disability involved.

As shown in Table 2.1, we compared the passing rate of Minnesota students with students in other states on their minimum competency tests and found that:

- **Minnesota students had lower passing rates than students in other states.**

In 1995, the passing rates in 11 states with minimum competency tests ranged from 66 percent to 93 percent on students' first attempts, but we cannot directly compare achievement among the states because they used different tests.[25] Passing rates on final attempts were generally above 95 percent. The passing rate in Minnesota of eighth-grade, public school students in 1997 was 59 percent on the reading test and 70 percent on the mathematics test.

Several research studies have been done on the impact of minimum competency tests in the states that have had them for a period of years. One study was based on a randomly selected, national sample of almost 12,000 high-school seniors from more than 1,000 schools across the United States. This study reported that minimum competency tests differentially affected high- and low-achieving students: [26]

- **Minimum competency tests increased student performance at the low end but decreased it at the high end.**

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22 American Federation of Teachers, *Making Standards Matter* (Washington, D. C., 1997).

23 *Minn. Rules*, 3501.0010 to 3501.0180.

24 See also, Department of Children, Families & Learning, *Reading—Basic Standards Test Specification* (St. Paul, January 1997).

25 American Federation of Teachers, *Making Standards Matter*.

26 Rodney D. Coates and Karen R. Wilson-Sadberry, "Minimum Competency Testing: Assess - ing the Effects of Assessment," *Sociological Focus* 27 (May 1994): 173-185.

Table 2.1: A Comparison of Minimum Competency Tests Required for Graduation in Minnesota and Other States

State	Grade When Test Administered: Below 10th Grade	Grade When Test Administered: 10th Grade or Above	Passing Rate: First Attempt (%)	Passing Rate: Final Attempt (%)	Grade Level of Future Tests: Below 10th Grade	Grade Level of Future Tests: 10th Grade or Above
Alabama	X		82		X	
Arizona	N/A		N/A			X
Arkansas	N/A		N/A			X
Florida	X		83			X
Georgia		X		83		X
Hawaii		X				X
Indiana	N/A		N/A			X
Louisiana		X	85	98		X
Maryland	X			98		X
Massachusetts	N/A		N/A			X
Minnesota	**X**		**64**		**X**	
Mississippi	X		93			X
Nevada	X		85	96		X
New Jersey		X	73	96		X
New Mexico	X		85		X	
New York	X			98		X
North Carolina	X		87	98	X	
Ohio	X			98	X	
South Carolina	X					X
Tennessee	X		70		X	
Texas	X		54	91	X	
Virginia	X		66		X	
Washington	N/A		N/A			X

NOTES: States may test in more than one subject and at multiple grade levels; the highest gra de level required for graduation is shown in the table. A state is marked N/A if it did not have a minimum competency test in 1996 but plans to implement a test. Pass - ing rates apply to the class of 1995, except in Minnesota, and are averaged if tests were re quired in different subjects. The passing rate for Minnesota is the average of reading and mathematics passing rates for public sch ool students in the class of 2001. Passing rate is blank if not available.

SOURCES: American Federation of Teachers, *Making Standards Matter* (Washington, D.C., 1997), and Department of Children, Families & Learning.

In schools with many black or Hispanic students, the potential for high achievement was especially likely to be diminished as a result of the tests. When remediation was offered to students doing poorly on the test, Asian students benefited the most. Asian students had more problems initially when these tests were implemented, but over several years they increasingly benefited through remediation and reached higher levels of achievement. The tests increased the dropout rate, primarily among Asian and white students.

Another study based on a random sample of 77,000 Florida high-school students in 75 high schools also reported an increase in dropout rates among white students who were passing their courses but who failed the test. Minority students, however, were not more likely to leave school as a result of failing the test.[27]

27 Bryan W. Griffin and Mark H. Heidorn, "An Examination of the Relationship Between Mini - mum Competency Test Performance and Dropping Out of High School," *Education Evaluation and Policy Analysis* 18 (Fall 1996): 243-252.

The final word on minimum competency testing may come from the courts. In 1997, one of the first court challenges to testing standards was brought to Federal District Court in North Carolina. [28] The plaintiffs, a group of students who had failed a competency test, accused the Johnson County public schools of violating their rights by using a test as the sole criterion to determine whether they should be promoted or retained in grade. The suit also alleged that the test violated the rights of minority children because they scored lower on average. The test is given to all North Carolina students in third through eighth grade.

Retention

Retention is the practice of holding students back when they are not ready for the next grade. The opposite practice, commonly known as social promotion, advances students regardless of their achievement. A recent report by the American Federation of Teachers described the history of retention policies. [29] Social promotion was the rule in the 1970s as educators became aware of the negative effects of retention on students' self-esteem. By the 1980s, the pendulum was moving in the opposite direction, and many districts introduced stringent testing and retention policies. By the end of the 1980s, however, social promotion was coming into favor again.

Nationally, students who are held back instead of being promoted get little additional remedial help.

The retention side regained prominence in the 1990s as many states implemented minimum competency tests. Retention became a policy response of school districts to students who failed the test. Public schools in Chicago, for example, require all students at third, sixth, eighth, and ninth grades who are below grade level on the Iowa Test of Basic Skills to attend summer school and pass the test or be retained. In Spring 1997, about 43,000 students—including almost half of Chicago's ninth graders—were told that they would have to go to summer school. Clearly this type of policy also raises substantial financial concerns.

In 1997, the American Federation of Teachers surveyed 85 of the 820 largest school districts on their retention policies. [30] The survey revealed that districts throughout the country had very different policies and practices toward retention and usually did not have explicit performance standards for making retention decisions. They found that:

- **Nationwide, most districts had not taken specific steps to help students faced with a likely retention and had few alternative or remedial programs for students who had been retained.**

The most common remedial programs offered in about half of the districts surveyed were extra homework and pull-out programs. About one-third of the

28 Somini Sengupta, "14 Carolina Children Sue a District Over Testing," *New York Times*, August 6, 1997.

29 American Federation of Teachers, *Passing on Failure*.

30 Ibid.

districts offered one-on-one adult tutoring, which research has described as the best remedial practice. About 40 percent of districts offered summer school, and only 3 percent had Saturday classes.

The research we reviewed did not address the possible impact of retention on students who might be motivated to work harder to avoid being held back. According to one report, student attendance and test scores improved in Chicago as soon as the threat of summer school for failing students was announced.[31]

School System Reform

School system reform does not necessarily improve student achievement.

Some schools and school districts with low levels of student achievement have been forced into reorganization. Chicago is a prime example of a massive effort at reform, perhaps the most extensive ever attempted. Reform on a smaller scale has take place in New York City, Miami, and Denver, among other cities. The Chicago reform began with the Illinois Legislature's passage of the Chicago School Reform Act in 1988. The reform decentralized administration of the schools, increased community involvement, instituted goals for each school, reallocated resources to individual schools, transferred principals and eliminated their job tenure, and created site-based (school-based) leadership teams with community participation. An evaluation showed the following effects after reform in comparison with pre-reform years: (1) performance of elementary students decreased on standardized tests; (2) high school graduation rates and test scores had some increases; (3) schools with more students of limited-English proficiency or more students eligible for a subsidized lunch did worse on standardized tests after the reform; but (4) schools with large Hispanic populations did better on tests, presumably because of extensive involvement of the Hispanic community in the reform effort.[32] The reform effort in Chicago was unique in many ways, which makes it impossible to say whether other school system reforms would have the same outcome. Nevertheless, Chicago illustrates that reform is a not a panacea.

FUNDING AND ACHIEVEMENT

The question of whether spending more on schools will improve student performance has been hotly debated. The "Coleman Report" in 1966 was perhaps the first major study to suggest that funding did not have much impact on student achievement.[33] Erik Hanushek has published several reviews that synthesized the research on this question. His 1989 analysis of 187 studies

31 Daniel Glick, "Summer 'Shock Therapy'," *Newsweek*, June 23, 1997, 67.

32 Thomas A. Downes and Jacquelyn L. Horowitz, *An Analysis of the Effect of Chicago School Reform on Student Performance* (Chicago: Federal Reserve Bank of Chicago, 1994): 13-35.

33 J. Coleman, E. Campbell, C. Hobson, J. McPartland, A. Mood, F. Weinfeld, and R. York , *Equality of Educational Opportunity* (Washington, D.C.: U.S. Government Printing Office, 1966).

found that there was no systematic relationship between education expenditures and student achievement. [34]

A 1996 report by the National Conference of State Legislatures compiled more recent research and raised questions about Hanushek's statistical methods.[35] The report also pointed to a study of spending in New York State that showed a moderate positive relation between expenditure and achievement at various grade levels and in several subject areas.

Hanushek returned to the debate in 1997 with an updated review of the research. According to his latest review of 400 research reports:

- **Hanushek found that there was not a strong or consistent relationship between student performance and school resources if family inputs were taken into account.** [36]

More funding to schools, without program changes, is unlikely to increase achievement.

Another new and carefully done study, which examined school expenditures in relation to student scores on the National Assessment of Educational Progress test in mathematics, found support for increased funding when it increased the teacher-student ratio (which is consistent with research on class size, as cited earlier).[37] This analysis showed that fourth graders who were in classes that were smaller than average in size were about six months ahead of their peers in larger classes. One benefit of a higher teacher-student ratio was that it reduced problem behaviors in the classroom, which, in turn, improved the social environment of the school and led to better performance in mathematics.

SUMMARY

Our review of educational research showed that only a few programs or strategies have consistently proven their worth in helping low-achieving students. We compared the likely effectiveness of various remedial programs or practices in Figure 2.2 based on our research review. One-on-one tutoring has the best record of effectiveness, as do several remedial reading programs that use it, such as Success for All and Reading Recovery. Small class sizes were also effective and seem to be the only strategy where increased funding for schools had a demonstrable impact. Even in effective programs, however, most of the gains are made by students in the earliest grades; much less is known about the effectiveness of remedial programs in middle or secondary

34 Erik Hanushek, "The Impact of Differential Expenditures on School Performance," *Educational Researcher* 18 (May 1989): 45-65.

35 National Conference of State Legislatures, *The Relationship Between Educational Expenditure and Student Achievement: When Does Money Matter?* (Denver, 1996).

36 Eric A. Hanushek, "Assessing the Effects of School Resources on Student Performance: An Update," *Educational Evaluation and Policy Analysis*, 19 (Summer 1997): 141-164.

37 Harold Wenglinsky, *How Expenditures Improve Student Performance and How They Don't* (Princeton, NJ: Educational Testing Service, 1997).

Figure 2.2: The Likely Effectiveness of Remedial Programs

Remedial Programs Most Likely To Be Effective	Remedial Programs With Uncertain Effectiveness	Remedial Programs Not Likely To Be Effective
Individual tutoring	Computer-assisted	Extended day
Small class size	Continuous progress	Extended year
Comer reform model	Full-day kindergarten	Paideia program
Special reading programs (e.g., Success for All, Reading Recovery, Direct Instruction)	Retention in grade versus social promotion for students not passing a minimum competency test	Increased funding (except for class-size reduction)
Minimum competency testing[a]	Summer school	Large-scale school system reform
	Ability grouping	Coalition of Essential Schools model
	Parental involvement	

[a]Minimum competency testing is also likely to have a negative effect on high-achieving students and increase dropout rates.

SOURCE: Office of the Legislative Auditor.

schools. The effectiveness of any program also depends on how faithfully it is implemented as designed, and the effectiveness of a program might be limited inadvertently by other situations in a school.

Overall, Title I programs for disadvantaged children have not been effective. Most of the variation among students in their level of achievement was related to individual or family characteristics, including family income, parental expectations, racial or ethnic group, limited-English proficiency, frequent changes in schools, disability, health problems, and having a single parent.

Minimum competency tests may lead to better academic performance by low-achieving students but are likely to reduce the performance of high-achieving students, especially among minority students. We also found that the passing rate on Minnesota's Basic Standards Tests was lower than the passing rates on similar tests in other states.

In the next two chapters we report on the remedial practices and programs that schools in Minnesota used during the 1996-97 school year. We compare Minnesota's programs with the research literature to assess whether our state is using the types of programs that are most likely to be effective. We also do our own statistical analysis of the effectiveness of the state's remedial programs.

School Practices

CHAPTER 3

In the previous chapter, we reviewed the research literature to learn about the effectiveness of various practices to help low-achieving students perform closer to grade-level standards. This chapter discusses how Minnesota schools provided remedial education during the 1996-97 school year. Specifically, our research focused on the following questions:

- **How many students received remedial education services during the 1996-97 school year? What types of students received remedial services?**
- **What kinds of remedial education programs and services did Minnesota schools provide? How much remediation did students receive?**
- **How did schools respond to some students' failure to pass the Minnesota Basic Standards Tests?**

We surveyed schools about their remedial practices.

The Department of Children, Families & Learning collects only limited data on schools' remedial programs. Thus, to answer our research questions, we had to rely on the perceptions and reports of principals about the remedial services that their schools' provided during the 1996-97 school year. We surveyed a random sample of 659 of the state's approximately 1,450 public K-12 schools. Expecting that remedial education approaches might differ by school level, we used different sampling rates for elementary, middle, and secondary schools. Also, we further weighted our sample to include more schools with larger enrollments and more schools with larger percentages of students eligible for free or reduced-priced lunch. We sent questionnaires to 319 of the state's 900 elementary school principals, all of the state's 130 middle school principals, and 210 of the state's 426 secondary school principals. We received responses from 79 percent of the elementary, 80 percent of the middle, and 84 percent of the secondary school principals.

Overall, we found that elementary schools, especially those with higher percentages of children eligible for free or reduced-priced lunch, were more involved in providing their students with remediation than middle or secondary schools. More students received remedial services, often individual tutoring, and these schools were more likely to have implemented various research-based remedial programs that have been shown to be effective elsewhere. Also, they

used a wider variety of methods to involve parents in their children's education. However, much remains to be done, especially in middle and secondary schools, which tended to serve fewer students and to use fewer proven approaches. While middle and secondary schools indicated that they mainly stressed student attendance in approaching remedial education, these and other efforts were either too new to have any effect on remediation or were too little, given the size of the problem.

STUDENT PARTICIPATION

There are no statewide data regarding the number of students who are in need of or have received remedial education. Using data obtained from our survey of elementary, middle, and secondary principals, we estimated that:

- **Approximately 24 percent of the state's public K-12 enrollment received remedial education at some time during the 1996-97 school year; 2 percent needed remedial services, but did not receive them.**

About one-fourth of K-12 students received remedial services during 1996-97.

Student participation in remedial programs differed by school level (elementary, middle, and secondary) and the percentage of schools' enrollment eligible for free or reduced-priced lunch. Perhaps because of their long association with Title I, we found that:

- **Elementary schools, especially those with higher rates of student poverty, provided remedial services to a greater percentage of their enrollment than middle or secondary schools.**

As shown in Table 3.1, elementary, middle, and secondary school principals estimated remedial education participation rates of 33, 26, and 19 percent, respectively, during the 1996-97 school year. Elementary, middle, and secondary schools with higher rates of student poverty reported participation rates of 37, 31, and 21 percent respectively, compared with rates of 26, 20, and 17 percent in schools with fewer students in poverty. [1] The percentage of students needing or receiving remedial services in secondary schools could be somewhat depressed because of student dropout. It is likely that many of the students who drop out of school once they reach secondary school have achievement problems and likely would have needed remedial services in school.

School principals estimated that only a small number of students, usually middle or secondary students, who needed remedial services during the last school year did not receive them. Approximately half of the elementary schools, and about two-thirds of the middle and secondary schools, had students who needed, but did not receive, remedial services. From 55 to 68 percent of the principals in these schools reported that lack of money was a major reason why some students had not received remediation. However, parent and student choice was almost equally

1 We defined high-poverty schools as those where the percentage of students eligible for free or reduced-priced lunch was greater than the statewide median of 28 percent. In low-poverty schools, the percentage of students who were eligible for subsidized lunch was 28 percent or less.

Table 3.1: Student Participation in Remedial Education, 1996-97

Level	Percent of Enrollment that Received Remedial Services
Elementary Schools	33%
High-poverty schools	37
Low-poverty schools	26
Middle Schools	26
High-poverty schools	31
Low-poverty schools	20
Secondary Schools	19
High-poverty schools	21
Low-poverty schools	17

NOTE: The question was: "About what percentage of your students received remedial services at some time during the 1996-97 school year to help bring their academic achievement closer to standards for their grade level?"

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

as important. Fifty-eight percent of the elementary, 65 percent of the middle, and 53 percent of the secondary school principals reported that parents did not want their children to participate. Also, 52 percent of the middle school and 69 percent of the secondary school principals noted that students simply chose not to receive remedial services.

According to school principals, few elementary and middle school students were not promoted to the next grade or level at the end of the 1996-97 school year. Of those students who were held back (less than 1 percent), almost all had received remedial services during the year. While more secondary students were held back, fewer of them had received remedial help. Our survey found that about 3 percent of secondary students either were held back or were behind in the number of credits necessary to graduate. Yet only about two-thirds of them had received remedial services during the year.

Principals said that remedial students often received little support at home.

We asked school principals to provide various information that described the students in their schools who received remedial services during the 1996-97 school year. As shown in Table 3.2, 51 percent of the elementary principals who responded to our survey said that half or more of their remedial students received little support at home and 36 percent reported that these students were not motivated to learn. Significantly more middle school principals (about 72 percent) reported that half or more of their remedial students enjoyed little support at home and were not well motivated. In addition, 42 percent reported that the majority of remedial students had behavior problems. Of the secondary school principals, 76 percent described half or more of their remedial students as having low motivation, 68 percent cited poor home life, and 51 percent described behavior problems.

Table 3.2: Principals' Assessments of Remedial Education Students' Characteristics, 1996-97

Characteristic	Percent of Elementary School Principals Who Said:					Percent of Middle School Principals Who Said:					Percent of Secondary School Principals Who Said:				
	All or Nearly All	About 75%	About 50%	About 25%	Few or None	All or Nearly All	About 75%	About 50%	About 25%	Few or None	All or Nearly All	About 75%	About 50%	About 25%	Few or None
Limited-English proficiency	4%	2%	4%	17%	73%	1%	1%	2%	15%	81%	4%	3%	5%	11%	76%
Changed schools frequently	2	7	10	38	43	1	6	21	34	37	0	10	17	40	33
Poor attendance record	1	5	7	37	51	3	7	18	46	26	4	19	28	34	15
Behavioral problems	0	6	11	44	39	3	9	30	44	14	1	16	34	38	11
Little support at home	6	16	29	35	14	11	31	29	25	4	6	23	39	27	6
Received inadequate instruction earlier	2	3	7	20	68	3	6	6	28	56	3	9	10	35	42
Limited cognitive ability	3	8	19	38	33	3	11	36	33	18	4	15	34	32	15
Lack of motivation	2	9	25	43	20	14	21	37	24	4	7	34	35	20	5
Not developmentally ready	3	7	12	46	33	2	6	15	49	28	1	8	19	44	29
Special education students with IEPs	3	3	8	36	51	6	7	16	37	35	13	11	24	29	24

NOTE: The question was: "To the best of your knowledge, about how many of your students who rec eived remedial education during the 1996-97 school year had the following charac - teristics?" Percentages may not total 100 due to rounding.

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

Principals said that many secondary remedial students also received special education.

It is interesting to note that 48 percent of the secondary principals reported that the majority of their remedial students were also receiving special education services—significantly more than at the elementary and middle school level. Part of this may be due to a lack of funding options at the secondary level. Historically, most remedial programs, like the federal Title I program and the state assurance of mastery program, have focused on elementary students. Secondary schools, however, have not received such funding and may have turned more to special education to help low-achieving students. In addition, some special education students will have to pass the Minnesota Basic Standards Tests as a condition of graduation. Secondary schools may be focusing more remedial resources on ensuring that these students have the basic skills necessary to pass the graduation tests.

We also found that:

- **Elementary schools with higher rates of student poverty reported providing remedial services to a different —and more difficult to serve—student population.**

Elementary principals in schools with higher rates of student poverty were more likely than principals in elementary schools with lower rates of student poverty to indicate that the majority of their remedial students had problems with the English language (13 percent compared with 3 percent), changed schools frequently (25 percent compared with 10 percent), had poor attendance records (17 percent compared with 5 percent), had little home support (59 percent compared with 36 percent), or received inadequate instruction earlier in their educational careers (15 percent compared with 7 percent).

As discussed in Chapter 1, there are no statewide eligibility criteria for remedial education. We asked principals to indicate how frequently they considered various factors when determining which students needed remedial education services. As shown in Table 3.3, schools placed great emphasis on teacher recommendations and classroom performance. Perhaps due to their reliance on Title I, elementary schools relied more heavily on standardized tests than middle or secondary schools did. Elementary schools that received Title I funds generally reported that, on average, students had to score in the 37th percentile or below on standardized tests in mathematics or reading to be eligible for remedial services funded through Title I. The 50th percentile is considered grade level. In contrast, middle and secondary schools considered attendance rates and counselor recommendations more frequently than elementary schools.

In addition to the factors shown in Table 3.3, some elementary principals reported that they relied on special education criteria to help them identify whether students needed special services, remedial services, or a combination of both. Also, local assurance of mastery criteria helped schools determine the need for remedial services. In contrast, middle and secondary schools frequently pointed out that they relied on results from the Minnesota Basic Standards Tests to identify students who needed remedial services.

Table 3.3: Factors Considered in Determining Student Need for Remedial Services, 1996-97

Factor	Almost Always	Usually	Sometimes	Rarely
Elementary School				
Parent referral	48%	20%	25%	8%
Teacher recommendation	75	22	3	0
Standardized test scores	58	29	9	4
Attendance rate	10	16	36	38
Previously received services	35	37	25	4
Student behavior	15	18	42	25
Counselor recommendation	18	15	42	26
Classroom performance	69	25	5	< 1
Middle School				
Parent referral	53%	20%	21%	7%
Teacher recommendation	69	26	5	0
Standardized test scores	42	38	18	2
Attendance rate	14	36	37	14
Previously received services	42	29	20	9
Student behavior	18	25	41	17
Counselor recommendation	40	34	22	4
Classroom performance	61	34	4	1
Secondary School				
Parent referral	61%	17%	20%	3%
Teacher recommendation	68	25	7	0
Standardized test scores	40	37	19	4
Attendance rate	14	27	43	16
Previously received services	34	40	25	1
Student behavior	13	29	45	12
Counselor recommendation	39	34	25	3
Classroom performance	59	33	7	1

NOTE: The question was: "How frequently did your school consider each of the following factors when determining which students needed remedial education to help them achieve closer to standards for their grade level? " Percentages may not total 100 due to rounding.

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

Elementary schools stressed basic skills while middle and secondary schools stressed attendance.

REMEDIAL EDUCATION SERVICES

We asked our sample of elementary, middle, and secondary school principals to indicate the extent to which their schools emphasized various approaches to help low-achieving students perform closer to grade-level standards during the 1996-97 school year. We found that:

- **Schools stressed different approaches to help low-achieving students perform closer to grade level, depending on school level and student poverty.**

As shown in Table 3.4, elementary schools emphasized a wider variety of specific remedial approaches than middle or secondary schools to help low-achieving students. According to our survey, slightly more than half of the elementary schools surveyed reported that they strongly emphasized using instructional aides and teaching basic skills in the regular classroom. In addition, about one-third reported that they strongly emphasized providing extra instructional time, involving parents, training staff, and using specially licensed staff and multiple learning strategies. Also, elementary schools with higher percentages of students eligible for free or reduced-priced lunch were more likely than other elementary schools to stress attendance efforts, provide incentives, and offer special courses to help remediate low-achieving students.

In contrast, fewer middle or secondary schools reported that they strongly emphasized any one approach. Most strongly emphasized in middle schools were student attendance (38 percent), adding extra instructional time (33 percent), using multiple learning strategies (31 percent), and basic skills instruction in the classroom (30 percent). Middle schools with higher rates of students eligible for subsidized lunch also strongly emphasized implementing schoolwide curriculum changes. Secondary schools strongly emphasized attendance (45 percent); secondary schools with higher rates of student poverty also stressed using instructional aides for remediation.

As we pointed out in Chapter 2, grouping students by ability can be effective in raising remedial students' achievement. However, we found that the majority of principals reported that ability grouping was emphasized little or not at all. In addition, they reported little or no emphasis upon community/business involvement in helping to remediate students. Finally, the majority of elementary and secondary principals, and slightly fewer principals in middle schools, reported little or no emphasis on using an incentive system to help low-achieving students.

To learn how students were actually served by remedial programs, we asked school principals to estimate the percentage of their low-achieving students who received remedial services in a variety of methods. As shown in Table 3.5:

Most elementary schools provided one-on-one tutoring.

- **Most low-achieving students, especially those attending schools with higher rates of student poverty, received remedial services through a wide variety of specific methods to address their problems.**

Seventy-five percent of elementary schools reported that half or more of their remedial students received help from instructional aides in the regular classroom and 73 percent reported using small group instruction in the regular classroom. Also, 53 percent reported that half or more of their remedial students received individual tutoring by instructional aides, 48 percent reported having individual learning plans, and 46 percent said that half or more of their students received small group instruction outside the regular classroom. In addition, elementary

Table 3.4: General Remedial Education Approaches Used by Schools, 1996-97

Approach	Percent of Elementary School Principals Who Said:				Percent of Middle School Principals Who Said:				Percent of Secondary School Principals Who Said:			
	Strongly Emphasized	Moderately Emphasized	Little or Somewhat Emphasized	Not Emphasized At All	Strongly Emphasized	Moderately Emphasized	Little or Somewhat Emphasized	Not Emphasized At All	Strongly Emphasized	Moderately Emphasized	Little or Somewhat Emphasized	Not Emphasized At All
Reduced class size	31%	31%	26%	12%	26%	26%	28%	21%	27%	31%	32%	10%
Schoolwide curriculum changes	22	37	35	7	18	48	29	6	13	38	38	10
Schoolwide instructional practices	30	42	23	5	26	48	22	4	17	44	35	5
Extra instructional time	35	35	23	7	33	40	18	9	22	39	27	13
Parent involvement	34	48	17	< 1	31	45	21	3	24	46	29	1
Community/ business involvement	6	23	43	28	4	21	44	30	7	16	42	36
Staff training	34	48	16	2	22	49	25	4	17	49	33	2
School attendance	35	35	24	6	38	39	18	5	45	39	14	2
Incentive system	14	32	33	20	14	41	28	17	12	31	31	26
Specially licensed staff	36	29	26	9	22	40	25	14	23	35	20	21
Instructional aides	55	30	13	3	33	39	22	7	25	41	21	13
Ability grouping	7	34	42	17	9	34	45	13	11	34	36	20
Homework	15	52	30	4	22	54	23	2	10	46	37	7
Specialized course offerings	5	21	35	39	15	33	32	21	23	50	19	9
More staff in the regular classroom	23	38	25	14	17	35	29	19	11	33	28	29
Basic skills instruction in the regular classroom	51	35	12	2	30	52	16	2	19	47	29	5
Multiple learning strategies	36	45	17	2	31	38	28	3	20	44	32	4

NOTE: The question was: "How much did your school emphasize each of the following general ap proaches during the 1996-97 school year to help low-achieving students perform closer to standards for their grade level? " Percentages do not total 100 due to rounding.

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

Table 3.5: Principals' Assessments of How Remedial Education Students Received Remedial Services, 1996-97

Method of Service	Percent of Elementary School Principals Who Said: All or Nearly All	About 75%	About 50%	About 25%	Few or None	Percent of Middle School Principals Who Said: All or Nearly All	About 75%	About 50%	About 25%	Few or None	Percent of Secondary School Principals Who said: All or Nearly All	About 75%	About 50%	About 25%	Few or None
Multiple teachers in the regular classroom	9%	6%	11%	25%	49%	9%	6%	17%	26%	42%	4%	4%	9%	29%	55%
Instructional aides in the regular classroom	41	20	14	15	11	19	16	22	25	20	9	12	18	27	33
Individual tutoring by a specially-trained teacher	7	5	9	33	47	6	10	11	28	44	5	9	9	35	42
Individual tutoring by a regular education teacher	9	5	13	38	35	10	12	9	37	31	5	9	20	35	31
Individual tutoring by an instructional aide	17	15	21	29	19	6	14	20	37	24	5	8	16	36	35
Individual tutoring by an adult or peer volunteer	3	5	12	42	38	0	3	5	26	66	2	2	13	30	53
Computer-assisted in - structional labs	21	9	17	21	33	12	10	9	23	47	4	10	10	28	49
Computer-assisted in - struction in the regular classroom	11	4	10	21	54	8	4	8	22	58	4	5	13	25	53
Small group instruction in the regular classroom	35	17	21	22	6	11	22	20	28	18	7	10	27	34	22
Small group instruction outside the regular classroom	12	14	20	36	19	5	11	18	41	24	6	16	13	33	32
Mentoring	< 1	1	5	20	74	1	2	5	25	67	1	3	8	27	61
Being assigned to an advisor	3	1	1	7	88	59	4	1	4	32	26	3	6	16	50
Having an individual learning plan	31	8	9	30	21	6	11	17	36	29	11	13	23	29	25

NOTE: The question was: "About how many of your low-achieving students, if any, received reme dial services in each of the following ways during the 1996-97 school year to help them achieve closer to standards for their grade level? " Percentages may not total due to rounding.

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

schools with higher rates of student poverty reported using significantly less individual tutoring by adult volunteers or peers (15 percent compared with 29 percent), but more individualized computer labs (49 percent compared with 39 percent) than schools with fewer students in poverty. As discussed in Chapter 2, one-to-one tutoring has been shown to be one of the most effective remedial methods, while the effectiveness of individualized computer instruction has been largely unproven.

In middle schools, 64 percent of the principals reported that half or more of their remedial students were assigned to an advisor, 57 percent said that over half of remedial students had instructional aides in the classroom, and 53 percent indicated that over half of remedial students received small group instruction within the regular classroom. Few middle school principals reported widespread use of individual tutors or computerized instruction.

No single method of remediation was dominant in secondary schools. Forty-seven percent of secondary principals reported that half or more of their remedial students had individual learning plans, and 44 percent reported that the majority of remedial students received help via small group instruction in the regular classroom. Like their middle school counterparts, few secondary school principals indicated that individual tutoring was commonplace.

Some schools used *Reading Recovery* with remedial students.

As discussed in Chapter 2, schools that used research-based remedial strategies that were developed by others, such as Reading Recovery and Success for All, were more successful in remediating students than schools that relied on locally-developed models. We questioned principals about the specific instructional program or model that they used for remediation during the 1996-97 school year and found that:

- **Elementary schools, especially those serving higher percentages of students in poverty, were significantly more likely to use specific instructional programs developed by others for remedial education than middle or secondary schools.**

Forty-three percent of the elementary schools compared with 29 percent of the middle and 8 percent of the secondary schools reported using special, proprietary programs developed by others for remedial education. Also, elementary schools serving large proportions of students in poverty were also significantly more likely to be using such programs.

Most of the principals who reported using a special, proprietary program said that they used Reading Recovery (30) —or their own rendition of it. Other frequently mentioned programs, some of which were discussed in Chapter 2, included Higher Order Thinking Skills (19), Read Naturally (17), Computer Curriculum Corporation (CCC) (17), and Success for All (9). As pointed out in Chapter 2, Reading Recovery and Success for All have been shown to be effective in raising achievement levels among low-performing students, while CCC has not.

Finally, we asked principals when they generally provided remedial services to their students during the last school year. We found that, in addition to providing remediation during the regular school day:

- **Schools extensively used extended-day or summer programs to provide remedial services to low-achieving students.**

Most schools also provided remedial services beyond the regular school year.

As shown in Table 3.6, 39 percent of the elementary schools, 69 percent of the middle schools, and 46 percent of the secondary schools operated remedial programs before or after school. In addition, approximately 58 percent of elementary schools, 64 percent of the middle schools, and 66 percent of the secondary schools said that they used summer school programs. Elementary schools with higher rates of student poverty were more likely to use extended-day programs and full-day, everyday kindergarten than elementary schools with lower rates of student poverty. Middle schools with higher rates of student poverty used weekends to remediate students significantly more than middle schools with lower rates of student poverty. On the other hand, secondary schools with higher rates of student poverty were less likely to offer summer school than were secondary schools with lower rates of student poverty.

Table 3.6: When Remedial Services Were Provided to Students, 1996-97

	Elementary Schools		Middle Schools		Secondary Schools	
When Provided	Number	Percent	Number	Percent	Number	Percent
Extended day	99	39%	72	69%	80	46%
Extended year	45	18	27	26	34	20
Summer school	147	58	67	64	115	66
Holidays/vacations	2	1	2	2	0	0
Weekends	7	3	12	12	17	10
During the regular school day	248	97	94	90	159	91

NOTE: The question was: "When did your school or district generally provide remedial education to students during the 1996-97 school year? "

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

In addition, school principals reported that teachers, regardless of school level, were generally available to help students for an hour before or after the regularly scheduled day. Also, elementary students could use the school library for an average of 50 minutes per day before or after school and the computer lab for an average of 42 minutes. Middle and secondary students had slightly more access to library and computer facilities. Middle school libraries were generally open for an average of 70 minutes beyond the school day and computer labs for about 61 minutes. In secondary schools, libraries were generally open for an average of 85 minutes and computer labs for 80 minutes beyond the regularly scheduled day.

We asked school principals to estimate how many minutes of remedial services per week, on average, a low-achieving student received during the 1996-97 school year. We found that:

- **Middle school and secondary school students received more remedial services on average than elementary students.**

Low-achieving students received about 3 hours of remedial services per week.

Elementary schools reported an average of 179 minutes per low-achieving student per week, with a median of 150 minutes per week. Middle and secondary schools reported that they provided, on average, 208 and 209 minutes of remedial service per week, with a median of 200 minutes. However, remedial students in elementary schools that had higher student poverty rates received significantly more remedial instruction time than students in elementary schools with lower rates of student poverty: 191 minutes per week compared with 157 minutes per week. In contrast, student poverty did not affect the amount of remedial instruction that students received in middle and secondary schools.

In all likelihood, schools provided more remedial time per week to middle and secondary students because they delivered remedial services via special, regularly scheduled classes that students took —for example, a basic skills math class. As we showed earlier in Table 3.4, 48 percent of middle school principals and 73 percent of secondary principals said that their schools moderately or strongly emphasized specialized course offerings for remedial students. In contrast, only 26 percent of elementary schools strongly or moderately emphasized specialized courses.

Approximately two-thirds of all students, regardless of grade level, received most of their remedial services in the regular classroom. Once identified as needing remedial services, students generally received services for the entire year, especially elementary students.

EFFORTS TO HELP STUDENTS FAILING THE BASIC STANDARDS TESTS

We asked principals in schools where one or more students had failed at least one of the Minnesota Basic Standards Tests since they were first given in 1996 what special strategies, if any, they used last school year to help these students. According to our survey, 12 percent of the elementary, 75 percent of the middle, and 87 percent of the secondary schools reported that one of more of their students had failed at least one of the basic skills tests.

As shown in Table 3.7, we found that:

- **Most schools were trying to address the needs of students who failed one or more of the Minnesota Basic Standards Tests.**

Table 3.7: Strategies Used to Help Students Who Had Failed the Minnesota Basic Standards Tests, 1996-97

	Elementary Schools		Middle Schools		Secondary Schools	
Strategy	Number	Percent	Number	Percent	Number	Percent
More time on basic skills instruction during the regular school day	20	71%	57	77%	118	78%
More staff providing basic skills instruction	10	36	34	46	80	53
Met with individual students and parents	20	71	42	57	77	51
Developed individual learning plans	13	46	13	18	34	23
Offered classes on test-taking/study skills	12	43	30	41	75	50
Added instructional time before or after school	14	50	37	50	54	36
Focused summer school/extended-year programs on basic skills	17	61	55	74	77	51
Gave students practice tests	18	64	61	82	125	83
Shared students' previous test scores with teachers	16	57	36	49	99	66
Offered special basic skills classes	8	29	26	35	65	43

NOTE: The question was: "If yes, which of the following strategies, if any, did your school use du ring the 1996-97 school year specifically to help those students who had failed one or more of the graduation tests? "

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

Schools used many strategies to help students who failed graduation tests.

More than half of the schools reported giving students practice tests (81 percent), spending more time on basic skills (77 percent), sharing students' test scores with teachers (60 percent), holding summer schools (59 percent), and meeting with students and parents (56 percent). Elementary schools that had eighth-grade students were significantly more likely than middle and secondary schools to develop individual learning plans for students. Along with middle schools, they were also significantly more likely than secondary schools to extend the school day or have summer school to provide remedial services. On the other hand, secondary and middle schools were significantly more likely than elementary schools to give their students practice tests to help them pass the basic skills tests.

PARENT AND COMMUNITY INVOLVEMENT

As we pointed out in the previous chapter, research has shown that effective schools generally enjoy the support of parents and the community. We asked principals about their efforts to increase parent involvement for students who received remedial services. We found that:

- **Elementary schools were more likely than middle and secondary schools to try a variety of measures to involve parents in their children's remedial education.**

Most elementary schools encouraged parental involvement.

As shown in Table 3.8, elementary school principals made significantly more use of the following strategies: parent volunteers (83 percent compared with 55 percent and 37 percent in middle and secondary schools), home visits (34 percent compared with 21 and 17 percent), community events (48 percent compared with 29 and 30 percent), and homework (66 percent compared with 59 and 39 percent). Middle and secondary schools were slightly more likely to teach basic skills classes to parents (31 and 37 percent respectively compared with 14 percent in elementary schools), and in secondary schools, offer basic English classes to parents (23 percent compared with 10 percent in both elementary and middle schools). Schools with higher rates of student poverty were also more likely to use the following strategies than schools with lower rates: home visits (33 percent compared with 16 percent), multicultural liaisons (28 percent compared with 15 percent), and community events (45 percent compared with 30 percent).

Table 3.8: Strategies Used to Increase Parent Involvement for Remedial Education Students, 1996-97

	Elementary Schools		Middle Schools		Secondary Schools	
Strategy	Number	Percent	Number	Percent	Number	Percent
Parent volunteers	210	83%	57	55%	64	37%
Resource room	90	35	38	37	65	37
Home visits	86	34	22	21	30	17
Basic skills classes	35	14	32	31	64	37
English classes	25	10	10	10	40	23
Multicultural liaisons	62	24	20	19	38	22
Community events	123	48	30	29	52	30
Homework involvement	167	66	61	59	67	39
Telephone calls	232	91	94	90	154	89
Correspondence	207	82	90	87	144	83
Parent meetings	222	87	90	87	135	78

NOTE: The question was: "Which of the following strategies, if any, did your school generally use during the 1996-97 school year to increase parent involvement for remedial education students? "

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

While elementary schools were more likely to try a variety of measures to involve parents in their children's remedial education than middle or secondary schools, our survey results also indicated that:

- **There has been limited coordination between schools and community resources such as private businesses and organizations to help solve the problems of remedial students.**

Forty-two percent of elementary and middle schools and 37 percent of secondary schools reported moderate to high coordination with city or county social services. As shown in Table 3.9, almost two-thirds of secondary schools (66 percent) and over one-half of middle schools (51 percent) reported moderate to high coordination with area learning centers. Most schools, regardless of level, reported little to no coordination with community businesses, organizations, postsecondary schools, and other public schools. Schools serving higher percentages of students in poverty though reported more coordination with public health agencies (33 percent compared with 19 percent), private organizations and businesses (22 percent compared with 7 percent), and local libraries (25 percent compared with 14 percent) than did schools with lower rates of student poverty.

As shown in Table 3.10, elementary schools reported more favorable climate and support than middle and secondary schools. Although most schools reported that they were supported by the surrounding community, elementary school principals were more likely to report that staff were focused on increasing remedial students' skills, remedial students' parents and families valued academic skills, and that remedial students wanted to learn.

Table 3.10 also shows that:

- **Middle and secondary school principals were more likely than elementary schools principals to express some dissatisfaction with their remedial programs.**

Slightly more than 20 percent of them reported that they did not have appropriate instructional materials for remedial education compared with 9 percent of elementary principals. More important, 27 percent of the middle and 24 percent of the secondary school principals reported some dissatisfaction with their schools' remedial program compared with 17 percent of elementary school principals.

Our survey data also showed that:

- **Schools with higher rates of student poverty, regardless of level, expressed significantly less community support for their schools than did those with lower rates of student poverty.**

Whereas 79 percent of the schools that served lower percentages of students in poverty strongly agreed that their school was supported by the surrounding community, only 64 percent of the schools with higher rates of student poverty felt this way.

Table 3.9: Principals' Assessments of School Coordination Efforts, 1996-97

Group	Percent of Elementary School Principals Who Said:				Percent of Middle School Principals Who Said:				Percent of Secondary School Principals Who Said:			
	High Coordination	Moderate Coordination	Little Coordination	No Coordination	High Coordination	Moderate Coordination	Little Coordination	No Coordination	High Coordination	Moderate Coordination	Little Coordination	No Coordination
City/county social services	16%	26%	36%	22%	5%	38%	25%	32%	7%	30%	34%	30%
City/county public health services	5	26	40	29	2	24	34	40	3	21	39	37
Postsecondary school	4	13	21	62	0	3	24	72	3	21	29	46
Private organization (e.g., Girl Scouts)	3	19	25	54	0	13	27	61	1	7	27	65
Private business	2	13	31	54	3	9	34	53	1	10	35	53
Local library	6	22	42	31	1	16	32	51	1	10	34	55
Area learning center	13	19	17	51	25	26	27	22	34	32	18	16
Another public school	8	19	26	47	8	15	15	63	3	23	25	49

NOTE: The question was: "To what extent did your school coordinate remedial efforts with a ny of the following groups during the 1996-97 school year to help low-achieving students per - form closer to standards for their grade level? " Percentages may not total due to rounding.

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

Table 3.10: Principals' Assessments of Overall School Climate, 1996-97

Statement	Percent of Elementary School Principals Who Said:					Percent of Middle School Principals Who Said:					Percent of Secondary School Principals Who Said:				
	Agree Strongly	Agree Somewhat	Neutral	Disagree Somewhat	Disagree Strongly	Agree Strongly	Agree Somewhat	Neutral	Disagree Somewhat	Disagree Strongly	Agree Strongly	Agree Somewhat	Neutral	Disagree Somewhat	Disagree Strongly
My school is supported by the surrounding com - munity.	73%	22%	4%	< 1%	0%	64%	30%	4%	1%	1%	70%	21%	6%	2%	1%
Staff are focused on in - creasing remedial edu - cation students' skills.	71	26	2	1	< 1	49	42	7	2	0	32	53	10	2	2
Remedial students' par - ents and families value academic skills.	25	53	14	8	1	18	49	16	14	4	13	45	20	21	1
Remedial students want to learn academic skills.	34	54	9	2	< 1	23	52	15	7	3	14	50	20	14	2
We have appropriate in - structional materials for remedial education.	41	47	4	6	3	26	41	10	19	4	23	44	13	16	5
The district supports my school's efforts to de - liver remedial education.	64	28	3	3	2	64	27	5	3	1	50	38	6	3	3
My school is very satis - fied with its remedial services.	20	53	10	13	4	8	57	9	20	7	12	50	15	17	7
Our remedial services are very effective in im - proving students' aca - demic skills.	20	59	11	8	2	12	62	11	13	3	12	53	19	12	5

NOTE: The question was: "Please indicate whether you agree or disagree with each of the follo wing statements." Percentages may not total 100 due to rounding.

SOURCE: Office of the Legislative Auditor Survey of Elementary Schools (*N* = 256), Middle Schools (*N* = 105), and Secondary Schools (*N* = 176), 1997.

SUMMARY

We surveyed principals in a sample of schools about the remedial services that they provided to their low-achieving students during the 1996-97 school year. We found that elementary schools, especially those with higher percentages of children eligible for free or reduced-priced lunch, were more involved in providing their students with remediation than middle or secondary schools. More students received remedial services, often individual tutoring, and these schools were more likely to have implemented various research-based remedial programs that have been shown to be effective elsewhere. Also, they used a wider variety of methods to involve parents in their children's education. However, much remains to be done, especially in middle and secondary schools, where more principals expressed some dissatisfaction with their programs. Although remedial students there received more minutes of remedial services per week, on average, fewer students were served and schools used fewer proven approaches with them. While middle and secondary schools indicated that they mainly stressed student attendance in approaching remedial education, which, as we show in Chapter 4, was strongly related to student achievement, these efforts were either too new to have any effect on remediation or were too little given the size of the problem.

Program Effectiveness

CHAPTER 4

In previous chapters we documented the amount of money that Minnesota school districts received for remedial education and the services that schools have provided. We also reviewed research on the effectiveness of various remedial strategies and approaches. In this chapter we examine the effectiveness of remedial education in Minnesota. We addressed the following questions:

- **How effective has remedial education been in Minnesota compared with the nation?**
- **What characteristics of students, schools, or programs affect student achievement and the success of remedial efforts?**
- **To what extent have Minnesota schools used the remedial methods most likely to be effective?**

The state does not have data on the effectiveness of remedial programs in general and has only limited data on the effectiveness of programs funded under Title I. To answer our research questions, we analyzed schools' average reading and mathematics test scores of elementary students in Title I remedial programs and compared them with national averages. We then joined results from our survey of school principals on remedial practices with Title I test data to examine the relationship between test scores and school practices. We compared the practices that research has shown to be most successful with what has happened in Minnesota. Finally, we did a similar but more comprehensive analysis of student performance on the Minnesota Basic Standards Test, which is a requirement for students who will graduate in 2000.

Overall, we concluded that Title I remedial reading and mathematics programs have not successfully closed the gap between low-achieving children and other children, but Minnesota is no different from the rest of the nation on this. Although Minnesota schools have tried a variety of practices to improve reading and mathematics performance among low-achieving students, the practices most likely to be successful have not been used widely enough to have a substantial impact. Furthermore, as shown by students' high failure rate on the Minnesota Basic Standards Tests in reading and mathematics, schools have not been doing enough to help failing students.

Although federal and state policy use student poverty as the main criterion for directing funds toward remedial education, our analysis suggests that this may not be the best criterion to use for all students. The Legislature may wish to consider distributing some portion of remedial aid based upon students' academic need. This might be done by using students' test scores on standardized achievement tests, such as the Minnesota Basic Standards Tests or other tests that will be required under the state's new education accountability system.

TITLE I RESULTS

State and National Comparison

Our comparison of Minnesota's remedial programs funded through Title I with national results found that:

- **On average, student progress in Minnesota's Title I programs has been slight and little different than the national average; these programs have not bridged the gap between disadvantaged and nondisadvantaged students.**

Minnesota's Title I-funded programs have been no more effective than the programs nationwide.

To analyze the effectiveness of Title I remedial programs in Minnesota, we compared test scores in Minnesota with national averages. Until 1996, schools receiving Title I funds had to test participating students before and after they received remedial services. The standard measure of progress in a Title I program was the average difference between the pretest and post-test scores. We looked at test results for the three most recent school years for which data were available (from 1992-93 to 1994-95) for grades 3 to 5 for both reading and mathematics. [1] Progress from the pretest to the post-test, as shown in Table 4.1, is expressed in normal-curve equivalents (NCEs), which permit comparison of Title I students with other students, regardless of standardized tests used, years administered, and student population.

On average, the progress of students receiving Title I services in Minnesota has been only slightly different than the national rate. Progress of Minnesota students was sometimes ahead of the national average and sometimes behind. As Table 4.1 indicates, the largest difference between Minnesota and the national averages in grades 3 to 5 over three years was 3.7 NCEs in third-grade reading in 1994-95. In only 4 of the 18 comparisons by subject, year, and grade did the differences between state and national averages exceed 2 NCEs.

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1 Department of Children, Families & Learning, *System Performance Measure Report* (St. Paul, November 15, 1996); U. S. Department of Education , *State Chapter I Participation and Achievement Information 1992-93* (Washington, D.C., 1994); *State Chapter I Participation and Achievement Information 1993-94* (Washington, D.C., 1996), and *State Chapter I Participation and Achievement Information 1994-95* (Washington, D.C., forthcoming).

Table 4.1: Comparison of National and State Progress in Title I Programs, 1992-94

Test, School Year, and Grade	National Average Progress	Minnesota Average Progress[a]
Reading		
1992-93		
Grade 3	4.7	5.1
Grade 4	4.1	3.9
Grade 5	3.1	3.2
1993-94		
Grade 3	4.9	4.2
Grade 4	3.4	3.6
Grade 5	2.3	4.4
1994-95		
Grade 3	4.6	8.3
Grade 4	3.1	4.5
Grade 5	2.2	4.2
Mathematics		
1992-93		
Grade 3	5.9	5.1
Grade 4	6.1	3.9
Grade 5	4.2	3.2
1993-94		
Grade 3	4.4	5.8
Grade 4	4.2	4.7
Grade 5	3.1	4.4
1994-95		
Grade 3	5.7	5.2
Grade 4	4.8	2.2
Grade 5	4.1	3.8

[a]Change from pretest to post-test measured in normal curve equivalents (NCEs).

SOURCES: Department of Children, Families & Learning, *System Performance Measure Report* (St. Paul, November 15, 1996); U.S. Department of Education , *State Chapter I Participation and Achievement Information 1992-93* (Washington, D.C. 1994); *State Chapter I Participation and Achievement Information 1993-94* (Washington, D.C., 1996), and *State Chapter I Participation and Achievement Information 1994-95* (Washington, D.C., forthcoming).

Whether one looks at the state or nation, student progress in Title I programs has been small. Average annual gains in reading and mathematics have usually ranged from about 2 to 6 NCEs, as indicated in Table 4.1.

We also examined student progress in terms of percentiles instead of NCEs. [2] In 1994-95, for example, the national average of students on the Title I reading pretest in fourth grade was the 20th percentile. In the same year, Minnesota's fourth graders in Title I programs started at the 17th percentile in reading. After participating in Title I, fourth graders were at about the 25th percentile nationally and at about the 22nd percentile in Minnesota. Although students improved their reading while receiving Title I services, other students made equal or greater progress in their normal progression through fourth grade. So, despite the intervention, fourth graders receiving Title I services still lagged far behind the average when they entered fifth grade. Other grades showed the same lack of progress in Title I programs, relative to other students.

Title I students did not catch up academically to other students in their grade.

As discussed in Chapter 2, the remedial services funded through Title I have not been effective at the national level. On average, Title I students have not caught up to more advantaged students and have done no better than similarly disadvantaged students who were not in a Title I program. Our data show that Minnesota has been no different from the rest of the nation in this regard.

Explaining Variation in Title I Programs

Although Minnesota's Title I program has been no more successful than the national program, some Minnesota schools have reported better results than others. By analyzing differences among schools we hoped to learn what might contribute to a more successful remedial program. We examined the relationship between the average test scores of third graders in Title I and demographic information about the student populations of the schools and other school-related data. [3] Figure 4.1 shows the information we included in the analysis; all school and demographic data were for school year 1995-96. We also included several items from our survey of principals about their schools' remedial practices.

We found that:

- **School attendance was strongly related to average school pretest results in reading and math in programs funded by Title I.**

The average reading test NCEs of third graders were about 1.5 higher in a school for every percentage point higher rate of school attendance; results for mathematics were similar. These results do not prove, however, that schools' test scores will go up if their attendance rates improve, or that an individual student's test scores will go up with better attendance. We can only say that, on average, schools with better attendance had better test scores.

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2 Percentiles are equal to NCEs only at 1, 50, and 99.

3 We limited our analysis to third graders in Title I programs in schools with over ten students tested, leaving about 300 schools in the reading analysis and 260 schools in the mathematics analysis. The analysis estimated how much the average score might differ in schools with different levels of the other variables, but it could not tell us if there was a cause-and-effect relationship between the other variables and the average score.

Figure 4.1: Variables Used in the Analysis of Third-Grade Title I Scores and Basic Standards Test Results

Dependent Variables

Reading and mathematics scores in the 1995-96 school year (measured in normal curve equivalents or NCEs) of third-grade students in a federally funded Title I remedial education program—for both pretests and post-tests.

Average school scores and passing rates of students tested on 1996 and 1997 Minnesota Basic Standards Tests in mathematics and reading; and average scores in each school district.

Independent Variables (for 1995-96 school year, except test data)

At school level

- Year test taken
- School enrollment
- Number of students taking tests
- Percentage of enrollment taking a standards test
- Length of school year
- Length of school day
- Attendance rate (average attendance as a percentage of enrollment)
- Percentage of students eligible for a free or reduced-price lunch (a measure of income or poverty)
- Percentage of students with a disability or special education plan
- Percentage of students by race (Black, Asian, American Indian)
- School in Minneapolis or St. Paul
- School is a senior high school (to partly account for 9th to 12th graders taking the test)

At district level

- Year test taken
- Enrollment of schools in district
- Number of students taking tests
- Average length of school year for schools in district
- Average length of school day for schools in district
- Student mobility rate (ratio of mid-year transfers to initial enrollment)
- Student dropout rate (excluding alternative schools)
- Student-teacher ratio
- Per pupil expenditures (excluding capital or construction expenditures)
- Attendance rate
- Percentage of students eligible for a free or reduced-price lunch
- Percentage of students with a disability or special education plan
- Percentage of students by race
- Percentage of students receiving services for limited-English proficiency
- Minneapolis or St. Paul district

SOURCE: Department of Children, Families & Learning.

Also, the greater the percentage of students in the school who were Asian or black, the lower the reading test scores; a school with 10 percent more in either group of minority students had a drop of 2 NCEs. Schools with higher percentages of black students also had slightly lower mathematics scores. The percentage of students eligible for a free or reduced-priced lunch was not significantly related to the Title I test scores.

To examine progress in third-grade remedial programs, we analyzed the average school scores at the end of the remedial effort in relation to the initial test scores and other variables. We found that:

Students who entered remedial programs at higher achievement levels progressed faster than the lowest-achieving students.

- **Schools with students who started at a higher level of achievement tended to make more progress during the year in reading and mathematics.**

The post-test reading and mathematics scores were most strongly related to the pretest scores, among the variables in our analysis. That is, much of the variation among schools in the progress of students in Title I programs can be traced to differences in the pre-existing level of achievement of students when they entered the programs. This result shows, too, that remedial intervention can widen the gap between students at different achievement levels. Schools with higher percentages of Asian students made slightly more reading progress than other schools. In mathematics, schools with higher percentages of black students made slightly less progress, but schools with a higher percentage of students with a disability made slightly more progress. The percentage of students in a school eligible for a subsidized lunch was not related to progress in either mathematics or reading.

Schools with higher reading levels on the Title I pretest also had higher scores on the final mathematics test, suggesting that higher reading ability may lead to higher mathematics performance. However, initial mathematics scores did not help predict final reading scores.

MINNESOTA BASIC STANDARDS TEST RESULTS

Students expecting to graduate from high school in 2000 or after must pass the Minnesota Basic Standards Tests in reading and mathematics. These tests are designed to be at about the eighth-grade level of skills, and eighth graders are the first to take the test. Students in higher grades are required to take the tests if they failed them earlier or if they are new to Minnesota. Minnesota schools first administered the tests in 1996 and again in 1997. About 79,000 public school students took the tests in 1997, up from 63,000 in 1996. The passing rates for eighth graders in 1996, when the passing threshold was at 70 percent, were 63 percent in reading and 76 percent in mathematics. In 1997, with the passing threshold raised to 75 percent, the passing rates for eighth graders

were 59 percent in reading and 70 percent in mathematics. Information about the tests is shown in Table 4.2.

Table 4.2: Minnesota Basic Standards Test Results for Public Schools, 1997

	Students Tested	Students Enrolled	Percent Passing Reading	Percent Passing Mathematics
Grade 8	50,386	65,366	59%	70%
Grades 9-12	28,643	252,186	43	45
All Grades	79,029	317,552	53	62

NOTES: Most school districts begin testing in grade 8. Grades 9-12 include students retesting, transferring from outside Minnesota, or in districts that delay testing.

SOURCE: Department of Children, Families & Learning.

The basic skills test can help identify students who need remediation.

Although the Minnesota Basic Standards Tests are not remedial tests, they, too, can tell us about the effectiveness of the state's educational programs and help identify the students who need remediation. These test data are better suited to analysis than Title I test data because the basic standards tests cover most students in the eighth grade, not a small, selected group of remedial students, and the data on school characteristics match up more closely with the basic standards test results for a school than with Title I test data. [4]

We focused on the relationship between the average test scores in public schools and demographic or school-related data—the same types of data used for analysis of Title I tests. Because some data, such as expenditures, were only available at the district level, we also looked at the relationship between average test scores in districts and other district-level data. Finally, we examined how the average score and the passing threshold combined to affect the passing rate. In contrast to the Title I data, scores on the basic standards test are actual test scores, not NCEs.

Analysis of Reading and Mathematics Tests

We found that:

4 We excluded charter schools and those alternative schools or area learning centers that met the following criteria: attendance rate below 70 percent; 1997 average reading score be low 45; or more than 30 percent of students in special education or disabled. That is, we excluded the schools that specialized in students with the most difficult learning or behavior problems because they would have distorted the analysis and given an unrepresentative picture of the normal range of student achievement in schools. This left about 530 public schools in our analysis of 1997 test results, representing almost 75,000 students. (We also excluded some schools because of mis sing or faulty school or demographic data.) See Appendix for more detail on the analysis.

- **Average scores on the 1997 Minnesota Basic Standards Tests in reading and mathematics were strongly related to school and district attendance rates.**

Average scores on the basic skills tests were highly related to school attendance.

For every percentage point higher attendance rate, the average school reading and mathematics scores were about 0.8 points higher. These results echo our finding on attendance for Title I pretest scores. For every percentage point higher rate of students eligible for a free or reduced-price lunch, average school reading and mathematics scores were about 0.1 points lower. Thus, attendance had a much stronger relationship than poverty to average test scores. In fact, attendance had the strongest relationship with average scores of any of the variables that we examined. These results do not prove, however, that if a school's attendance or poverty rate changes, the school's average test scores, or the score of any particular student, will necessarily change. A school's attendance rate may depend on several underlying factors, including the attitude and motivation of students and their parents, conditions in the school, attendance policies, transportation, student health, and weather. At most, our results suggest that it might be worth trying to increase attendance as a means to improve test scores.

The percentage of students who were Asian was also negatively related to average reading and mathematics scores, presumably because of language difficulties. The percentage of students who were black had a weak negative relationship with average mathematics scores, but not with reading scores. Other significant variables at the school level were the percentage of school enrollment taking the test, which had a positive relationship with average score, and school level (high schools had lower scores on average). The variables in the analysis explained about half of the variation in average reading and mathematics scores among schools.

At the district level, higher student mobility had a weak positive relationship with reading scores, whereas the percentage of students who were American Indian and the dropout rate were related somewhat negatively to average scores. The analysis also showed that the student-teacher ratio and the per pupil expenditures at the district level did not have a detectable relationship to district reading scores. This finding about expenditures is consistent with most prior research on the subject, as reviewed in Chapter 2. Also, the average lengths of the school year and school day were not significantly related to achievement—the same result found in most educational research.

Because of the concentration of poverty and minority students in Minneapolis and St. Paul schools, we did a separate analysis of eighth-grade test results in these schools. The analysis showed also that:

- **For schools in Minneapolis and St. Paul, attendance rate had a strong positive relationship with average reading and mathematics scores on the 1997 basic standards tests.**

The percentage of students eligible for subsidized lunch and the percentage of students with limited-English proficiency had strong negative relationships with reading scores. These two variables, together with attendance, explained 87 percent of the variation in average reading scores among schools. While attendance had the same strength of relationship to test scores in Minneapolis and St. Paul schools as in our statewide analysis, student poverty had a stronger relationship to scores in Minneapolis and St. Paul than in our statewide analysis. For the mathematics test, the percentage of students with a disability also had a negative relationship with school test results. None of the variables related to race was significantly related to school-level performance.

The racial composition of schools had little bearing on school test scores in 1997.

In an earlier analysis of the first Minnesota Basic Standards Test in 1996, Professor Samuel Myers, Jr. of the Humphrey Institute, University of Minnesota, reported a large gap between minority students and white students in test performance statewide—a gap that apparently could not be explained by individual or school poverty or other variables in his analysis. [5] Myers did report a positive relationship between attendance and performance, however, as seen in our analysis. We, too, analyzed 1996 test data and found a relationship between average test scores and race, similar to Myers's finding. Our analysis showed, however, that:

- **Attendance, and to a lesser degree, poverty, were much more important than race in explaining results from the 1997 Minnesota Basic Standards Tests.**

In 1997, there were significant negative associations between attendance and the percentages of students of different minority races; the percentage of black students had the largest negative relationship with attendance. When we compared schools with the same attendance rates, however, we found very little, if any, relationship between the percentages of minority students and average school test scores. In Minneapolis and St. Paul schools, only the percentage of Asian students had a weak, negative relationship with test scores when schools with the same attendance rates were compared.

The 1996 and 1997 tests were very different in the numbers of students taking them, which might account for different statistical results for the two years. The 1997 tests were taken by 79,000 students (90 percent of whom were represented in our analysis at the school level), compared with 63,000 in 1996 and 49,000 in Myers's analysis of eighth graders who took the test in 1996. It is likely that the strong association of test scores with race in 1996 was an artifact of the first year of testing or of which students were selected to take the tests that year. The 1997 results may also change in future years, as the basic skills tests become more routine in schools.

5 Samuel Myers, Jr., *An Analysis of the 1996 Minnesota Basic Skills Test Scores*, Humphrey Institute of Public Affairs (Minneapolis: University of Minnesota, March 1997).

Effect of the Passing Threshold

We examined the relationship between the passing rate and the passing threshold and found that:

- **The threshold set for passing the basic standards tests strongly affected the rate of students passing .**

We analyzed the relationship between a school's average reading or mathematics score and the percentage of students passing the tests. Our analysis estimated that the percentage of students passing in a school would change twice as fast as a change in their average score. This also means that the attendance rate, which had a strong relationship to average score, had about twice as strong a relationship with the passing rate in 1997 as with the average score. Two schools with a 3 percentage point difference in attendance rate in 1997, for example, would have had, on average, a difference of about 5 percent passing the reading test and 6 percent passing the mathematics test, other things being equal.

EFFECTIVE REMEDIAL PROGRAMS IN MINNESOTA

In general, we found that:

- **Schools, especially elementary schools with higher rates of student poverty, have responded to the needs of remedial students, although schools' overall measurable results have usually been small.**

Few elementary schools used remedial reading programs of proven effectiveness.

Our analysis showed that none of the remedial practices identified in the survey had a substantial and broad effect on student achievement across the state. The lack of effectiveness of current practices was partly the result of the infrequency with which proven methods were being used.

Our analysis found that:

- **At most, 10 to 20 percent of elementary schools were using remedial reading programs of proven effectiveness.**

According to our review of the research literature, two of the remedial reading programs being tried in the state have a proven record of effectiveness: Reading Recovery and Success for All. Yet our survey results, weighted to reflect statewide numbers, showed that only about 11 percent of elementary schools were using either of these programs. Another 10 percent of schools were using other proprietary reading programs, but we did not have sufficient information to judge their effectiveness. Even where Reading Recovery,

Success for All, or other programs were used, however, the programs may not have been fully implemented as designed.

Our research also showed that:

- **Several practices that are likely to have a positive effect on achievement were being used fairly widely in schools.**

We examined average school scores on the basic skills tests in relation to remedial practices identified on our survey, while taking into account other variables, such as the school's attendance and poverty rates. Schools reporting a higher percentage of students in classes with instructional aides in regular classrooms had slightly higher average scores on the basic standards tests, as did schools that gave their students practice tests. We found that 52 percent of schools had instructional aides serving half or more of the low-achieving students, and practice tests were given in 81 percent of schools that had students who failed the basic standards tests. Among schools with a majority of students failing the basic standards test in reading, 56 percent were offering a summer remedial program compared with 45 percent where the majority of students passed the test. Schools where more students chose not to participate in the remedial program had slightly lower reading scores on the basic standards tests.

Many schools have implemented practices to increase achievement, but results have been limited.

At the elementary level, extra instructional time was "strongly" emphasized in 35 percent of the schools in our survey. Our analysis found that this practice was positively related to the reading progress of third-grade students receiving Title I services. Schools that had a Reading Recovery program also had a positive relationship with reading progress in Title I programs. There were too few schools in the survey that used Success for All or other reading programs, however, to do a statistical analysis of their effectiveness.

- **Many schools were also working to improve attendance—a policy that our research supports—although our analysis does not prove a cause-and-effect link between attendance and achievement.**

The survey showed that about half of schools had incentives for good attendance, almost all schools called parents or sent them letters about attendance problems, and about 60 percent of elementary and middle schools made home visits when there were attendance problems. Strategies for dealing with attendance problems were less frequent, however, at the secondary level. As reported on our survey, a typical attendance policy at the secondary level was that a student who had about seven to ten absences in a semester might lose credit for courses and have to repeat them. For students

under 16 years of age, three unexcused absences in a school year may lead to a student being identified as a "continuing truant" [6] and seven unexcused absences may lead to a court petition for habitual truancy. [7] In a notable example of a response to an attendance problem, the St. Paul School District voted in 1997 to spend up to $500,000 on staff and programs to increase attendance at all school levels. St. Paul had recently discovered that about 40 percent of students had missed at least 15 days of school in the 1995-96 school year.[8]

In contrast to the findings of national research, we observed that:

- **Although many schools, especially elementary schools, reported that they gave individual tutoring to low-achieving students, we did not find evidence of effectiveness for tutoring among students receiving Title I services or taking the basic skills tests.**

The tutoring that schools have given remedial students did not seem to be effective.

This finding seems to contradict the national research cited earlier on the effectiveness of tutoring. It may be that the tutoring offered students was too limited to affect their performance. The survey did not ask about the amount of tutoring students received.

Ineffective tutoring might also be due to the fact that schools generally used instructional aides rather than licensed teachers for one-on-one tutoring, and these aides may have needed more training and supervision. A 1997 survey by the Department of Children, Families & Learning of over 1,800 paraprofessionals in schools throughout the state found that 80 percent of remedial education aides reported having neither certification as a paraprofessional nor licensure to work in education—49 percent reported no degrees beyond a high school diploma or its equivalent. [9] Moreover, only 39 percent of remedial paraprofessionals reported that they had any non-student contact planning time with licensed staff, even though about half of remedial aides reported that their typical activities included designing and preparing student instructional activities, modifying or adapting classroom curriculum, and designing individualized instructional plans for students.

We also found that:

- **According to national research, some of the programs widely used in Minnesota have not been proven to be effective.**

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6 *Minn. Stat*. §260A.02, subd. 3. The Legislature also allows school districts to establish a school attendance review board to oversee referrals of truant students (*Minn. Stat*. §260A.05) and permits county attorneys to have a truancy mediation program (*Minn. Stat*. §260A.07).

7 *Minn. Stat*. §260.015, subd. 19.

8 Maureen Smith, "St. Paul Schools Decide How to Spend Attendance Money," *Star Tribune*, October 21, 1997, B5.

9 Minnesota Department of Children, Families & Learning, *Characteristics and Training Needs of Paraprofessionals in Minnesota,* (St. Paul, March 1997).

For example, computer-assisted instruction is widely used in Minnesota schools but has not shown consistent effectiveness in national research. Our analysis, too, showed that it can have a negative relationship with achievement. Schools that reported a greater percentage of their students in computer-assisted instructional labs showed a negative relationship with reading progress in their Title I programs. Yet our survey found that in 37 percent of schools (weighted to the actual population), half or more of the remedial students were using computer labs.

Another mark against current remedial practices is that:

- **There was no relationship at the school level between the percentage of students failing the basic standards tests in reading and mathematics and the percentage of students who received remedial services.**

This suggests that schools might not have been providing remedial services to some of the students who needed it most. One might expect that schools with higher percentages of students failing the tests would have higher percentages of students receiving remedial services.

Schools may not have provided remedial services to students who needed it most.

RECOMMENDATIONS

Remedial education is both a state and local responsibility. As we discussed in Chapter 1, the state and federal governments have long provided extra funds to school districts to help low-achieving students, usually based upon some measure of student poverty. However, there has generally been no state requirement to provide remediation to students, no state definition of who must receive such help, and no consistent measure of achievement to identify low-achieving students.

When the Title I program was created in 1965, and the state's forerunner of compensatory revenue in 1971, public policy assumed that poor, disadvantaged students needed an infusion of money to bring them up to the level of their peers who had the normal advantages of life. What disadvantaged students needed, supposedly, was *compensatory* education, not necessarily remedial education. However, the compensatory programs were never directed solely at low-income students, but rather at low-achieving students. Thus, federal and state aid for compensatory and remedial education became strongly linked to the level of student poverty in the school or district.

Although schools are supposed to use remedial education revenue to increase student achievement, schools and districts do not receive remedial funds based on a direct measure of student achievement. Currently, most remedial aid, both state and federal, is based on a measure of poverty; that is, the percentage of students who are eligible to receive a subsidized lunch. Our analysis showed that this measure of poverty had, at most, a moderate, negative

relationship with student achievement, as measured by average Title I and Minnesota Basic Standards Tests scores.

Furthermore, we did not find a strong relationship between poverty and participation in remedial programs. In elementary and middle schools, only 25 percent of the variation in the percentage of students who were receiving remedial services was related to the level of student poverty in schools. The link between poverty and remedial students dropped to 4 percent in secondary schools.

Finally, for schools administering the Minnesota Basic Standards Tests, we found no relationship between student participation in remedial programs and student achievement, as measured by average test scores or passing rates. Schools with low passing rates on the basic skills tests did not tend to provide remedial services to a greater percentage of their enrollment than schools with higher passing rates.

Taken together, the overall lack of strong relationships between poverty, participation, and achievement suggest that, if revenue for remediation is allocated strictly in terms of student poverty at the building level, particularly at the secondary level, schools may not receive remedial revenue in proportion to their students' needs, as currently identified. Therefore, we recommend that:

- **Working with the Department of Children, Families & Learning, the Legislature should consider distributing some portion of remedial funds based upon measures of student need for remediation rather than poverty.**

This might be done by means of standardized achievement tests, such as those planned under the state's new education accountability system. The 1997 Legislature directed the Department of Children, Families & Learning to develop a statewide testing and reporting system that includes testing all third, fifth, and eighth graders annually. [10] The department expects to begin testing third and fifth graders in February and March of 1998 using the Minnesota Comprehensive Assessment Test, which will measure student progress along state standards. Thus, consistent statewide data will be available to help identify how many students from third grade up may need remediation.

Allocating funds solely based on the level of poverty may not target those needing remediation.

Standard, statewide information on eighth-grade students' achievement is already partially available. Most schools gave the Minnesota Basic Skills Tests to their eighth-grade students in 1997 as a condition of graduation, and all schools will be required to use these tests in the future. [11] Legislation adopted in 1997 requires that all eighth graders be tested using the state's own basic skills tests. However, there is no state requirement to provide

10 Minn. Laws (1997), ch. 138.

11 State rules permit districts, with the approval of the Department of Children, Families & Learning, to develop their own tests, or use commercial standardized tests or the state's basic skills tests to meet the state's graduation rule.

remediation to students currently not passing the Minnesota Basic Standards Tests or to students who are performing below standard on the Minnesota Comprehensive Assessment Tests. State Board of Education rules require that districts develop remediation plans for students who have failed one or more of the basic skills tests at least two years before their anticipated graduation date.[12] However, students are not required to participate in remediation, nor is the district required to intervene as soon as it becomes obvious that a student is having problems.

According to a recent report by the American Federation of Teachers, few states require and specifically fund remedial programs to help low-achieving students reach state standards. [13] As shown in Figure 4.2, 18 states require that schools provide low-achieving students with remedial help; 10 of these states provide funds specifically for that purpose. For example, Indiana funds a four-tiered remedial program that is required of all districts and schools.

Many states, but not Minnesota, mandate remedial help for failing students.

Figure 4.2: States That Require Remediation for Students Not Meeting State Standards

Alabama	North Carolina
Arkansas	Ohio
District of Columbia	Oklahoma
Florida	Oregon
Indiana	South Carolina
Kentucky	Texas
Massachusetts	Virginia
Nevada	West Virginia
New York	Wisconsin

SOURCE: American Federation of Teachers, *Making Standards Matter* (Washington D.C., 1997).

Students who score in tiers one and two (both below the passing standard on statewide assessments) are required to participate in remedial programs. Students in tiers three and four, which are slightly below and slightly above the passing threshold, are eligible for state-funded assistance, but schools and students do not have to participate. The state's funding formula directs the bulk of state funds to schools with the most students scoring in tiers one and two. Schools must apply to the state for funds for students in the higher tiers. In contrast, Louisiana simply requires districts to provide remediation to students who fail any of the state assessments, and the state provides oversight, funding, and technical assistance.

It is difficult to estimate at this time how school districts and schools might be affected if more aid was given out on the basis of need. We found a closer relationship between student poverty and the number of students who needed

12 Minn. Rules §3501.0110.

13 American Federation of Teachers, *Making Standards Matter,* 1997.

remedial services at the district level than at the school level. We estimated that about 75 percent of the variation in the number of remedial students in districts was accounted for by the number of poor students in the district. Also, at the district level, we found that about 66 percent of the variation in remedial education revenue was related to the number of remedial students in the district, as estimated from our survey, compared with a 97 percent association between funding and the number of poor students. This suggests that part of the disconnection between funding, poverty, and remedial students that we see at the school level may begin at the district level with an additional disconnection occurring between the district and individual schools in the district. So, a reallocation of funds may have more impact on individual schools than on districts. Until there is a standard method of identifying students in need of remediation, however, it is impossible to say more about how our recommendation might affect funding. Because any method of awarding funds has possibilities for manipulation, it is also important to consider whether a new funding criterion might lead to unintended or adverse results. Also, because students will not be tested statewide until the third grade, remedial aid for some students will still need to be based upon alternate measures of need.

It should be noted that the Department of Children, Families & Learning is currently examining various ways to link performance and funding. The 1997 Legislature directed that the department, in consultation with the State Board of Education and other stakeholders, recommend to the Legislature performance funding options for successful and at-risk schools, to be implemented during the 1999-2000 school year. [14]

The state should monitor schools' remedial efforts and effectiveness.

Regardless of how districts or schools receive remedial education funds, the money must be spent effectively if the state hopes to raise the academic achievement of students performing below grade-level standards. As we saw from our survey of principals, some schools, especially elementary schools with higher rates of student poverty, have been responding to the needs of low-achieving students by using remedial methods that have been proven effective elsewhere. About half or more of remedial students in elementary schools received individual tutoring during the last school year, and a small number of schools used effective proprietary reading programs. However, more remains to be done statewide. Thus, we recommend that:

- **The Department of Children, Families & Learning should use its new education accountability system to monitor and report on schools' efforts to ensure that all students are meeting grade-level standards.**

Our evaluation did not examine the Department of Children, Families & Learning's role in assuring that schools identify low-achieving students and provide them with effective remedial services. However, with the advent of the state's new education accountability system, the department will be in a

14 Minn. Laws (First Special Session, 1997), ch. 4, art. 5, sec. 25.

unique position not only to track school performance, but also to identify schools that are making better or worse than expected progress in having all students performing at grade-level standards. The department should be able to use these data to encourage schools to adopt promising remedial methods.

Finally, we recommend that:

- **Whenever possible, schools should adopt remedial methods that have proven to be effective elsewhere rather than use locally-developed strategies of unknown effectiveness.**

Schools should adopt research-proven remedial programs.

Chapter 2 reviews several strategies and methods that have been shown to be effective nationwide. Some examples include one-on-one tutoring, smaller class sizes, Comer reform model, and some proprietary programs such as Success for All, Reading Recovery, and Direct Instruction, all of which have shown positive results nationwide. Regardless of the model or strategy chosen, schools should routinely evaluate their remedial programs to ensure that low-achieving students are making academic progress that would not occur without the specific remedial intervention. We encourage the Department of Children, Families & Learning to provide technical assistance to schools to help them judge the merits of various remedial strategies that have been shown to be effective elsewhere and to help schools implement those that seem appropriate. Also, the department should help schools routinely evaluate the effectiveness of their remedial programs.

We do not think it is necessary to provide increased funding for remedial programs to encourage greater use of proven remedial methods. As we pointed out in Chapter 1, districts already receive most remedial revenue with few strings attached. Adopting proven methods of remediation and discarding unproven or ineffective methods are possible within current funding levels. As noted earlier in this chapter, 10 to 20 percent of elementary schools used some proprietary remedial packages during the 1996-97 school year, and, according to our survey, another 10 percent of schools planned to implement such programs during the 1997-98 school year.

Additional funding may not be needed.

Also, in a step to improve reading instruction, the Legislature started a small grant program in 1997 that encourages schools to adopt research-proven reading programs and to train teachers to help K-3 students who are having difficulties learning to read. [15] The Department of Children, Families & Learning sent requests for proposals to schools in Fall 1997 and expects to fund reading programs in 10 to 15 schools, for a total of $500,000 during the 1998-99 school year. Districts with higher percentages of students eligible for subsidized lunch have a higher priority for the awards. The school applying for a grant must present evidence of the effectiveness of the proposed reading program. Reading Recovery, Success for All, and similar programs are potentially eligible for funding.

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15 Minn. Laws (First Special Session, 1997), ch. 4, art. 5, sec. 28, subd. 16.

Finally, our study, as well as other recent reports on school districts' use of compensatory revenue, have pointed out the wide array of activities for which school districts may spend remedial revenue. Our review of the literature suggests that the list of activities may be excessively broad, especially at the elementary level where considerable research has already been done on effective remedial programs. However, because less is known about the effectiveness of various remedial strategies for older students, we think that it may be difficult for the Legislature to mandate specific remedial services or programs for all grade levels. At the same time, if the Department of Children, Families & Learning uses its new education accountability system to monitor and report on schools' progress in assuring that all students are meeting state standards, school districts will be under greater pressure to adopt proven methods of remediation and discard unproven ones.

SUMMARY

In this chapter, we found that the school attendance rate had a consistent and strongly positive relationship with average school test scores for Title I and the Minnesota Basic Standards Tests—attendance was more strongly related to student performance on test scores than the level of student poverty in a school. Once attendance and poverty were accounted for, we did not find a substantial relationship between the percentages of students of minority races in a school and average school achievement levels. The impact of attendance stands in sharp contrast to our finding that the amount of district spending per pupil had no detectable relationship with achievement. Our results do not prove, however, that a school's test scores will necessarily go up if attendance increases; that would take further research to determine.

We also compared reading and mathematics test scores of Title I elementary students in remedial programs in Minnesota with the national average and concluded that Title I-funded services were not successfully closing the achievement gap in Minnesota. In this respect, Minnesota is no different than the rest of the nation. Although Minnesota schools were trying a variety of practices to improve reading and mathematics performance among low-achieving students, the practices most likely to be successful were not being used widely enough to have a substantial impact on the problem statewide. Furthermore, despite a high student failure rate on the Minnesota Basic Standards Tests, schools, especially middle and secondary schools, were not doing enough to identify and help failing students.

Although federal and state policy use poverty as the main criterion for directing funds toward remedial education, our analysis suggests that this may not the best criterion to use. We found a moderate connection between student poverty and low achievement, as measured by test scores, and even less of a connection between poverty and the number of students receiving remedial services, as indicated on our survey. A better criterion for channeling some financial aid to remedial students may be their scores on statewide standardized tests, perhaps those that will be required as part of the state's new

education accountability system. A change in the method of distributing funds may be especially critical given the large percentage of older students who are failing the state's basic standards tests.

Statistical Model for School Scores on the Minnesota Basic Standards Test in Reading

APPENDIX

The following tables show technical details of our analysis of the relationship between average school scores on the 1997 Minnesota Basic Standards Test in reading and demographic and school-related variables, as discussed in Chapter 4. We report first the correlations among the variables, then the regression model, which shows the independent relationship of each variable to the reading score when all the variables are considered simultaneously. Only the variables that we found to be related to reading scores in the regression analysis are shown.

Table A.1: Correlations (and Significance Levels) of Variables in the Regression Model

	Average Score	Percent Taking Test	Percent Asian	Attendance Rate	Percent with Subsidized Lunch
Average Score		.358 (<.001)	-.323 (<.001)	.550 (<.001)	-.367 (<.001)
Percent Taking Test	.358 (<.001)		.137 (.001)	.058 (.090)	.035 (.210)
Percent Asian	-.323 (<.001)	.137 (.001)		-.374 (<.001)	.408 (<.001)
Attendance Rate	.550 (<.001)	.058 (.090)	-.374 (<.001)		-.381 (<.001)
Percent with Subsidized Lunch	-.367 (<.001)	.035 (.210)	.408 (<.001)	-.381 <.(001)	

NOTE: *N* = 532 schools.

SOURCE: Office of the Legislative Auditor.

Table A.2: The Regression Model for Average 1997 School Score for the Minnesota Basic Standards Test in Reading

Variable	Coefficient B	95% Confidence Interval for B	Beta	Significance of B	Mean of Variable	Standard Deviation of Variable
Attendance Rate (%)	0.83	(0.67, 1.00)	0.36	<.0001	94	3.1
Percent Subsidized Lunch	-0.095	(-0.13, -0.063)	-0.22	<.0001	26	16
Percent Asian	-0.16	(-0.25, -.073)	-0.13	.0004	2.8	5.6
Percent Taking Test	0.15	(0.12, 0.19)	0.30	<. 0001	22	14
High School	-0.90	(-1.3, -0.50)	-0.17	<.0001	0.74	1.3
Constant	-7.4	(-23, 8.5)		.36		

NOTES: The regression coefficient B estimates how much the average score will differ amo ng schools with a difference of one unit of the independent variable, regardless of the values of the other independent variables. The confidence interval is an estimate of the size of an interval of B values that would include the true value of the coefficient 95 per cent of the time if this analysis were repeated in successive years and the same model applied. Beta is an estimate of how much the standard d eviation of the average score would differ in schools that have a difference of one standard deviation on the independent vari able. The significance level is the probability that the regression coefficient is not equal to zero and, therefore, is statistically sig nificant. The mean and standard deviations de - scribe the population of schools in the analysis. The high school variable is a dummy variabl e, which equals 3 for high schools, but otherwise is zero. The following statistical measures describe how well the model fits th e data, as a whole: F = 98.2, significance of F <.0001, coefficient of determination (explained variation) = 0.48, standard error = 5. 0, and *N* = 532 schools. Average reading score is 70.5 with standard deviation 7.0.

SOURCE: Office of the Legislative Auditor.

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Children, Families & Learning

January 13, 1998

Jim Nobles
Legislative Auditor
State of Minnesota
St. Paul, Minnesota 55101

Dear Mr. Nobles:

Thank you for providing Department of Children, Families & Learning staff the opportunity to read and comment on the Remedial Education evaluation report. We found the report very informative. We would, however, like to make several suggestions.

Broader Context

As you indicate in the introduction to your report, you limited the scope of your evaluation to remedial education in grades K-12. You also defined remedial education as all strategies, programs, and services that schools routinely used to bring low-achieving students' academic performance closer to standards for their grade in school. In so doing, the following should be considered:

- The primary source of services for all students, including low-achieving students, is the regular instructional program. The Title I, Assurance of Mastery, and State Compensatory Education revenue included in your evaluation must be used to supplement the regular instructional program. There can be no "Title I reading or AOM reading", only supplemental services, reading or otherwise, that are well coordinated with and designed to enhance the regular reading program. No remedial service in and of itself, however good, can overcome deficiencies in the regular instructional program. Remedial services are only as good as the educational system they support.

  As a result of a growing body of research, the 1994 reauthorization of Title I encourages system reform through the concept of schoolwide projects rather than the isolated remedial services previously connected to compensatory education. Minnesota's efforts towards systemic educational reform are embodied in the graduation standards, profile of learning and aligned assessments. These efforts strongly suggest that while we want to have districts adopt effective remedial

techniques the majority of our efforts must be directed toward improving the regular educational program for all students.

- The value of *early intervention services* (pre-school) designed to prevent school failure is well established. One of the revenue sources included in your evaluation, First Grade Preparedness Grants, is intended for such services, while other revenue sources included in the evaluation could and are being used for early intervention services. However, because you limited the scope of your evaluation to K-12, you were not able to determine the effectiveness of pre-school services.

- The two largest revenue sources you cited in your study (Title I and Compensatory Education) are both compensatory in nature and allow services beyond direct instruction to students. Your study did not explore the value of services such as staff development, parent involvement and family literacy.

- In addition to the remedial programs included in the study, students with disabilities receiving special education services are not included in your study. Therefore, the total number of students receiving support services in basic skills is actually larger than reported in the study.

Recommendations

We have two concerns with your recommendation that some portion of "remedial/compensatory" funds be distributed based on measures of student need:

- First, we believe targeting funds based on direct measures of academic need would be a disincentive for high achievement and would likely be inconsistent with Minnesota's evolving school accountability system. This would be especially true if some form of performance-based funding were to be adopted. Such a model could provide added revenue along with increased flexibility as incentives for improved student performance.

- Second, because coesistent measures of achievement will be available only at grades three, five, eight and some time in high school, we are concerned that needs-based targeting could shift funds away from early intervention and toward remediation in lataer grades. As you note in you report, supplemental services provided at the primary grade levels are more effective. Delaying intervention until evidence of low academic achievement is provided by results from the State 3rd-grade tests would not be consistent with your findings regarding the value of early intervention.

We agree with your recommendation regarding accountability and have been working to implement such a system for Minnesota. We also agree with your final recommendation regarding the adoption of proven strategies, and are pleased to see that you have given attention to systemic reform strategies, rather than isolated remedial instructional techniques. As you note in your report, there were 10 to 20 percent of elementary schools

using remedial practices of proven effectiveness during SY 1996-97; we are encouraged by this finding and plan to promote these schools as models for other schools applying for federal funds under the Comprehensive School Reform Act. As the State's school accountability model evolves, the Department of Children, Families and Learning will use data from this model to identify and assist schools with large numbers of students who fail to make progress towards achieving the State's high standards.

Again, thank you for conducting this evaluation.

Sincerely,

Robert J. Wedl, Commissioner
Department of Children, Families & Learning

Recent Program Evaluations

Lawful Gambling, January 1990	90-01
Local Government Lobbying, February 1990	90-02
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